Infinite Solutions Guidebook

Financing the energy renovation of residential buildings through soft loans and third-party investment schemes

infinitesolutions
FINANCING ENERGY TRANSITION IN CITIES

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This guidebook has been developed by Energy Cities as part of the Infinite Solutions project.

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Foreword

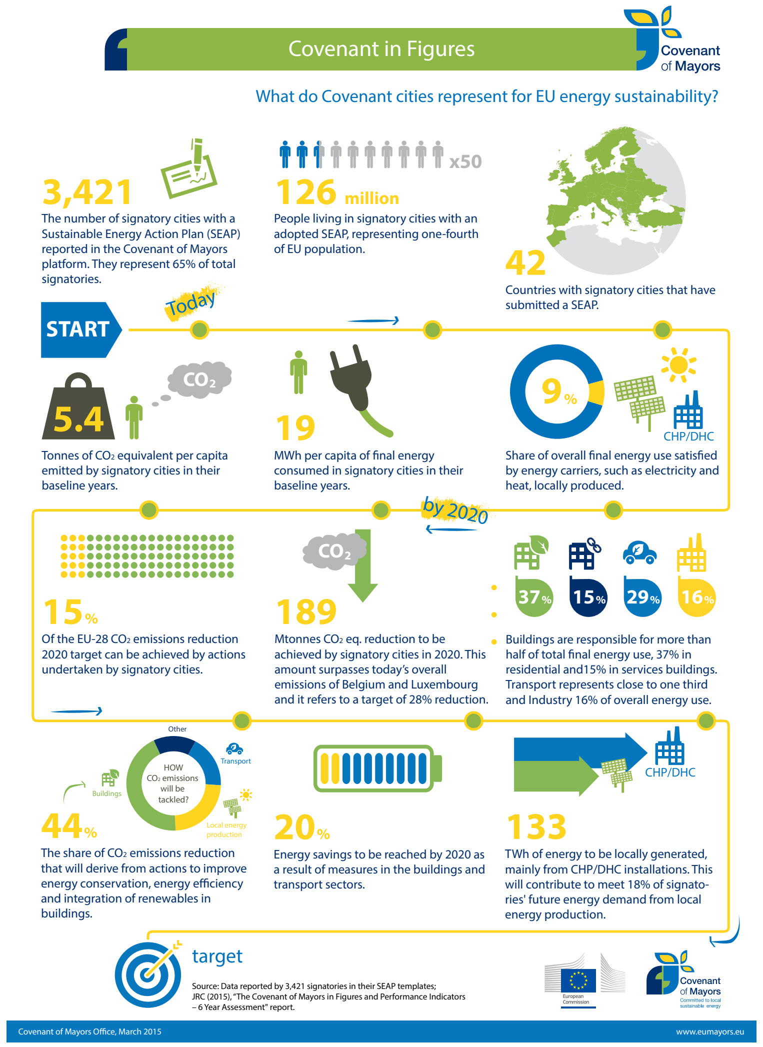
REVOLVING FUND AND SOFT LOANS

The residential sector: a huge potential for CO_2 savings but difficult to deal with

A growing number of European cities and regions share the vision of a low energy city with a high quality of life for all. They voluntarily commit to ambitious energy and climate objectives and design local sustainable energy policies, strategies and action plans that guide their energy transition.

On average, the largest energy consumers in a city are **residential buildings (37%)**, followed by transport (29%), industry (16%) and tertiary buildings (15%). Public buildings, equipment and public lighting which are under the direct responsibility of local authorities represent only about 3% of final energy consumption[1].

There is a **huge potential for achieving energy savings and CO_2 reductions** in the residential sector. However, it is not the easiest sector to deal with.
First, it is not under the direct responsibility of local and regional authorities.



Source: Data reported by 3,421 signatories in their SEAP templates; JRC (2015), "The Covenant of Mayors in Figures and Performance Indicators – 6 Year Assessment» report. http://www.covenantofmayors.eu/IMG/pdf/Covenant_in_Figures_2015.pdf

Second, it faces a very complex set of **non-financial barriers** which include: citizens' low awareness of the benefits of energy retrofits; competing household priorities; and a lack of skills to carry out high quality global refurbishment with guaranteed energy savings. Indeed, most homeowners are 'non-professionals' when it comes to the field of energy refurbishment.
In the case of condominiums, joint decision-making and the interdependence of the financial capabilities of homeowners further complicate the whole process.
A third point is that the investment horizon goes beyond the decision horizon of private homeowners, as many of them expect to sell their property in the short to medium term.
Finally, we are talking about millions of individuals that will have to take a decision. The energy renovation process should be as easy and attractive as possible for them. This is not yet the case.

Moreover, energy renovation of residential buildings involves a **myriad of market actors** (construction companies, craftsmen, real estate agencies, financing institutions, consultants, energy auditors) who are not organised and coordinated to be able to offer an easy, global and guaranteed energy saving solution to homeowners.

These non-financial barriers interact with an important **financial barrier**. Financing the energy retrofitting of buildings is a great challenge. With investments ranging from €200 to €1,200 /m² (CITYnvest study, 2015), access to attractive and long-term financing is perceived as the primary barrier to carrying out ambitious energy retrofits, in particular those aiming at achieving 50-75% energy savings.

Cities and regions: trusted key actors

Such a non-exhaustive list of barriers would dissuade many from taking action. However, more and more local and regional authorities are taking up the challenge!

And they are actually in the most favourable position to do so as they know the best energy sources, people and buildings in their territories. Moreover, they are perceived as **trusted and legitimate** coordinators of housing retrofit programmes by homeowners and market actors.

Although cities and regions cannot impose local regulations that would oblige homeowners to proceed with energy retrofits of their dwellings, they do impose minimum energy efficiency and renewable energy integration standards that are more ambitious than those required by European and national laws (e.g. the Baden-Württemberg region in Germany).
At the same time, they **motivate and support homeowners** through the promotion of various tailor-made **financial incentives** such as grants, low interest (soft) loans, guarantees, energy supply or energy performance contracting and **non-financial incentives** such as independent technical assistance for energy retrofit planning, implementation and monitoring.

Innovative financing schemes: soft loans and third party investment

Among the front-runners, seven Energy Cities' members have developed innovative financing schemes, business models, organisational structures and partnerships to accelerate the energy retrofitting of their housing stock.

Bordeaux Metropole (France), Brussels Capital Region (Belgium), Parma (Italy), Riga (Latvia), Delft (The Netherlands) and Frederikshavn (Denmark) in partnership with 18 local banks and financing institutions have developed **soft loan** financing schemes. These are accompanied by non-financial incentives such as technical assistance for homeowners.

The city of Stuttgart (Germany) has developed **a 'care-free energy renovation package'** for homeowners. The package includes: planning, building and construction, operation and maintenance, financing, guarantee and risk assumption. Homeowners do not need to secure upfront financing for the replacement of their heating systems. This is done by a municipal ESCO to whom the homeowners pay a monthly service fee through an energy supply contracting scheme.

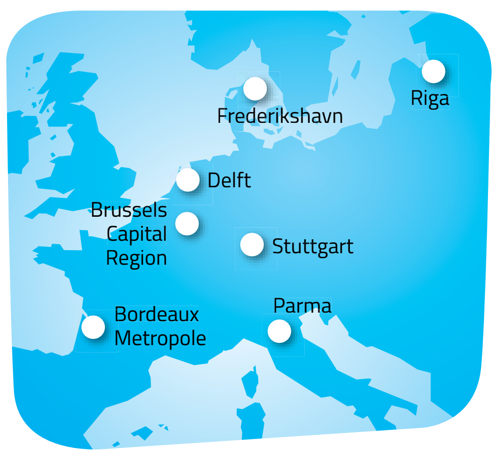
About this guidebook

In this guidebook, Energy Cities' members share their experience and guide you through the process of setting up a **soft loan financing scheme**. The Stuttgart's 'care-free energy renovation package' and third party investment scheme are described in detail in a dedicated **case study**.

The guidebook is intended for local and regional authorities, energy agencies and their associations, national energy agencies, ministries and fund managers, organisations providing training to cities & regions, banks and financing institutions. In short, all organisations and actors who could be interested in replicating these financing schemes or who could support cities and regions in doing so.

The guidebook consists of four chapters:
- **Chapter 1**: an introduction to soft loan schemes.
- **Chapter 2**: step-by-step guidance on how to build a soft loan financing scheme, including an overview of three already tested alternative business models.
- **Chapter 3**: summary and recommendations.
- **Chapter 4**: case studies, including Stuttgart's third party investment scheme.

We hope you will enjoy the read!



1/ Introduction to soft loan schemes

1.1 What is a soft loan for energy renovation work?

The basic principle of soft loans is to enable homeowners to borrow money to carry out energy-efficient renovation work in their homes at **lower interest rates** than standard market conditions. Soft loans provide access to more attractive financing. They are an **incentive for homeowners**.

Soft loans can also include **other advantages** such as:

- **Longer maturity** which allows homeowners to adjust the amount of monthly loan repayments according to their financial resources and, ideally, to take into account the financial savings achieved thanks to energy savings.
- **A longer grace period**, which gives homeowners an opportunity to accumulate financial savings through lower energy bills and start to reimburse the loan at a later stage.
- **Lower administrative and insurance costs** or zero early repayment costs.

1.2 Why a soft loan?

Because existing financing instruments are not sufficient or are inappropriate for homeowners

Financing of energy retrofit work is very costly. With investments ranging from €200 to €1,200 /m² (CITYnvest study, 2015), access to attractive and long-term financing is perceived as the primary barrier to carrying out ambitious energy retrofits, in particular those aimed at energy savings of 50-75%.

In most countries, homeowners can enjoy national, regional or local subsidies earmarked for the energy renovation of buildings, tax credits, deductions or exemptions, national 'low' or 0% interest loans and other incentives. All commercial banks offer financing through consumer loans or mortgages.

However, the combination of these financial sources is not sufficient or attractive enough for homeowners for the following reasons:

- **Subsidies** do not cover all the investment costs and are often designed for strictly defined measures. Besides, these subsidies are only reimbursed once the renovation work is completed and paid for. Here the main barrier is **upfront financing**.
- **Consumer loans** offered by commercial banks are too expensive, usually combining **high interest rates and short maturity periods** (e.g. the loan must be reimbursed within 5 – 10 years). The main barrier is the cost of the loan and the fact that energy renovation work has a long pay-back time of up to 15-20 years (and more), especially if the goal is to carry out extensive renovation.
- **Mortgages** offer long-term financing (20-30 years) and are more attractive, but they usually incur **high administrative costs** and the renovation work needs to be planned when buying the property to be included in the mortgage.

When homeowners take out loans to implement energy renovation measures, their energy bills decrease, thereby generating cash-flow and **increasing their ability to pay back the loan**. However, this fact is **not recognised and taken into account by the banks** and financing institutions when they evaluate the creditworthiness of homeowners. They are reluctant to disrupt their standard procedures, and usually, nobody is able to guarantee the actual amount of energy savings.

Banks are also reluctant to **take on the risk** of issuing attractive loans to low and very low income households.

Cities and regions in cooperation with local financing institutions can help to overcome these shortcomings by **developing soft loans** (and eventually other financial instruments) that are tailor-made for the needs of citizens in their respective territories. They can offer households an **opportunity to access financing sources suited to their needs**, investment capacity and ability to pay off a debt.

Do banks and local authorities speak the same language?
Banks issue loans and expect their clients to pay them back. In order to make sure this happens, banks are keen to reduce their risks. They check their clients' creditworthiness and assess the cost-effectiveness of their projects and investments. The bigger the loan and the greater the risk, the stricter is the assessment and the higher the interest rate. This is why loans for low and medium income households are often very expensive.

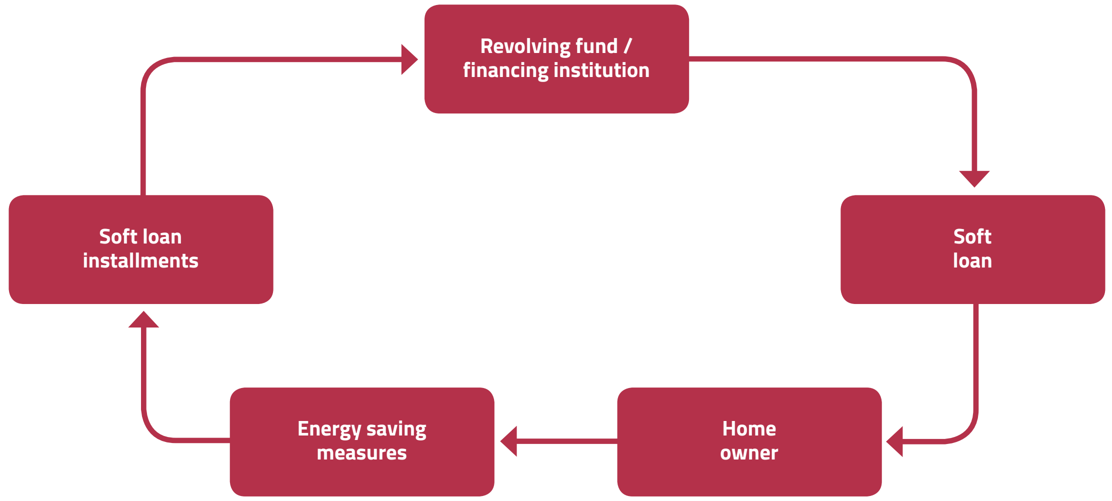
Local authorities need to consider these constraints. To make loans more attractive for homeowners, municipalities can create an environment that **boosts competition** between the banks so that they spontaneously reduce their interest rates. They can also **subsidise the interest rate** or reduce the risks for banks by setting up a guarantee fund. Finally, they can provide **technical assistance** for project development to make sure the estimated energy savings really are achieved and households are able to use the resulting financial savings to pay back the loan.
When banks are unwilling to cooperate and local authorities have sufficient funds and expertise, they can **set up a revolving fund** and provide the loans themselves.

Homeowners' savings
For homeowners this is the easiest and cheapest way to finance energy renovation work: no contracts, no loans, no interest, no rules or regulations. However, first they need to have enough money in the bank and second, once they have used the money to renovate the house it cannot be used for anything else. So when other investments are needed (a new car, studies) this could be a problem (competing priorities).

Because grants alone will not reach the required scale

A soft loan is an efficient tool that allows the **number of projects and their volume** to be multiplied compared to 'classic' grants:

- Public or private funds can be used **multiple times** as the **money revolves**: loans issued are gradually repaid and flow back to the fund or the financing institution. The money can then be reinvested in further energy renovation projects or be used to promote other social values.
- **Grants alone cannot pay for all investment** as ambitious energy retrofits are too costly and public budgets are limited.
- Grants can **disrupt the market** and increase prices for energy renovation work. With soft loans, there is still an incentive for both the homeowner and the builder to look for the best offer.



On the other hand, **grants can be useful** as incentives when combined with soft loans. They can help:

- **Very low income households** to undertake energy renovation work in their homes.
- Reduce the cost of a **preparatory phase** (e.g. energy audits) which in the end may not lead to a real investment. Homeowners are afraid their money will be 'wasted'.
- Reduce the costs of an **implementation phase** (e.g. pay for a project coordinator, especially in large condominiums).
- **Reward** homeowners who carry out **extensive renovation** and achieve high energy savings. The higher the savings, the higher the grant.
- Introduce **new technologies** and methods.
- Finance **demonstration projects** that stimulate the market.

Because soft loans can boost the local energy renovation market and create new jobs

In the 2007-2010 period, the region of Picardie (France) invested nearly 9 m EUR in a soft loan scheme. The scheme generated energy renovation work worth about 90 m EUR and created or maintained some 330 jobs in the local building sector. The region offered homeowners a 0% interest loan combined with grants and technical assistance from independent energy advisors.

1.3 Soft loans for whom?

Soft loans can motivate **any type of household** to invest in energy renovation.

However, most people with **high incomes** already have easy access to commercial loans. Today, they can in some cases obtain loans with very attractive conditions such as a nearly 0% interest rate in Denmark.

On the contrary, commercial banks do not offer such advantageous loans to **low to medium income households**. Often they are not willing to provide loans to the elderly or to people with irregular income. For this target group, **soft loans are a solution**.

They can also be suitable for **very low income households**, although, these are usually treated through specific policies (e.g. social housing) and funding programmes. This target group often benefits from higher public subsidies.

Recommendation: when your funds are limited, focus your efforts on those households who most need your support.

1.4 Soft loans as part of a bigger picture

One should not forget that soft loans are only part of the solution. If not addressed, non-financial barriers can undermine your soft loan financing scheme.

The energy refurbishment process is unclear

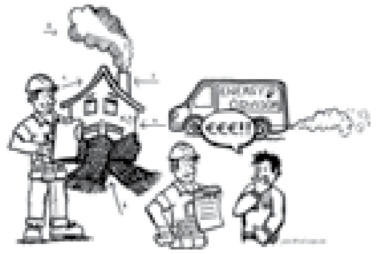
For homeowners, the energy refurbishment process lacks clarity. For some, it is not even obvious why saving energy is important. Others are aware of it, but do not know what measures they can take, what these will cost and if ultimately they will get back their investment. Moreover, renovation competes with other households' investment priorities such as buying a new car or kitchen.

Market actors are not coordinated and do not offer global solutions

Implementing energy retrofits of residential buildings involves a myriad of market actors - construction companies, craftsmen, real estate agencies, financing institutions, consultants, energy auditors - who are not organised and coordinated so as to offer **easy, global and guaranteed energy saving solutions** to homeowners.

Promote a holistic approach
You should strive to develop **an integrated energy efficiency service package** that is attractive for homeowners. This should include:

- Targeted marketing & communication
- Independent advisors who accompany homeowners through the renovation process from A to Z and guarantee its high quality at each stage: information > preparation > financing > implementation > monitoring of results.
- Coordination of a chain of suppliers and contractors to deliver a global high quality solution to homeowners
- Long-term and affordable financing



All Infinite Solutions partners have set up or established partnerships with local energy agencies or **energy advisors** that provide independent advice on energy retrofits to homeowners.

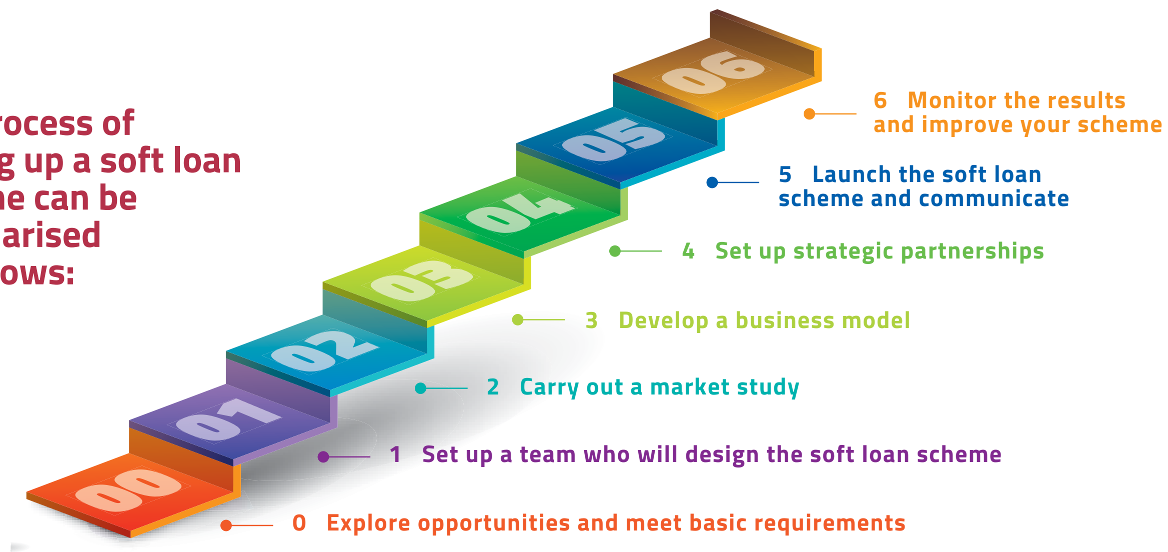
Frederikshavn: energy advisors prepare a global 'energy retrofit plan' highlighting the order in which energy efficiency measures should be implemented. The city organises a series of **training sessions** for craftsmen and other market actors to promote this holistic approach and to involve them actively in promoting the retrofit programme.

Bordeaux Metropole has set up a **Local Energy Renovation Platform** which connects homeowners interested in carrying out energy renovation, craftsmen who offer technical solutions, banks which offer financing solutions and energy advisors who help homeowners make an informed decision.

Bordeaux Metropole, Stuttgart and Frederikshavn have set up a local **Quality Charter** that commits businesses and craftsmen to delivering high quality energy renovation work. Only work carried out by certified craftsmen is eligible for soft loans or subsidies. In parallel, similar national certification schemes exist in some countries such as 'RGE' in France or 'Build Guarantee' (Bygge Garanti) in Denmark.

2/ Setting up a soft loan scheme

The process of setting up a soft loan scheme can be summarised as follows:



Basic requirements before you start:
- **You need to secure support for the project**: first you need to explore the opportunities, the local context for implementing a soft loan scheme and secure support from your colleagues, management and politicians. The soft loan scheme should ideally be part of a wider strategy or an **energy retrofit programme** aiming at reducing energy consumption in the building sector.

- **You need sufficient human and financial resources** to develop and operate a soft loan scheme. In the cities and regions that have developed a soft loan scheme, **1 to 3 full time equivalents** (FTE) have been involved in the scheme's development. If you lack internal expertise, you may need to hire external experts. Larger municipalities with more complex administrative structures and no experience will need more staff to get things done. Smaller ones much less.

- **You need time**: be patient as it takes time to go from Step 1 (setting up a team) to Step 6 (monitoring results). Count at least 1 -2 years before you launch the scheme and 3 years before you can start monitoring the first results (loans issued).

2.1 The team implementing the scheme

The team should ideally be composed of:
– **A policy officer responsible for sustainable energy action plans or programmes** who understands the technical aspects of energy retrofits. S/he could also play a team coordinator role.
– **A financial and legal expert** on public funding, private financing, state aid issues, contracts, public tendering and negotiations with financing institutions.
– **A communication expert who will prepare and lau**nch a communication campaign and/or liaise with an external communication agency.
– **A political representative** who will secure political support for the programme / financing scheme. This could be a deputy-mayor / vice-president or councillors responsible for energy and climate or housing issues.

The amount of staff time and costs will depend on the size of the local area, the ambitions of the renovation programme, the business model alternative you choose and your experience with setting up innovative financing schemes.

2.2 A market study - fact finding

A market study is a very important phase of the project. It allows you to better understand your local area – the residential building stock and the households – as well as market gaps and barriers that hinder carrying out an ambitious and large-scale energy renovation of your building stock.

The market study should give you answers to these questions:
– Are the existing financing instruments relevant and attractive for homeowners?
– Which buildings, energy saving measures and households should I target?
– Which new financing instruments and other support mechanisms should I develop to fill in the market gap?

Each territory is different and so are its priorities. This guidebook will not give you a 'one size fits all' answer to these questions, it only suggests the options you can consider.

Are the existing financing instruments relevant and attractive for homeowners?

In most countries, households can benefit from tax credits, deductions or exemptions, subsidies, low interest loans subsidised by the government, energy efficiency (green) certificates or reduced Value Added Tax (VAT).

The market study should reveal which financing instruments are already available for each type of household and which new complementary products could cover their remaining financing needs.

Assessment	Action
Existing financing instruments function well but are underused.	Increase the use of existing financing instruments by overcoming the organisational barriers, through a communication campaign or technical support provided to homeowners. Example: The Subsidy Advance Payment Fund developed by Bordeaux Metropole to boost uptake of existing subsidies for very low income households; the energy renovation package set up by Stuttgart to accelerate energy retrofits and the uptake of low interest loans provided by the KfW bank in Germany.
Existing financing instruments are not sufficient or attractive enough for the targeted households.	Develop new complementary financing instruments that will cover the market gap. Example: soft loan schemes developed by Frederikshavn, Bordeaux Metropole, Brussels Capital Region, Parma, Riga and Delft, energy supply contracting developed by Stuttgart.

Which buildings, energy saving measures and households should I target?

The study will help you assess the main characteristics of:
– The residential sector - number of residential buildings, % of individual houses and condominiums, % of privately-owned buildings and owner-occupied buildings, % of social housing, age and energy consumption of the buildings, energy saving potential and average cost of (extensive) energy renovation work.
– The households - % of homeowners with very low, low, medium and high income, the homeowner's financial situation and possibility / willingness to take out a loan, age, family composition (single person household, family), motivation to implement energy saving measures and barriers preventing them from investing in energy efficiency.

Buildings

You may decide to target:
– Buildings with high energy saving potential: successful energy renovation resulting in increased comfort, high energy savings and reduced energy costs would convince homeowners about the benefits of energy retrofits and they would spread the good news further. A downside of this approach could be that homeowners might think that this only works for the most inefficient buildings.
– Condominiums, single family houses or individual apartments: it could be easier to focus on single family housing units first, as the decision-making process is easier than for condominiums. However, more homeowners can be reached through condominiums and this building type usually has the lowest refurbishment rates, so your support would have real added value (e.g. in Stuttgart).
– A specific area or district with more or less homogenous building stock or level of homeowners' income.

You can also combine several criteria or, on the contrary, not have any limits.

Bordeaux Metropole provides soft loans only to homeowners of buildings built before 1st January 1990. Owner-occupied housing units are the main target, however, rented properties are also eligible. **Riga** offers soft loans to condominiums. **Brussels Capital Region** targets single family houses and individual apartments. **In Frederikshavn, Delft and Parma**, all types of housing units in private ownership are eligible for soft loans. **In Stuttgart**, all kind of buildings can benefit from a 'care-free energy renovation package', however, only condominiums with at least 20 appartments or energy consumption of 200,000 kWh / year are eligible for financing of the heating system through energy supply contracting.

Energy saving measures

You can decide to target:

- Measures which are not supported by existing financing instruments.
- Individual measures that have the biggest energy saving potential but are expensive (new windows, wall insulation, heating system, renewable energy production technologies).
- An integrated approach or a combination of measures that will achieve a certain level of energy savings (e.g. 30 or 40% energy consumption reduction).
- In condominiums, you can support the overall renovation of the building (incl. communal areas) and not individual apartments.

You can also decide not to have any limits.

It is advantageous for households to be able to combine different available financing instruments, such as national subsidies with local soft loans.

In Frederikshavn, all energy saving measures are eligible for soft loans. An energy advisor prepares an ambitious energy renovation plan for a household which can be implemented step-by-step, thus avoiding a lock-in effect. Advisors recommend the measures but it is the homeowner who decides which measures s/he wants to finance. In order to attract and motivate homeowners, non-**energy saving measures** can be included in the loan such as a new kitchen, house extension and equipment for monitoring energy consumption.
In Parma, the energy efficiency measures implemented have to exceed established national energy efficiency standards.
In Bordeaux Metropole, soft loans finance only one energy saving measure.

Households

The market study will tell you more about the **people living in your local area**. You can then decide to develop a new financing instrument for a **specific household type**.

Soft loans should motivate the majority of **medium to low income households** to invest in energy renovation works.

You could also decide to focus first on **homeowners who occupy their dwellings** (e.g. Bordeaux Metropole). They tend to be more sensitive to arguments about the benefits of energy retrofits as they actually benefit directly. This target group could act as the trigger for the renovation process and be used as a good practice example.

In some cases, public authorities may be required or **agree to open soft loans to all citizens**, as they are not allowed to discriminate against anyone. However, a targeted communication campaign can be organised to reach certain homeowners or city districts.

Households	Very low income	Low to medium income	High income
Money is a problem	**People** cannot cover the full cost of renovation through subsidies	**People:** > are not eligible for subsidies or, > cannot cover the renovation costs in full through subsidies, > do not have access to (attractive) commercial loans under standard market conditions.	N/A
	Action: Create a soft loan scheme. Ideally, combine the soft loans with subsidies to increase households' motivation to invest in ambitious renovation. Make sure that low to very low income households can benefit from the loans.		**Action**: If you have sufficient funds, you can also consider offering soft loans to this target group.
Money is not a problem	**People** can cover renovation costs in full through subsidies (e.g. Bordeaux Metropole)	N/A	**People** have enough savings in the bank or have easy access to attractive commercial loans (e.g. Frederikshavn).
	Action: Secure upfront financing for homeowners, for example through a 'Subsidy advance payment fund'.	N/A	**Action**: Focus on other aspects – raise awareness, provide independent technical & financial assistance, and guarantee the quality of renovation work.

In Bordeaux Metropole, very low income households can have all their energy renovation work paid for through a combination of various national, regional and local subsidies. Soft loans are open to everyone but through its communication campaign the Metropole mainly targets low to medium income households.
In Frederikshavn, soft loans are open to all types of households. For very low income households, the municipality has set up a fund that provides 0% interest loans and a guarantee.
Brussels Capital Region opens the Brussels Green Loan to all Brussels citizens over 18 with a limited income.

Which new financing instruments and other support mechanisms should I develop to fill the market gap?

The market study should result in **an action plan** on how to fill the market gaps. Different financing instruments can be recommended for different household or building types. The study should provide you with an overview of the **legal and financial frameworks** as well as the barriers and solutions relating to their implementation.
A **comparative analysis** of similar financing schemes implemented in other countries can be a source of inspiration for your team when looking for solutions.

One financing instrument does not fit all!
The main lesson learnt by **Bordeaux Metropole** is that one financial tool (incentive) will not fit all types of households or buildings. It is more efficient to create simple tools for each target group rather than building a very complex financing scheme covering all target groups.

Bordeaux Metropole has developed:

- **A Subsidy Advance Payment Fund** for very low income households
- **A soft loan scheme** mainly targeting low to medium income households.

In the near future the Metropole plans to develop a **third party investment operator** or a **guarantee fund** mainly targeting low income households and specific financing instruments for **condominiums**:

- Grants for energy renovation work in buildings' communal areas for very low income households.
- Grants to pay a project manager who provides support to the condominiums during the preparation and implementation phases of the renovation.
- An investment subsidy for low energy renovation, a subsidy for a global audit and aid for financial engineering (in cooperation with the national promotional bank, Caisse des Dépôts).

Market study - indicative budget: the budget for a market study will depend on what research you can do internally, how extensive it is and local prices. The indicative budget needed for an external consultant for Bordeaux Metropole or Brussels Capital Region ranges from 60 to 80,000 EUR. You can also involve a local university, researchers or students who may be willing to do the work as part of their research programmes or cooperation with the city/region (e.g. Parma).

As part of the **Infinite Solutions** project, Energy Cities has developed a **comparative analysis** of 9 national, regional and local financing schemes supporting energy retrofits of public and private buildings: http://www.energy-cities.eu/IMG/pdf/infinite_solutions_comparative_analysis_web.pdf

2.3 Business model: options

If the market study tells you that the financing instrument which is missing in the market is soft loans, you need to find out who is going to provide them and how they will be implemented.
There are several business model options you can choose from depending on the money and staff you have available for setting up the financing scheme.

OPTION 1: Partner banks provide soft loans

Conditions:
>Banks are willing to cooperate and are ready to offer attractive soft loans to homeowners
>You or your partners provide technical assistance to homeowners.

+/-
+ You use the banks' (unlimited) money and their relations with clients
+ Banks check the creditworthiness of clients and take on the risk of payment defaults
+ Partner banks manage the lo, thus reducing your administration costs
+ You do not disrupt the market and let the banks do their job
- Banks decide who receives the loans and under what conditions
- Very low to low income households do not have access to loans or to attractive conditions
- Banks do not take into account the cash flow generated through energy savings
- Risks, administration costs etc. are reflected in the (higher) interest rate.

Case studies: Frederikshavn, Bordeaux Metropole, Parma

OPTION 2: Partner banks provide soft loans but you subsidise the interest rates, pay for the banks' operational costs and a guarantee fund

Conditions:
>You have a budget to pay a bank to make the loans more attractive for homeowners. You use this budget to subsidise the interest rate, to cover the partner bank's operational costs related to setting up a new financial product and standard procedures and/or setting up a guarantee fund which covers any payment defaults by beneficiaries.
>You or your partners provide technical assistance to homeowners.

+/-
+ You use the banks' 'unlimited' money (until you have spent your own budget) and their relations with clients
+ You decide who is eligible for the soft loans and the loan conditions (low interest, long maturity)
+ Low and very low income can be eligible
+ Banks manage the loans
+ You can take into account the cash flow generated through energy savings
- You take on the risk of payment defaults
- Your administration costs are higher as you have to check the eligibility of homeowners for the soft loan and monitor partner banks' performance

Case study: Brussels Capital Region

OPTION 3: You set up a revolving fund which disburses soft loans and pay a fund manager

Conditions:
>You have strong political support
>You have a budget to set up a revolving fund which will disburse soft loans.
>You have a budget to pay a commercial bank or a fund manager to manage the loans.
>You have staff who will set up the business model – a fund structure & standard procedures (e.g. Fund Management Board)
>You or your partners provide technical assistance to homeowners, check their creditworthiness, and approve the projects.

+/-
+ You decide who is eligible for the soft loans and the loan conditions
+ Low and very low income households can be eligible
+ The fund manager manages the loans
+ You provide integrated energy efficiency services to homeowners and can guarantee energy savings
+ You can take into account the cash flow generated through energy savings
+ You stimulate the market by taking advantage of a market niche
+ You can target extensive energy renovation which is more costly and has a longer payback time
+ You are in control which gives you the freedom to make exceptions for specific situations.
- Your money is limited and it takes time to refinance the fund
- You take on the risk of payment defaults
- Administrative procedures are more burdensome

Case studies: Riga, Delft

OPTION 4: Third-party Investment & Energy Supply Contracting

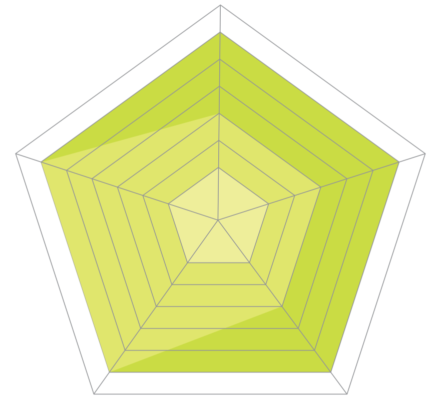
Third-Party Investment is a scheme whereby the investment in the building is not made by a homeowner but by a third party investor. Thus the homeowner does not take on a debt but pays a service fee to the investor. The investor can be a public, private, a mixed public-private company or a cooperative. It can guarantee energy savings, thus taking on all the risk if they are not achieved.

The city of Stuttgart has developed a **'care-free energy renovation package'** for homeowners. The package includes the following services: planning, building and construction, operation and maintenance, financing, guarantee and assumption of risk. The city has established a partnership with the municipal energy utility (ESCO) which implements and finances a replacement of the heating system. Thus homeowners do not need to take on a bank loan (debt) but pay a monthly service fee consisting of an investment repayment and an energy bill to the ESCO.

Experience of setting up local or regional **third party investment operators** is quite recent. French regions seem to be the most advanced in testing out such solutions. For instance, the public-private company SEM Energie Posit'IF in Ile de France Region or the Public Service for Energy Efficiency in Hauts-de-France Region provide integrated energy renovation services including financing to homeowners.

Advantages of such operators are:
– A 'care-free energy renovation package' makes energy retrofits easy and attractive for homeowners. Provided homeowners do not change their behaviour, the package does not increase the monthly costs.
– Operators increase their ability to implement high quality, ambitious and global energy retrofit programmes, to negotiate with technology suppliers and contractors to achieve better economies of scale.
– Operators can group individual energy retrofit projects and obtain more attractive loans from banks and financing institutions or attract private investors.

Business model alternatives



Option 4: if the third party investment operator is a public-private company, Option 4 would be placed between Option 2 and Option 3 depending on the amount of public funds invested. If the operator is a 100% private company (e.g. private ESCO), Option 4 would correspond to Option 1.
Note: staff costs and time spent on developing the financing scheme should logically increase when you or the partner banks have to develop new funds, loans and standard procedures. However, this is very variable according to the case and depends on your starting point and expertise.

In this guidebook, we cannot recommend you opt for any particular alternative business model. None is better than another. You will have to choose yourself according to your situation and aspirations. We invite you to look closely at the case studies to learn more about the options that are most relevant for you.

Go to Chapter 4 - 'Case Studies' to learn more about:

Option	Focus	Case studies
1	How to establish partnerships with partner banks?	Frederikshavn, Bordeaux Metropole, Parma
2	How to set up a financing scheme where the city/region subsidises interest rates, pays for bank's operational costs and a guarantee fund?	Brussels Capital Region
3	How to set up a revolving fund and fund management structures?	Delft, Riga
4	How to develop a contracting support scheme and partnerships with third party investors?	Stuttgart

2.4 Strategic partnerships

Whatever business model you choose, you will need to involve other city or regional departments and external organisations in its design and implementation. External actors include energy advice centres, energy agencies, construction companies, craftsmen and their associations, real estate agencies, banks, communication agencies, local media and others. All these actors are in contact with homeowners and you should take advantage of these existing relationships to promote your energy renovation programme and related financing schemes.

You will need to motivate them to participate in the development, implementation and promotion of your financing scheme and agree on who does what and how. The **roles and responsibilities** of each actor need to be very clear and specified in the **standard procedures, contracts and partnership or voluntary agreements**.

This will help to ensure that the whole energy renovation programme and/or the financing scheme go smoothly.

Here below are some tips and ideas on with whom and how to set up successful partnerships.

Partnerships with other departments and organisations

- Involve colleagues from the department which delivers **building permits**. When people start to renovate their homes, it is a unique opportunity to start a discussion about energy saving measures. Your colleagues can inform them about existing technical assistance and financing opportunities such as soft loans.
- **Local energy agencies or energy advice centres** can develop a soft loan scheme business model for you. They can also provide technical assistance to homeowners and help them with the preparation of a financial plan and applications for soft loans and other financial incentives.
- **Municipal energy companies** can be involved in the implementation and financing of energy renovation measures.

In Parma, Stuttgart, Brussels Capital Region and Bordeaux Metropole local energy agencies or energy advice centres provide technical assistance to homeowners and guarantee a high quality energy refurbishment process.
Riga Energy Agency has developed a revolving fund business model and coordinates all stakeholders on behalf of the city. The agency also carries out energy audits within the context of the energy retrofit projects financed through the revolving fund.
In Riga and Stuttgart, municipal energy companies implement and also finance (in the case of Stuttgart) energy saving measures.

Partnerships with banks and financing institutions

– Getting partner banks on board
Whether or not you invest public money in a soft loan scheme, you will need to convince banks and financing institutions to become your partners (Business Model Option 1 & 2). You can negotiate with them through **a competitive dialogue** (e.g. Bordeaux Metropole, Frederikshavn) or launch a **call for expressions of interest** (e.g. Parma, Brussels Capital Region).

It is useful to inform the banks about the energy renovation programme and to discuss the business model idea with them before you launch the call. Create a win-win situation and explain how the banks will benefit. This will increase your chances of receiving interesting proposals. This is particularly important when you launch such types of cooperation for the first time.

Parma had to launch a second **call for expressions of interest** as the first attempt was unsuccessful. Banks did not understand the objectives and the concept of a soft loan scheme. After further discussion and negotiations with the municipality, one bank made a proposal and became the financing scheme's official partner.

A win-win situation
Frederikshavn argued that the banks will not only develop a **new business area** for themselves but also for their clients who will include local craftsmen, suppliers of building products and real estate agents. Uptake of the soft loans for carrying out energy renovations is expected to **boost the local economy** and contribute to the creation of new jobs. In addition, improving the energy efficiency of their clients' properties will increase their **market value**. Another benefit is that the banks mobilise homeowners' «passive capital» by stimulating business during periods of economic stagnation. Finally the loans can be a way for banks to attract new customers.

Based on the results, you select the partner banks who will become **privileged partners** of your soft loan financing scheme. You can further discuss with them to clarify and agree on the final conditions of your partnership agreement or contract.

The competition should be open to all banks and financing institutions. However, when starting negotiations, you may want to give priority to banks with whom you have successfully cooperated in the past, for example on the development of similar innovative financing schemes (e.g. Bordeaux Metropole, Stuttgart). It is also useful to involve banks with a **large number of branch offices** spread around your territory. Soft loans will be at your citizens' fingertips!

Bordeaux Metropole limited the number of partner banks to 5-6. The banks that rapidly became involved gained a privileged position and a competitive advantage in the booming energy renovation market. This was especially appealing to their marketing departments who wanted to boost their institutions' **'green image'**. Through the Local Energy Renovation Platform developed by the Metropole, partner banks are in direct competition which should motivate them to offer more attractive conditions to their future customers.

– Partnership agreements and contracts


© Giorgio Cavazza

Signature of the partenrship agreement between the Municipality of Parma and Cariparma. From the left: Mr Michele Alinovi, Deputy Mayor; Mr Marco Dell'Otti, Cariparma Credit Agricole Area Director (Province of Parma); Mr Federico Pizzarotti, Mayor of Parma; Mr Massimo Cerbai, Cariparma Credit Agricole Private Retail Area Manager.

In the partnership agreement (Business Model Option 1), partner banks commit to spontaneously offering **loans with interest below the market rates** or other advantages to your citizens. When you sign a voluntary agreement, it is difficult to agree on a fixed interest rate and other conditions. Moreover, as interest rates are constantly changing, soft loans could become less attractive for some types of homeowners, in particular those with higher incomes.
Partner banks can also agree to:

- **Create a new product** or promote more intensively their existing products dedicated to energy retrofits.
- **Set up new procedures** that are integrated in your business model (e.g. check the invoices from certified contractors).
- **Provide and manage the loans** or a guarantee fund.
- **Promote** soft loans and your energy renovation programme and actively co-develop and participate in the **launch campaign**.
- **Monitor and report** on the number of loans issued /paid back, type of beneficiaries, etc.

Partner banks and financing institutions could also agree to allocate a specific amount of money to a soft loan scheme and to **determine specific loan conditions** (loan amount, duration, interest rate, guarantee, administrative fees, etc.). For example, you can set a 1% interest rate. This is mainly feasible when you subsidise the interest rate or pay for the bank's operational costs (Business model option 2).

In Frederikshavn and Bordeaux Metropole, partner banks agreed to offer each homeowner more attractive conditions than what they would normally get under the current market conditions. No specific loan conditions are laid down in the partnership agreements.
In Parma, the partner bank agreed to provide a variable interest rate: Euribor (3 months) + 2.9%.

For citizens, cities and regions are trusted organisations. You cannot afford to lose this trust. By promoting banks as official partners of your energy renovation programme you are promoting the products they offer. From the very beginning, you should strive to build **trustful relationships** and make sure you work hand-in-hand for the same objectives.

All partner banks in Frederikshavn developed personalised posters to communicate about the soft loans

– Reassuring the banks through a guarantee fund and technical assistance
If you have a budget available and if the banks are not willing to cooperate, you can create a **guarantee fund** to reassure the banks that any payment defaults will be covered by you. As a consequence the interest rate could be lower. This would also enable low and very low income homeowners to receive a loan.

The Brussels Capital Region recorded only one case of non-payment in 8 years. The loan amount issued was 11,500 EUR and it was not reimbursed. This has to be compared with the total amount of issued loans: 8 m EUR.

– The fact that you provide **technical assistance** to homeowners will also reassure the partner banks. You guarantee high quality energy retrofits and make sure that homeowners and the measures implemented meet your scheme's eligibility criteria. You ideally will also check that the invoices are issued by certified contractors (although some banks agree to do this for you). Banks can focus on their core business and do not need to become technical experts.

– Training for customer advisors

© Frederikshavn_training

One of the trainings organised for local market actors by the municipality of Frederiskhavn

Banks are also your **key partners** for a successful communication campaign. Customer advisors are in an ideal position to inform their clients about the energy renovation programme and the available financing options, including soft loans.

Frederikshavn organised a set of **training sessions** for bank employees to explain:
- The benefits of energy renovations and the impact on homeowners' cash flows and house values.
- The basics of a 'Home Energy Report' prepared by energy advisors which recommends energy measures to be carried out and estimates investment costs.
- The potential impact of the municipal energy renovation programme on the local economy. This includes maintaining existing or creating new jobs, new income for craftsmen who are also banks' clients or increased property value.

Partnerships with other key market actors

– **Estate agents**. When people buy a new home it is a unique opportunity for an energy retrofit. Estate agents could inform future homeowners about existing technical assistance and financing opportunities. They could also help to estimate the renovation costs.
– **Energy utilities**. Frequently, energy utilities are required to provide energy advisory services and/or to finance energy efficiency measures through **Energy Efficiency Obligation Schemes**. They could inform their clients about your energy renovation programme and financing scheme. They could also financially contribute to your soft loan financing scheme (e.g. pay for part of your expenses or contribute to a revolving fund) or pay homeowners directly.

In the Brussels Capital Region, energy suppliers partially fund the Brussels Green Loan. **In Bordeaux Metropole**, homeowners can use the Energy Efficiency Certificates (issued under the National Energy Efficiency Obligation Scheme) to finance energy renovations.

– **Energy auditors, consultants, architects and craftsmen** representing the 'supply side' and **homeowners' associations** the 'demand side' should be informed and take an active part in promoting and implementing your local energy programme and financing schemes.

2.5 Launch campaign and communication

A communication campaign is a **crucial element** that determines the success of your financing scheme and the energy renovation programme in general.

Communicating about loans can be tricky
Communicating about soft loans can be tricky. People are often either wary or they ignore advertisements related to loans because they are constantly offered loan proposals by a number of financing institutions and businesses. They may also be less confident if your partner bank is not a well-known institution or if they have had bad experiences with loans in the past.

Cities and regions are trusted organisations
Cities and regions have an advantage in that they are perceived as being **trusted organisations**. They are also considered as legitimate actors who are responsible for the implementation of international energy and climate goals at the local level.

Instead of promoting purely soft loans, your communication campaign should also emphasise your **energy and climate goals**, the benefits of energy retrofits for homeowners (comfort, financial savings) as well as its positive impact on the local economy. A soft loan scheme is only part of this.

Keep the message simple and crystal clear
You want to convince homeowners that carrying out an energy retrofit is easy and financing is not a problem. The communication materials must reflect the fact that renovations are easy and make sense. Information about the technical assistance and financial incentives offered to homeowners must be as simple, clear and attractive as possible. The **launch campaign** is the most important phase of the whole process and must not fail.

You need experts
A powerful and attractive communication campaign requires **specific expertise** which you might not find easily within your organisation. There is no doubt that your communication department needs to be involved. It can carry out some of the communication activities; however, some tasks might need to be subcontracted to an external communication agency or experts (e.g. design of a financing scheme visual identity, promotional materials such as posters, leaflets, and audio-visual advertising).

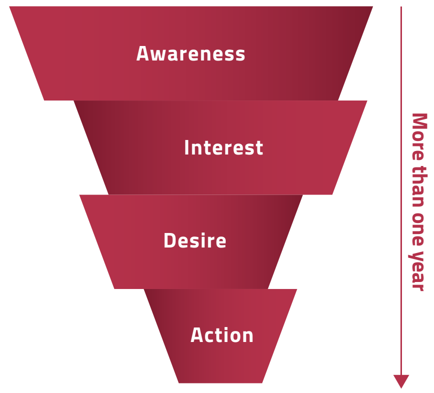
Your communication materials may also be subject to specific **legal restrictions** related to communication about financial products (e.g. open access to information, rules regarding personal data protection, etc.). You have to take this into consideration and include relevant information and disclaimers in your materials.

Be patient
Once you raise awareness about the benefits of energy retrofits, the existence of technical assistance services and financing options, homeowners will start to become interested. They will look for more detailed information, visit energy advice centres, carry out an energy audit, plan measures, get quotes from contractors, and explore the financing options. If everything goes well they will go further than the 'desire' stage and take concrete action by investing in energy saving measures.

The famous 'sales funnel' shows **four stages consumers go through before they decide to take action**. When you buy something in a supermarket the decision time is relatively short. For a pair of shoes it will be longer. In the Netherlands the average time needed for homeowners to take a decision about carrying out energy renovation work in about **14 months**. In Denmark, experience shows it also takes over a year.

During this time you need to **maintain the homeowners' attention** and constantly provide them with information relevant for each stage. You do not want to confront people with all kinds of figures and calculations when you try to raise awareness about the benefits of energy savings. However in the last stage, when people make their decision, this specific information is crucial.

The communication campaign should therefore last for a **long period of time**!



Be honest and educate
In the long term, energy renovation work is profitable. This is an important argument. However, the upfront investment can be very costly and real energy savings are rarely guaranteed (except for Energy Performance Contracting which is still quite rare in the residential sector). This is due in particular to a so-called 'rebound effect'- a well-known phenomenon when some savings are cancelled out by changes in people's behaviour. For example, when the house is insulated and the heating system is well regulated, energy bills decrease and people tend to raise the temperature or leave the heating on for longer. Eventually the **energy bill could even be higher** than before the renovation.
Your communication campaign should also **educate homeowners** on how to use the building after the renovation so as to achieve the expected energy and financial savings!

Different messages for different target groups

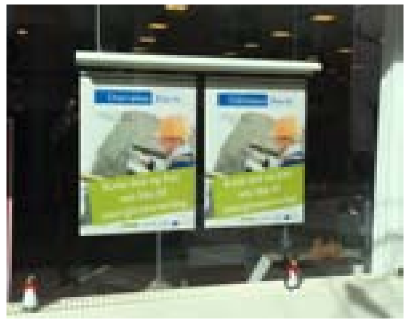
Do you communicate the same message to high income and low income households? To different neighbourhoods? To young and old people? Well, ideally, your messages should be different. However, such a targeted campaign requires experienced communication experts, time and budget that only a few public authorities are willing to allocate.

The city of Delft is using a low cost and efficient solution – Facebook – which makes it possible to perform targeted communication depending on age, interests, type of housing and neighbourhoods.

Brussels Capital Region does not focus its communication campaign on a specific target group. There is one message for all and the Region is aware that this is not the most efficient strategy. However, it faces budget limitations as well as institutional communication restrictions. In an 'ideal world', the Region would identify the target group, set up a message for this target group in cooperation with the professional communication agency (as the Region does not have the expertise) and use only those communication tools relevant for the target group.

Communication campaign tools

You should involve all relevant market actors in your communication campaign and maximise the use of their marketing and communication tools and channels.



Danske Bank promoting soft loans in Frederikshavn

When it comes to the choice of communication tools, you can explore and combine the following:

3 **Website or internet platform dedicated to your energy renovation programme**

– **Bordeaux Metropole**: the Local Energy Renovation Platform **'Ma Rénov'** (http://marenov.bordeaux-metropole.fr/) was launched by the **President of Bordeaux Metropole Alain Juppé** during the biggest conference on energy transition for local and regional authorities in France (Les Assises de la Transition énergétique) organised in January 2017 in Bordeaux.

President of Bordeaux Metropole Alain Juppé at the launch of the Local Energy Renovation Platform

– **Riga**: developed an **online platform** dedicated to the energy renovation of condominiums and the revolving fund.

Website of the Riga revolving fund

3 **Brochures, leaflets, posters**

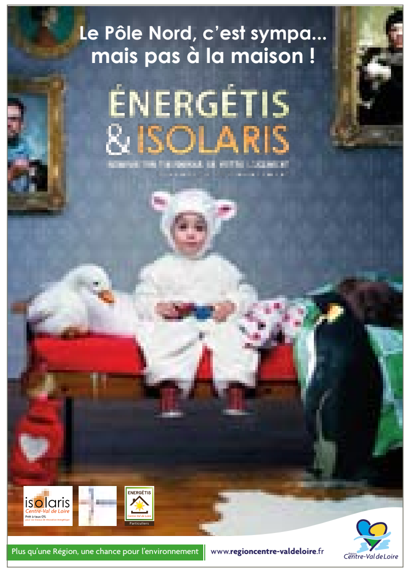
– **Frederikshavn** – local energy magazine promoting soft loans.

Frederikshavn: local magazine about energy savings

– **Brussels Capital Region** – soft loans campaign leaflet.

Brussels Capital Region: a leaflet promoting the Brussels Green Loan

– **Region Centre (France)** – soft loans campaign leaflet.



Region Centre: a leaflet promoting soft loans

– **Parma** – ambitious energy renovation and soft loans campaign - promo poster.

Parma: promo poster

3 **Info points, on-site promotion, promo events and meetings with homeowners**

– **Frederikshavn**: the municipality is the largest city employer and many of its employees are homeowners. That is why the municipality runs the campaign directly in its administrative buildings. It also wants to bring information about existing energy efficiency services and financing opportunities closer to its citizens. A special **'energy renovation info truck'** visits target neighbourhoods every day. If the homeowners do not come to the energy advisors, the energy advisors go to the citizens!

Frederikshavn: info truck

– **Parma** has built its **one-stop-shop** in the very city centre – the best spot on the Piaza della Pace! Moreover, the city has organised **meetings with homeowners and market actors** in presence of the city deputy mayor, partner bank director and energy agency director.

Parma: one-stop-shop in the city centre

Parma: meeting with homeowners and market actors

– **Stuttgart** goes out to the streets, fairs and markets to inform its citizens about the benefits of energy renovation and its 'care-free renovation package'.

Stuttgart: promotion of the 'care-free-package' at the local fair

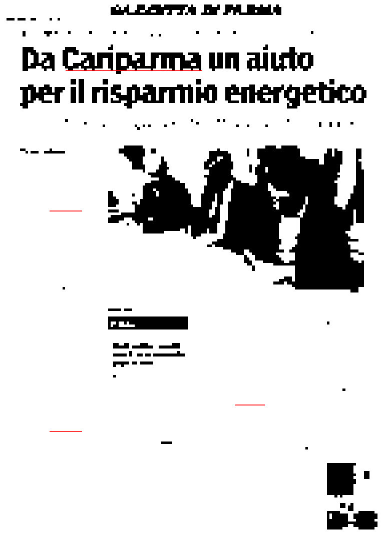
3 **Social media: Facebook, Twitter**

– **Delft** does actively promote its local energy and climate policies, projects and tools through its specialised Facebook account **"Delft wordt groen (Delft becomes Green)"**. The soft loan scheme alone is modestly promoted, as for the municipality it is not desirable to encourage citizens to 'live on credit'. For this reason the campaign focusses on energy savings – the main goal – while soft loans are promoted as a tool stimulating action and investments. More than 3,600 'likes' for a local campaign is a success!!!

'Delft becomes Green' - Facebookpage

3 **Press releases and press conferences, articles in the press**

– **Parma's** energy renovation campaign and soft loan scheme were featured in a major **Italian newspaper** 'Il Sole 24 Ore' (a leading business daily English-language news and analysis on Italy and Europe) and a local newspaper Gazzetta di Parma.



Parma soft loan scheme featured in Gazzetta di Parma

– **Bordeaux Metropole**: information about the Local Energy Renovation Platform was published in the regional newspaper **SudOuest** (http://www.sudouest.fr/)

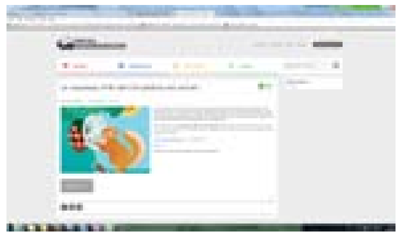
Bordeaux Metropole: Local Energy Renovation Platform in the regional newspaper SudOuest

3 **Advertising**

– Outdoor banners: Bordeaux

Bordeaux Metropole: outdoor banner

– TV advertising spots, videos: Frederikshavn
– Radio advertising spots: Brussels Capital Region
– Digital marketing (mailings, internet banners): Brussels Capital Region



The Brussels Green Loan promoted on the on-line portal 'Portail Construction Durable'

2.6 Monitoring of results

After the launch of the scheme it is important to monitor its success. First of all, because you will have to justify the use of your budget to the city or regional council. Second, because you want to promote your success and improve the scheme.

You might want to monitor:

How do homeowners benefit?

– Number and type of homeowners who have **heard about your energy renovation programme** and soft loans. You can do market research, in cooperation with students or researchers in the field of communication, social sciences, behaviour.
– Number and type of homeowners who have **visited your energy advice centre**, on-line platform or other partners (real estate) and requested information.
– Number and type of homeowners who have **requested technical assistance** (energy audit, energy renovation plan, financial plan, quotes, monitoring).
– Number and type of homeowners who have **decided to carry out energy renovation** measures and types of implemented measures.
– Number and types of buildings / **housing units that have been refurbished**.

How do your partner banks perform?

– Number of homeowners who have applied for a loan.
– Number of loans delivered.
– Total amount lent.
– Average duration of the loan.
– Average amount lent.
– Guarantee fund balance.

Actual energy savings achieved

Actual energy savings can be estimated through:
– **Surveys** about actual energy consumption before and after renovation. This can be done for example through an online platform (e.g. Bordeaux Metropole).
– **Data** collection from smart meters.

Quality control and monitoring: dilemma of flexibility vs. ambition
There is a dilemma between being ambitious in terms of energy savings and being flexible in terms of monitoring. If one of the eligibility criteria for obtaining a soft loan or a grant is the **energy savings** achieved or energy efficient technologies installed, you may want to make sure these have actually been achieved or installed. Especially if public money is used. However, a downside of such control is more complex administrative procedures and possibly higher costs for your organisation, banks and other partners. For homeowners, obtaining soft loans may become more complicated and so less attractive.

3/ Summary and recommendations

Summary

Cities and regions are key actors in the global fight against climate change. International commitments such as that resulting from the COP 21 (2015, Paris) and the European energy and climate long-term objectives will not be achieved unless action is taken at local level. A growing number of European cities and regions are making commitments to achieving these goals.

The residential sector is the largest energy consumer in the EU and at the city level (on average, more than 35% of final energy consumption). It represents a huge potential for achieving energy and CO_2 reductions.

The energy renovation of the residential sector faces a number of **financial and non-financial barriers**. Private sector actors are often reluctant to address them as they are not in a position to do so or the business is considered too complex, unprofitable or risky. In this situation, public authorities are increasingly becoming active. They are making efforts to remove barriers and stimulate the energy renovation market.

Cities and regions are not directly responsible for residential buildings, yet they are perceived by homeowners and market actors as **trusted and legitimate coordinators** of housing retrofit programmes. The role of local authorities is to: raise citizens' awareness of global and local energy and climate objectives, inform them about the benefits of energy renovation, provide them with independent technical & financial assistance, coordinate market actors and involve them in developing services and **financing solutions** that fill existing market gaps.

Access to attractive and long-term financing is perceived as the primary barrier to carrying out ambitious extensive energy retrofits. Existing subsidies, fiscal advantages, commercial consumer loans or mortgages are not sufficient or attractive enough for homeowners who want to invest in energy renovation.

Cities and regions in cooperation with local financing institutions and investors help to overcome these shortcomings by **developing financial products and incentives** that make investment in energy efficiency measures more attractive for different types of homeowners (e.g. medium income households) and for specific types of buildings (e.g. condominiums).

One of the financing instruments that has proved to be relevant and attractive for nearly all types of households is **soft loans** – loans with a lower interest rate than standard market conditions and/or other advantages (e.g. longer maturity, grace period, lower administrative fees).

Several **cities and regions have developed and tested out this financial tool** in their territories including the city of Riga (LV), Parma (IT), Frederikshavn (DK), Delft (NL), Bordeaux Metropole (FR), Hauts-de-France Region (FR), Centre-Loire Valley Region (FR). Soft loan financing schemes have also been developed at the national level, for example in France, Lithuania, Estonia, Slovakia and Germany.

A soft loan financing scheme, step by step: 1-Set up a team who will design the scheme; 2-Carry out a market study; 3-Develop a business model; 4-Set up strategic partnerships with relevant market actors; 4-Launch the scheme and communicate about it; 5-Monitor the results and improve your scheme.

Business model options:
Option 1: Partner banks provide soft loans > Frederikshavn, Bordeaux Metropole, Parma case studies
Option 2: Partner banks provide soft loans but municipalities/regions subsidise the interest rates, pay for the banks' operational costs and/or a guarantee fund > Brussels Capital Region case study
Option 3: Cities/regions set up a revolving fund which disburses soft loans and pay for a fund manager > Delft, Riga case studies
Option 4: Energy renovation work is financed by a third party investor (e.g. ESCO) > Stuttgart case study

Recommendations

Support before you start: make sure you have enough support within your organisation from your colleagues, other departments and politicians.

Holistic approach: A soft loan financing scheme should be part of a global energy retrofit programme. Although lack of attractive financing is one of the greatest barriers, non-financial barriers remain very important. They can undermine your financing scheme. You should strive to develop an integrated energy retrofit package for homeowners.

Homeowners' points of view are the most important aspect: do not create a scheme that is easy for you but not for homeowners. Make the access to soft loans and all related support services as simple as possible. Ideally, create a 'one stop shop' where homeowners can find all the information and support they need.

Start small: Start with a low budget and low-risk soft loan financing scheme, test it out and make it grow. Build up your internal capacities step by step, learn from the process and new partnerships. Get stronger political support for a more ambitious energy retrofit programme.

Prove it works: If you create a revolving fund, invest the public funds first, prove that it works and then attract banks and private investors.

One financing tool does not fit all: First, develop simple financing tools tailored for specific target groups, learn from the process and develop more complex financing schemes or structures (e.g. public or public-private third party financing operators).

Focus on a target group that needs your support: If your budget is limited, focus on a target group that needs your support the most. Today, high income households can obtain attractive commercial loans without subsidies and very low income households may benefit more from additional subsidies and social programmes. Low to medium income households may need you the most. Your market study will tell you what is needed!

Create a guarantee fund: If local banks are reluctant to cooperate with developing a soft loan scheme, reassure them by creating a guarantee fund. The fund can also help you to extend the loans to low and very low income households. Experience of the Brussels Capital Region shows that you may not even use it. Only one payment default case has been recorded since the start of the soft loan scheme.

A city or region is not a bank: It is not your core business to manage the loans. Let the partner bank or a fund manager do it.

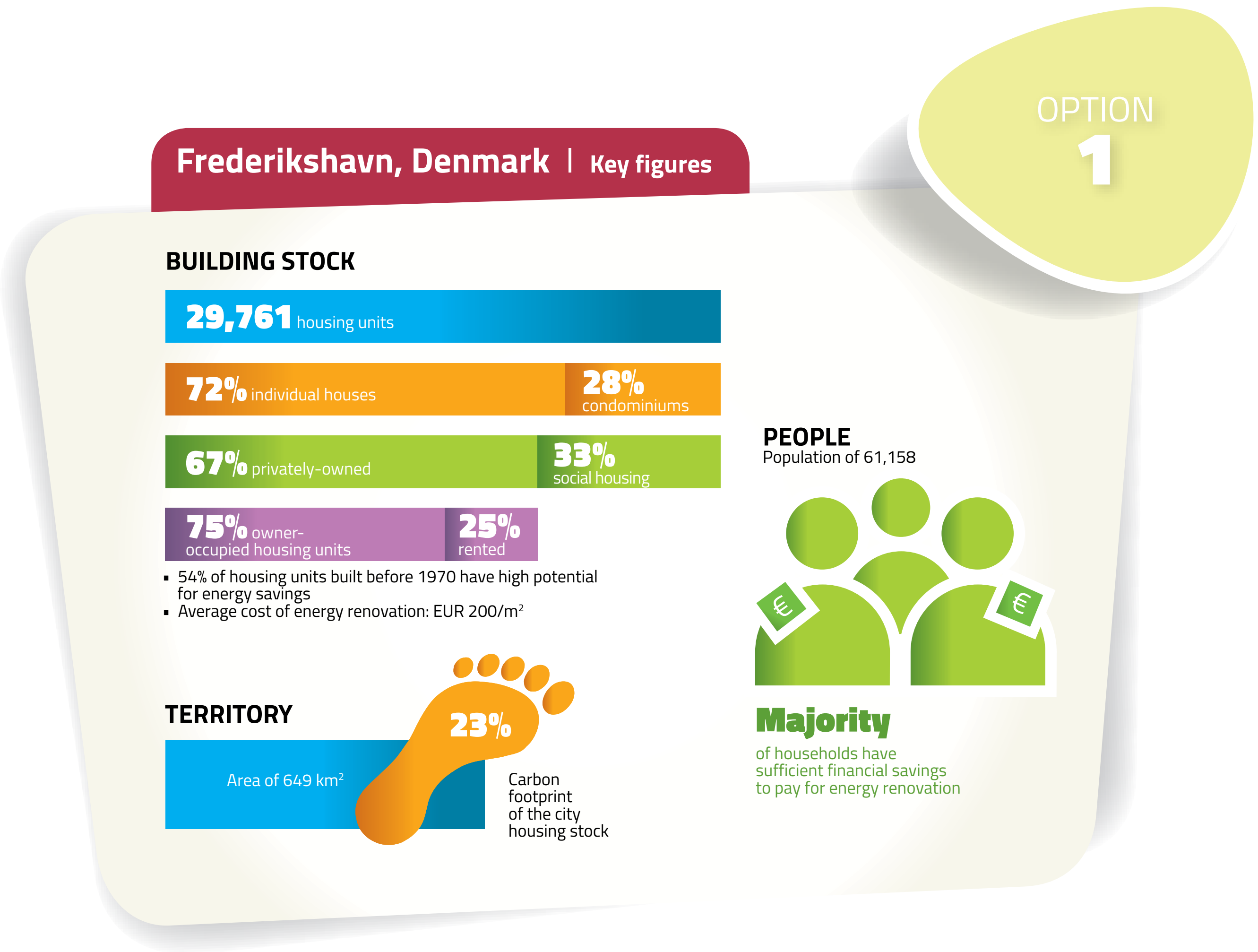
A bank is not a technical expert: You can train your partner banks so that they are able to provide basic advice on your energy retrofit programme to homeowners but it is not their core business to carry out technical checks of energy renovation work, homeowners' eligibility or relevance of contractors' quotes. Provide the technical support to homeowners and let the banks focus on their own job.

4/ Case studies

Option	Focus	Case studies
1	How to establish partnerships with partner banks?	Frederikshavn, Bordeaux Metropole, Parma
2	How to set up a financing scheme where the city/region subsidises interest rates, pays for bank's operational costs and a guarantee fund?	Brussels Capital Region
3	How to set up a revolving fund and fund management structures?	Delft, Riga
4	How to develop a contracting support scheme and partnerships with third party investors?	Stuttgart

Business Model	Option 1			Option 2	Option 3	
	Frederikshavn	Bordeaux Metropole	Parma	Brussels Capital Region	Riga	Delft
KEY FIGURES						
Population	61,158	749,595	191,734	1,187,890	647,424	101,004
No. of housing units	29,761	387,833	80,595	518,494	214,520	58.600
The residential sector's carbon footprint	23% of the city's CO_2 emissions	28% of the Metropole's CO_2 emissions	32% of the city's CO_2 emissions	39% of the Region's CO_2 emissions	32% of the city's energy consumption	20% of the city's CO_2 emissions
When was the financing scheme set up?	2015	2017	2016	2008 (revamp 2016)	2016	2006
FINANCIAL RESOURCES						
Who provides the soft loans?	Partner banks: Nord Jyske Bank, Jyske Bank, Spar Nord Bank, COOP Bank, Danske Bank, Sparekassen Vendsyssel Bank, Nykredit Bank, Arbejdernes Landsbank	Partner banks: Crédit Agricole Aquitaine, Crédit Mutuel du Sud-Ouest, CIC, Crédit Foncier, Domofinance	Partner bank: Cassa di Risparmio di Parma e Piacenza (Bank Cariparma - Crédit Agricole	A financial cooperative 'Crédal' & a cooperative housing company 'The Housing Fund'	Municipal revolving fund	Municipal revolving fund
Who administers the soft loans?	Partner banks	Partner banks	Partner banks	Partner financing institutions	Fund Manager: not yet defined	Fund Manager: SVn
What amount of funds has been earmarked for soft loans by partner banks/public authorities?	Unlimited	Unlimited	20 m EUR until 2020	Funds invested by Crédal are limited by the amount of funds invested by the Region	34.5 m EUR (4.5 m from the municipal budget + 30 m from a bank loan)	0.7 m EUR
Other costs covered by public authorities	Staff costs, market study, communication costs, training for market actors	Staff costs, market study, Energy Renovation Platform launch & communication costs, Platform operational costs	Staff costs, market study communication costs, Parma energy agency's operational costs	Staff costs; communication costs; Crédal's operational costs, interest rate subsidies & a guarantee fund; Energy House's operational costs	Staff costs; Riga Energy Agency's staff costs, communication costs Fund Manager's operational costs	Staff costs, communication costs, Fund Manager's operational costs
SOFT LOANS –ELIGIBILITY CRITERIA & CONDITIONS						
Type of housing	All types of housing in private ownership	All types of housing built before the 1st January 1990. Owner-occupied housing units are the main target.	Single family houses and apartments. The housing unit has to be the owner's main residence.	Single family houses and apartments	– Housing units in Riga that require renovation. The loan targets multi-apartment buildings built after the war and before 1996. – Energy consumption above 177 kWh/m² (this is part of the energy audit). – 75% + 1 owner must agree with the renovation.	All types of housing in private ownership
Type of households	No specific conditions but have to pass the banks' creditworthiness check	Households meeting the eligibility criteria of the national 0% Eco-loan. No Specific conditions regarding the household's income	No specific conditions but have to pass the banks' creditworthiness check	All Brussels inhabitants over 18 with a limited income (see the case study for details)	All types of households.	No specific conditions but must pass the Fund manager's Creditworthiness check Community organisations, associations and NGOs are also eligible

Business Model	**Option 1**			**Option 2**	**Option 3**	
	Frederikshavn	**Bordeaux Metropole**	**Parma**	**Brussels Capital Region**	**Riga**	**Delft**
Eligible measures	– Insulation of the building envelope – Electricity and heating systems – Ventilation and heat recovery – Renewable energy production technologies – Control and monitoring of energy devices – Other renovation work not directly related to energy efficiency improvement	Eligible measures for soft loans - Insultation of roofs - Condensing boiler - Wood stoves Eligible measures for national 0% Eco loan - 2 measures out of the list: - Thermal insulation of roofs, walls, doors, and windows - Installation, regulation or replacement of heating systems connected or not with energy efficient ventilation systems or hot water production - Installation of hot water production equipment using renewable energy sources	– Thermal insulation of roofs, walls, glass walls, doors and windows – Installation, regulation or replacement of heating systems connected or not with energy efficient ventilation systems or hot water production. – Installation of renewable energy sources. Only measures going beyond the national energy efficiency standards are eligible.	Insulation and heating systems	– Insulation of an attic, roof, ground floor and external walls. – Replacement of windows, replacement or insulation of external doors. – Renovation of a ventilation system. – Renovation or replacement of a hot water preparation system, incl. insulation of pipelines. – Renovation or replacement of heating units. – Renovation of a heating system, including replacement of radiators, installing temperature controls, allocators and other heat metering devices	– Thermal insulation – Electricity and heating systems – Ventilation and heat recovery – Renewable energy production technologies
Loan amount	€1,350-€40,300	€25,000-€75,000	Max. €50,000	€500-€25,000 (consumer loan) / €3,600 to €25,000 (mortgage)	€150/m² (average €350,000)	Max. €10,000 (a higher amount is possible upon request)
Maturity	5-30 years	5-15 years	5-10 years	1.5-10 years / up to 30 years	10-15 years	10 years (early repayment is encouraged not fined)
Interest rate	0-13.9%	0% eco loan : 0% Bank loan : 1% - 3%	Variable interest rate: Euribor (3 months) + 2.9%	0-1% / 0-2%	≤ 3%	4% below the standard market rate, with a minimum of 1.5%
Grace period	0-12 months	Depends on the partner bank	None	None	None	None
Guarantee	Home equity	None	Not requested	Covered by a guarantee fund	Household's utility payments (energy bills)	Covered by a revolving fund
Beneficiary's own contribution	Not requested	Depends on a partner bank	Not requested	Not requested	Not requested	Not requested
Other fees / advantages	Depends on a partner bank	Depends on a partner bank	None	Administration fee of €50for a mortgage	None	None
KEY PARTNERS						
	Partner banks, craftsmen, energy consultants	Partner banks, local energy consulting agencies (EIE), craftsmen	Local energy agency, craftsmen, housing association, local bank.	Partner financing institutions, Energy House (advisory services), craftsmen	Riga Energy Agency, municipal ESCO, housing associations	SVn, local energy advice centres
RESULTS						
What amount of funds / how many loans have been issued by the end of 2016?	No results yet	No results yet	No results yet	8 m EUR for 857 loans	No results yet	35 loans



In December 2014, Frederikshavn adopted a **Master Plan to become a 100% renewable energy city by 2030**. The key measures that will help achieve this objective are the reduction of energy consumption and ensuring increased energy efficiency in all the sectors, in particular in the housing stock which accounts for 23% of Frederikshavn's CO_2 emissions. The objective of the municipality is to facilitate the energy renovation of **16,000 housing units built before 1970**, while reducing their energy consumption by at least 30%. The average cost of energy renovation work for all types of residential buildings (individual houses and condominiums) is estimated at **200 EUR/m²**. An investment of **EUR 416 million** will be needed to achieve this goal.

The issue

A need to mobilise homeowners' savings for energy renovation of the housing stock

Frederikshavn carried out a **market study** which revealed that citizens have never had such large savings in their accounts as they have today. However, it is not easy to convince households to make use of these savings to carry out an energy renovation of their homes. Indeed, a side effect of the global financial crisis is that **house owners fear using or borrowing funds** because they feel uncertain about their own economic situation in the near future. Moreover, the stagnation of property values over the last 7-8 years does not create an incentive for making investments in private properties.

To encourage the energy renovation of residential buildings, the Danish tax authority provides **tax credits** of 2,015 EUR per capita per housing unit, and a maximum of 4,030 EUR per home.

The government also reimburses the **value of CO_2 savings** (from 0.35 to 45 DKK per kg of CO_2 savings) which is another form of subsidy for homeowners. The value of CO_2 savings will either be used to cover the cost of an energy consultant service, or be deducted from the homeowner's investment in energy renovation.

Solution

3 **Set up a network of independent home energy advisors** who are employed by the Frederikshavn Utility and a 'Better Home' organisation. They provide individual and tailor-made technical assistance to homeowners. Advisors carry out energy audits and technical checks resulting in a **'Home Energy Report'**. This report recommends energy saving measures in order of priority and provides basic information about the annual energy and financial savings potential, estimated investment costs for each measure and its payback time. If the homeowner wishes to carry out other non-energy related measures such as house enlargement, renovation of the bathroom or kitchen, the Energy Advisor includes these measures in the report. The Energy Advisor also informs the homeowners about the soft loan schemes and refers them to their bank.

3 **Establish partnerships with local banks** with two objectives:

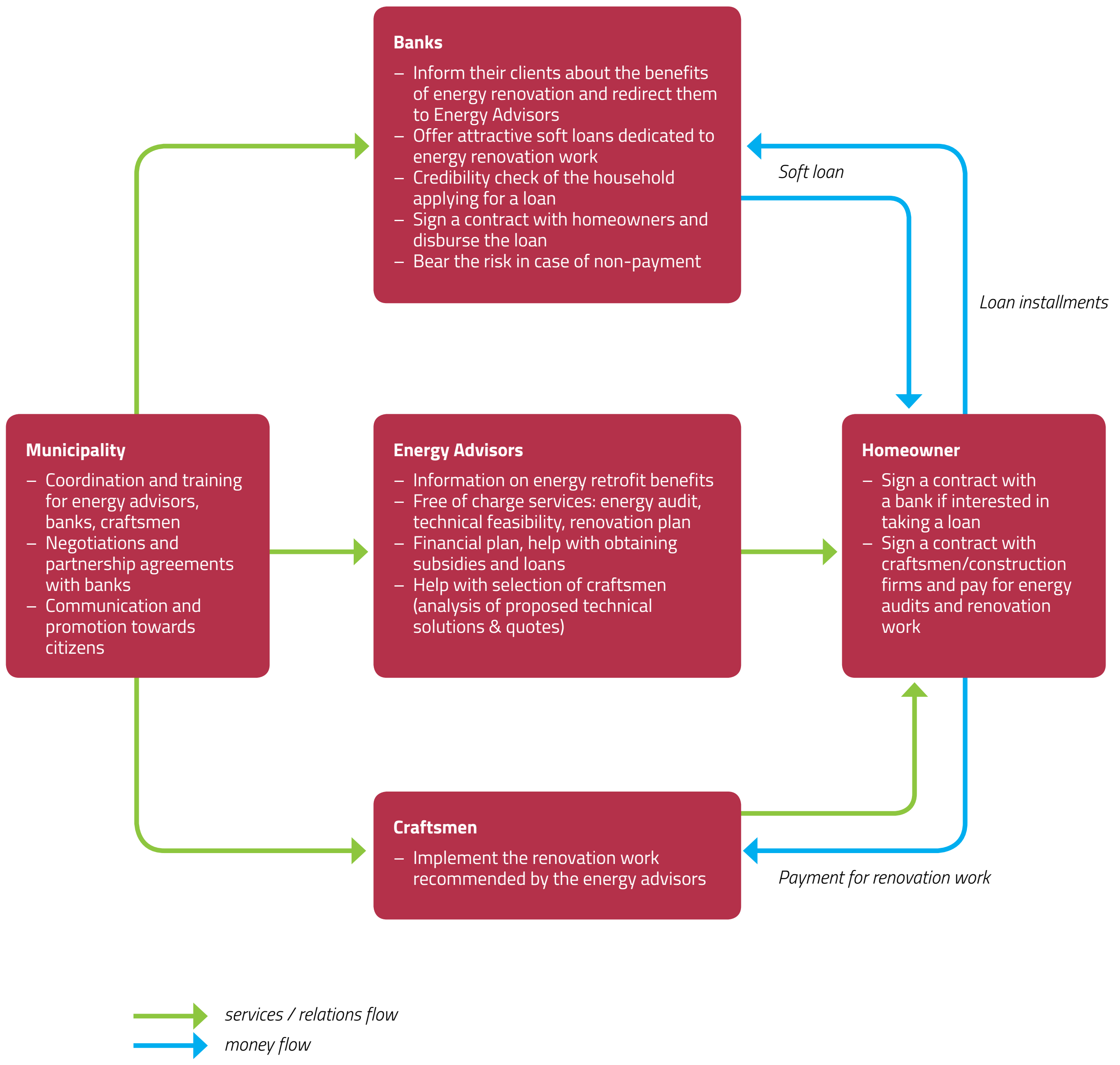
– Train customer advisors about the benefits of energy renovation. The advisors improve their understanding of the 'Home Energy Reports' and are aware of the impact that the cash flow generated, thanks to energy savings, has on a household's financial situation. They are also able to provide better advice to their customers on the financial opportunities for energy renovation and offer them a tailor-made financial plan.
– Develop specific soft loans for the energy renovation of housing. The municipality convinced local banks to develop a new product with reduced interest rates and a longer maturity period compared to standard market conditions. The loans target those homeowners who cannot or do not want to use their financial savings (only) for energy renovation work. The city managed to create competition between the banks leading to spontaneous improvement of the loan conditions offered to homeowners. Cooperation is now established with 8 national banks' branch offices located in the municipality: Nord Jyske Bank, Jyske Bank, Spar Nord Bank, COOP Bank, Danske Bank, Sparekassen Vendsyssel Bank, Nykredit Bank, Arbejdernes Landsbank. The COOP Bank which has recently opened its offices and wants to attract new customers offers a 0% interest rate loan.

3 **Train and cooperate with local market actors** such as estate agents, craftsmen, construction companies and encourage them to contribute to the municipality's objectives. The city has developed a specific training programme to inform them about the benefits of energy renovation and build their capacities to promote and facilitate the energy renovation process for homeowners. Estate agents inform their clients about the benefits of energy renovation when they consider buying the property.

3 **Actively promote the soft loans** through dissemination and the publication of positive customer cases related to energy refurbishment, a demonstration site of energy efficiency and renewable energy technologies, meetings with homeowners, local media and specialised local communication materials.

Business Model

The municipality does not allocate any funds to the financing scheme. Soft loans are provided by the partner banks. They run a creditworthiness check of homeowners, decide who gets a loan and under what conditions. All risk is borne by the partner banks.



Soft loan financing scheme step-by-step

Step	Action
Set up a team	- A project manager and a chief consultant from the Energy City Frederikshavn have worked on the soft loan scheme development.
Carry out a market study	- A market study was carried out to analyse the financial market and already existing financing instruments as well as to identify the growth potential for energy renovation of private properties. Interviews were conducted with individual bank directors. - Key findings: About 67% of housing units are privately owned. Of these, 75% are owner-occupied. 16,000 housing units which were built before 1970 (54% of the housing stock) have the greatest energy saving potential. Most of the homeowners have sufficient financial savings to be able to pay for an energy renovation, they are eligible for bank loans and money is not the main barrier to carrying out energy renovation of the housing stock. Some commercial banks offer loans dedicated to energy renovation. For example, Arbejdernes Land Bank had already allocated 2 billion DKK (€268 million) to loans for housing renovations, without actually lending the money, mainly because of citizens' uncertainty and risk aversion resulting from the financial crisis. - Key recommendations: develop a targeted communication and marketing strategy to convince people about the benefits of energy renovation work, coordinate key market actors to facilitate the energy renovation process to homeowners, convince local banks to offer attractive low cost loans to homeowners and help them launch a new business area.
Develop a business model	- The municipality positioned itself as the main coordinator and catalyser of the energy renovation process in the residential building sector. - The city did not want to disrupt the local financial market by setting up a specific municipal fund that would issue soft loans. The municipality justified its decision on the following grounds. The municipality: Should remain concentrated on the core municipal services it provides to its citizens, including spending a considerable annual budget on the energy renovation of public buildings. Must not appear to be a competitor for the private financial market by acting as a «public bank» but wishes to promote the development of a new business area (soft loans for energy renovation) for the banks. Does not have «unlimited funds» as the banks do to finance the energy renovation of private homes over the long-term. Is already financing preferential loans and guarantees for energy renovation of social housing associations. - Frederikshavn municipality observed an existing network and trustful relationship between banks and their customers, including homeowners as a customer segment. The banks could therefore become reliable partners in promoting energy renovation.
Set up strategic partnerships	**Partnership with banks** - The municipality started discussions with all local commercial banks with the objective of engaging them as the city's official partners in the energy renovation of the housing stock. - The banks have demonstrated interest in launching soft loans and have signed partnership agreements through which they undertake to: Increase the loan portfolio dedicated to energy renovations. Develop soft loans with more attractive conditions than standard market terms. Promote the idea of energy renovation to their clients and encourage them to invest their savings. Participate actively in the launch of the soft loan scheme along with the municipality and other market actors; and Convince the banks' headquarters to further develop this new business area and spread the concept of soft loans nation-wide. - Convincing arguments: the banks will not only develop a new business area for themselves but also for their clients - local contractors, suppliers of building products and estate agents. The uptake of soft loans for energy renovation is expected to boost the local economy and contribute to creating new jobs. Also, their clients' properties will increase their market value. Another benefit: the banks wanted to mobilise homeowners' «passive capital» in developing their business at a time of financial stagnation. - Difficulties: reaching an agreement on a fixed interest rate for energy renovation work. Banks determine the interest rate on the basis of the individual homeowner´s financial situation and creditworthiness (e.g. homeowner´s annual income, existing debt, house value, age, etc.). They have agreed to offer better than standard conditions to homeowners but have refused to agree to a fixed interest rate. Some clients can obtain a close to 0% interest rate.

Set up strategic partnerships	**Partnerships with key market actors** - Energy Advisors: the municipality cooperates with Frederikshavn Utility which employs energy advisors who provide free of charge advice to homeowners. It also associated the organisation Better Home, set up by five Danish companies selling products related to energy renovation (Danfoss, Rockwool, Grundfos, Velux and Velfac), with the scheme. Better Home also provides energy advisory services to homeowners but as this is a paid service, most of homeowners use Frederikshavn Utility. - The municipality involved craftsmen in the process, using the argument that energy renovation will boost the local building renovation market and increase their job opportunities. - Estate Agencies are interested in the scheme because the renovated properties are easier to sell which increases their businesses' turnover. - Cooperation agreements were signed with all the key stakeholders, including a definition of their roles and their interaction with other actors.
Launch the scheme & communicate	**Training** - The municipality organised a series of training sessions targeting all market actors. - Objective: to encourage them to contribute to the municipality's energy renovation programme, inform them about the benefits of energy renovation and build their capacities on how to promote and facilitate the energy renovation process to homeowners. - Results: The banks' customer advisors, craftsmen and estate agents inform their clients about the energy renovation benefits when they consider buying / renovating their property. 16 training sessions were organised for 8 participating banks, involving 125 bank employees. - Training participants received a list of energy advisors covering the municipal area which they provide to their customers. They also recommend those craftsmen who are covered by a «Building Guarantee» (Bygge Garanti) which guarantees the quality of the craftsmen' services. It is a kind of insurance that covers any loss or damage caused by low quality work that does not meet homeowners' expectations.
Launch the scheme & communicate	**Marketing & communication of the soft loans** - The municipality developed a communication strategy to inform homeowners about the free services offered by Energy Advisors as well as soft loans offered by local banks. - Among the most efficient communication and marketing tools: a City Info Truck that regularly visits neighbourhoods targeting particular buildings, meetings with homeowners, the municipal magazine, the city Facebook pages and website, promotion via partners' communication channels, etc. - The municipality also produced a promotional film on the benefits of energy renovation that is shown on TV screens at all DIY stores in the municipality, companies with min. 50 employees, banks and selected supermarkets. The film includes interviews with bank managers, homeowners, real estate agencies and energy advisors who talk about their positive energy renovation experiences. - However, it takes a long time to convince homeowners to take action. Despite an additional incentive and a media buzz around a municipal grant covering 100% of the renovation costs offered to the first homeowner to get a Home Energy Report done, the municipality has not managed to attract homeowners…yet.
Monitoring and improvement	- The home energy advisors report annually on the number of visits, home energy reports issued and measures implemented. - Partner banks report annually on the number and amount of soft loans issued. - When private homeowners use the «Better Home» portal (www.betterhome.today), they are automatically registered in a central system which can then provide information on the number of households located in Frederikshavn who have used the energy advisory services, soft loans and which craftsmen have carried out the work.

Homeowners' advantages

Energy renovation step-by-step

1. Homeowners visit a mobile Info Truck run by the municipality, visit their bank, estate agency or local craftsmen or find information about energy renovation in local media, in the municipal magazine or at public meetings. Citizens can also use the city website and Facebook pages to request a visit from an Energy Advisor.
2. They get information on home energy renovation benefits, services offered by Energy Advisors and soft loans offered by partner banks.
3. An energy Advisor visits the home and prepares a Home Energy Report.
4. The homeowner goes to a partner bank, selects the measures suggested in the Home Energy Report and applies for a soft loan.
5. They sign a contract with one of the partner banks and get a loan.
6. They sign a contract with certified architects, construction companies and craftsmen who signed a quality partnership charter with Frederikshavn or one of the banks and get the work done.

Energy renovation step-by-step

Eligibility criteria		
Type of housing	**Type of households**	**Measures**
-All types of housing in private ownership (not only buildings constructed before 1970) in the municipal area	- No specific conditions regarding the households' income	– Insulation of the building envelope – Electricity and heating systems – Ventilation and heat recovery – Renewable energy production technologies – Control and monitoring of energy devices – Other renovation work not directly related to energy efficiency improvement

Loan conditions

Loan amount, interest rate and maturity depend on the individual financial situation and creditworthiness of each homeowner. The property equity is viewed as a guarantee for the loan. The interest rate will be determined between the homeowner and a bank. It can be a variable or fixed interest rate while no interest is charged in the best cases. The conditions below indicate the existing standard market conditions offered by partner banks to households as of November 2016. The banks commit to offering loans with more advantageous conditions to Frederikshavn citizens.

Jyske Bank	Loan amount: 20,000 – 200,000 DKK (€2,700-27,000) Interest rate: two types of loan: 1. Boliglån 6.2 – 6.65 % or less, (variable, depending on creditworthiness) 2. Boligkredit 5 – 9 % or less (variable, depending on creditworthiness) Maturity: typically 10 -20 years (or less) Grace period: 6 or more months. More options are available, based on the negotiation with homeowners.
Spar Nord Bank	Loan amount: N/A Interest rate: 4.46 % - 12.03 % or less (variable, depending on creditworthiness and property value) Maturity: up to 10 years. The maximum term of a home loan is 30 years Grace period: variable, typically up to 6 months.
COOP Bank	Loan amount: 10,000 DKK (€1,350) - 80,000 DKK (€10,000) Interest rate: 0% Maturity: max 5 years Grace period: 0 month Low income homeowners are encouraged to implement energy renovation in several steps. Once the first measure is implemented and paid for through energy savings, the homeowner starts another measure. This model gradually improves the homeowner's creditworthiness as well as the value of the house.
Danske Bank	Loan amount: variable, theoretical framework between 20,000 and 200,000 DKK (€2,700-€27,000), but in practice, and in most cases about 200,000 DKK (€27,000) Interest rate: 5.5 % - 13.6 % or less (variable, depending on creditworthiness). The homeowner may choose a fixed rate for 10 years or a floating rate. Maturity: An agreement between the bank and the customer. The loan can be redeemed at any time - maximum repayment period of 30 years. Grace period: individual agreements but recommended time is less than 6 months.
Sparekassen Vendsyssel Bank	Loan amount: Not a fixed amount but typically varies between 50,000 and 300,000 DKK (€6,700-€40,300). Interest rate: not a fixed rate but typically varies between 5% and 9% or less. Maturity: up to 30 years. Grace period: up to 12 months.
Nykredit Bank	Loan amount: variable, typically between 50,000 and 300,000 DKK (€6,700-€40,300). Interest rate: 3.3% - 10.0% (lowest interest rate for up to 60% of the house value, the highest rate for up to 100% of the house value) Grace period: individual agreements but recommended time is less than 6 months.
Arbejdernes landsbank	Loan amount: two types of loan 1. Energy loan: up to 100,000 DKK (€13,500) with no requirement for a guarantee and 200,000 DKK (€27,000), with a requirement for a guarantee 2. Home loan: up to 250,000 DKK (€33,600). Interest rate: 1. Energy loan: variable depending on creditworthiness. Typically 6.6 %, when a guarantee is required and 7.1% when a guarantee is not required. 2. Home loan: 4.7 % - 9.6 % (lowest interest rate for up to 60% of the house value, the highest rate for up to 100% of the house value) Maturity: 1. Energy loan: up to 10 years 2. Home loan: up to 20 years Grace period: up to 6 months.
Nordjyske Bank	Loan amount: 50,000-300,000 DKK (€6,720-€40,300) Interest rate: N/A Maturity: N/A Grace period: up to 12 months. Grace months do not need to be consecutive months.

Financing scheme highlights

Strong points	Weak points
- No investment from the municipality into the scheme. - Access to 'unlimited' funds offered by the partner banks. Condition: banks are open to cooperation with the municipality, willing to test new products and offer low interest loans without any guarantee from the municipality. - Banks are more aware of the city climate goals and are actively involved as key actors. - The city is a trusted organisation and a 'guarantor' of the technical solutions and financial products offered by its partners. It puts a 'city stamp' on the products.	- Low and very low income households are not eligible for bank loans. - The municipality does not guarantee energy savings achieved. - Energy Advisors employed by big companies (Better Home) may not be independent.

Need more details about this case study?

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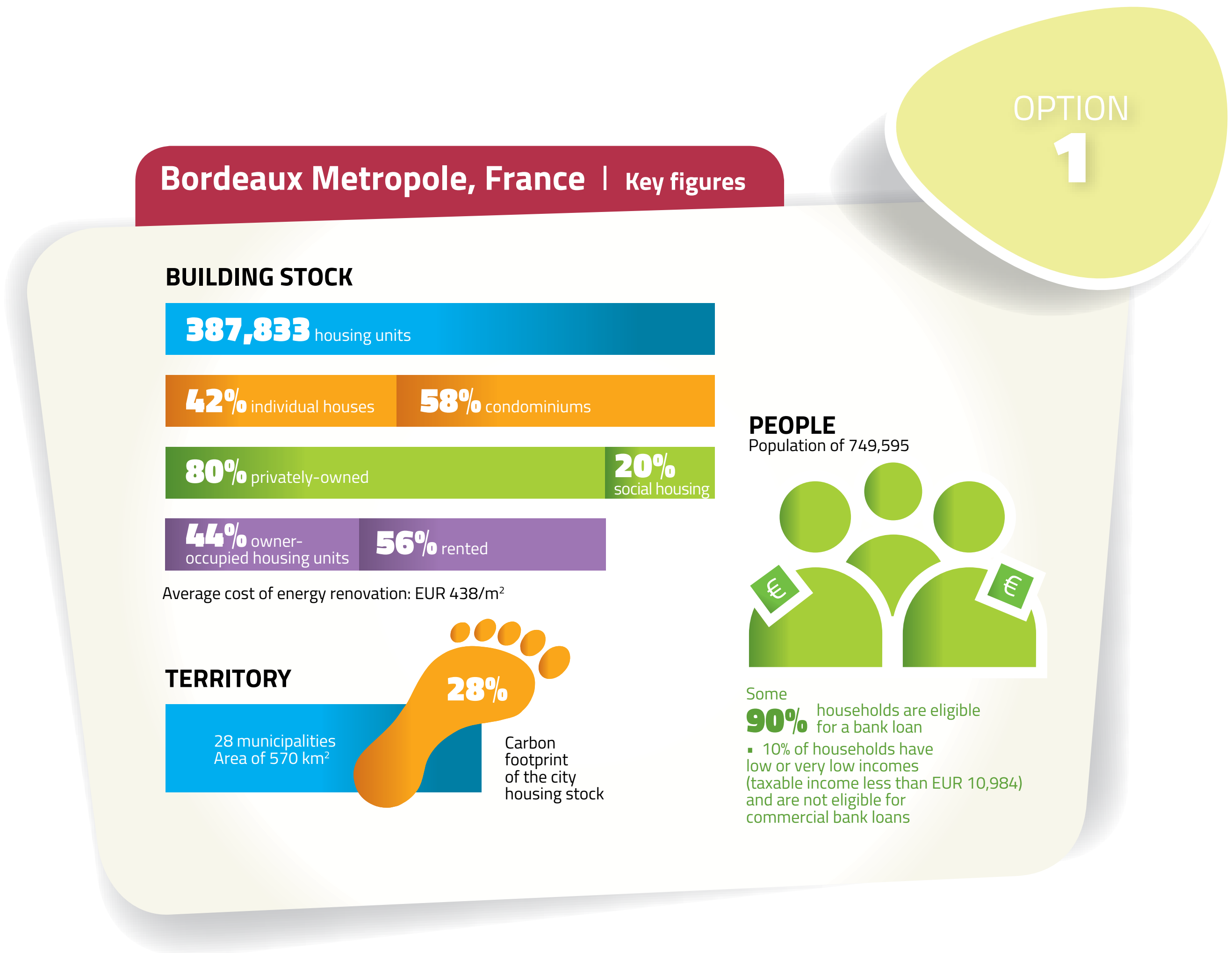


The objective of the Bordeaux Metropole Climate Plan is to renovate **2,000 private and 1,000 social housing units per yea**r. The Metropole encourages the completion of extensive energy renovation work in order to meet low energy building standards (maximum consumption of primary energy is set at 50 kWh/m² per year).

The issue

Lack of attractive financing for homeowners with low to medium incomes

In France, homeowners who wish to renovate their homes have access to the following financial sources:

3 **Commercial banks** offer two types of loans to finance energy efficiency renovation in the housing sector:

- **A consumer loan** usually has a maturity of 7 - 10 years and relatively high interest rates (compared to a mortgage). Average consumer loan interest rate was 3.83% in September 2016.
- **A mortgage** can include energy renovation costs when purchasing the property. The interest rate is lower and maturity longer which is more attractive for homeowners. The average mortgage interest rate was 1.68% in September 2016.

3 **The national government offers a 0% Eco-loan (Eco-PTZ)**, however, its uptake is quite low due to two major barriers. First, banks are expected to validate the technical feasibility of the renovation projects which is not their 'core business' and the whole administrative procedure linked to issuing loans is very complex. Consequently, banks are not encouraged to actively promote this product to their clients. Second, construction companies and craftsmen are required to issue detailed invoices (e.g. type of materials used, expected energy savings) to be eligible under the financing scheme which is not in line with their standard procedures.

At the national level, two other financial and fiscal incentives are also available – the so-called '**Energy Efficiency Certificates' and tax credits**.

However, existing subsidies, incentives and loans reach their limits when households decide to carry out ambitious energy renovation work which significantly increases the costs.

Bordeaux Metropole carried out a market study which revealed that **44% of housing units (154,000) are owner-occupied**. Out of the 154,000 households, nearly 90% would be eligible for a commercial bank loan according to the existing standard bank rules if they aimed to achieve 25% energy savings. However, only 68% of homeowners would be eligible for a bank loan if they wanted to carry out extensive energy renovation. Low income households in particular would be excluded.

Homeowners with low to medium incomes lack attractive low cost financing for their projects.

Fuel poverty and lack of upfront financing for very low income households

Out of the 154,000 targeted housing units, approximately 1,000 are very low income households who could in fact finance extensive energy renovation work through the subsidies for which they are eligible (there is a wide range of subsidies in France for low and very low income households which are not cited here). In spite of this significant financial support, they cannot have the work done because they are unable to pay the contractors in advance. Indeed, subsidies are only reimbursed once the work is finalised and approved.

Upfront financing is the main problem for this target group.

Solution

In order to create a critical mass of renovation projects that can be showcased as good practice, Bordeaux Metropole decided to focus first on the **owner-occupied residential buildings**. It was assumed that this target group would be easier to convince about the benefits of carrying out energy-efficiency renovation work. One of the key decisions was also to take a **holistic approach** to renovation work and provide financial and technical support to homeowners while involving and coordinating all key stakeholders. Finally, Bordeaux Metropole realised that **one product will not fit all** households which led to the development of tailor-made products for low to medium income households and for very low income households.

Bordeaux Metropole:

- **Has built partnerships with commercial banks in order to stimulate the uptake of the national 0% Eco-loan and to develop and promote low interest 'energy renovation loans':** Bordeaux Metropole has taken a holistic approach to renovation. Awareness raising, technical support and financial incentives targeting homeowners are all provided via a **Local Energy Renovation Platform**. The Platform provides technical and financial support to homeowners and stimulates the market by connecting banks and contractors with homeowners.

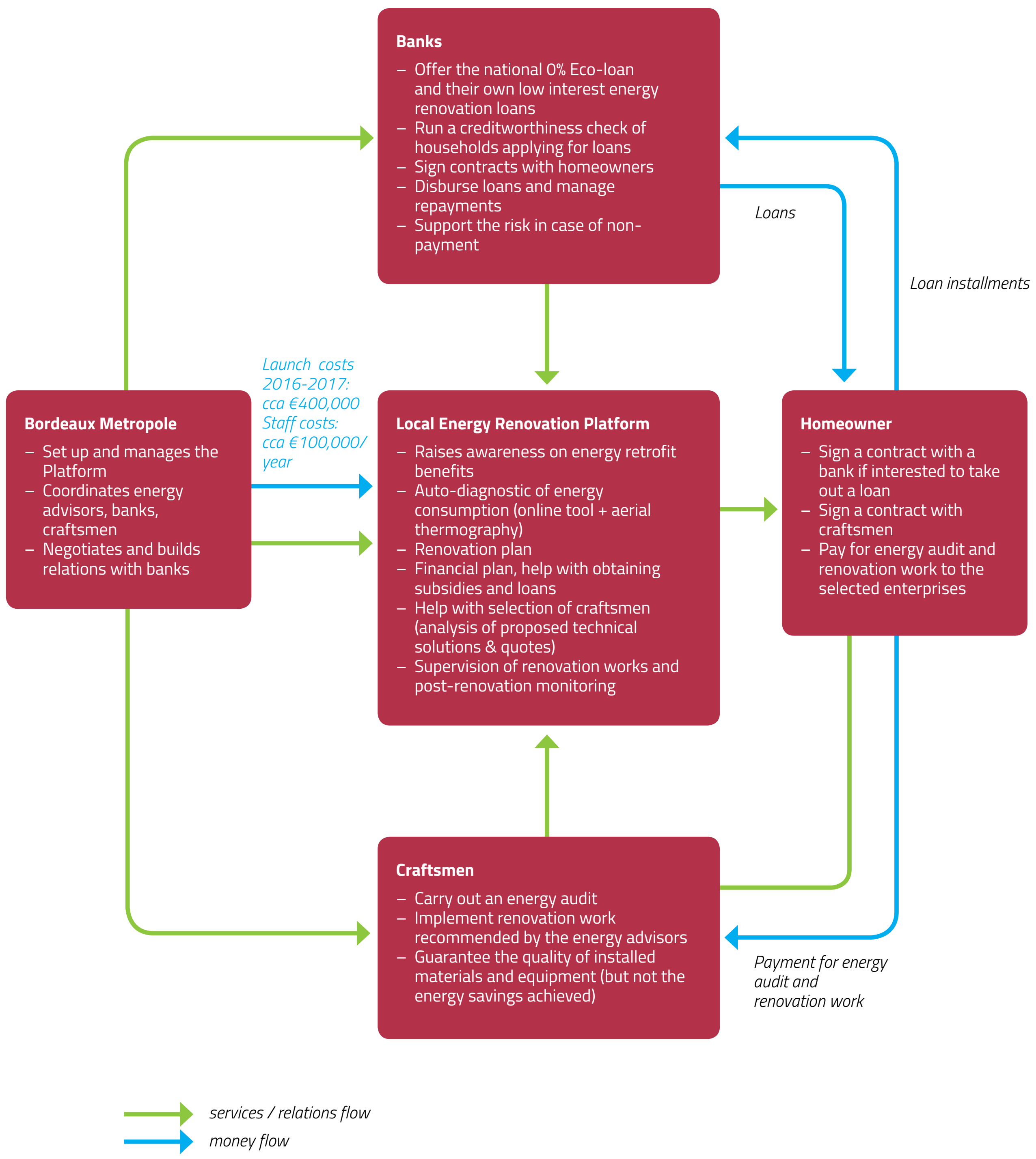
  The Platform stimulates the **uptake of the 0% Eco-loan**: independent energy advisors help homeowners develop technically feasible projects eligible for the Eco-loan that do not need to be checked by the banks. The Platform also provides a list of craftsmen certified within the framework of a national quality certification scheme 'RGE' or a quality charter developed by the Metropole.

  Finally, Bordeaux Metropole has established partnerships with a limited number of banks who have become official partners of the Platform. They agree to provide specific '**energy renovation loans**' with lower interest rates to homeowners. All partner banks promote their products on the Platform which boosts **competition**.

- **Has set up a 'Subsidy advance payment fund'** which will advance money to contractors who carry out energy retrofit work in order to help out low and very low income households.

Business Model

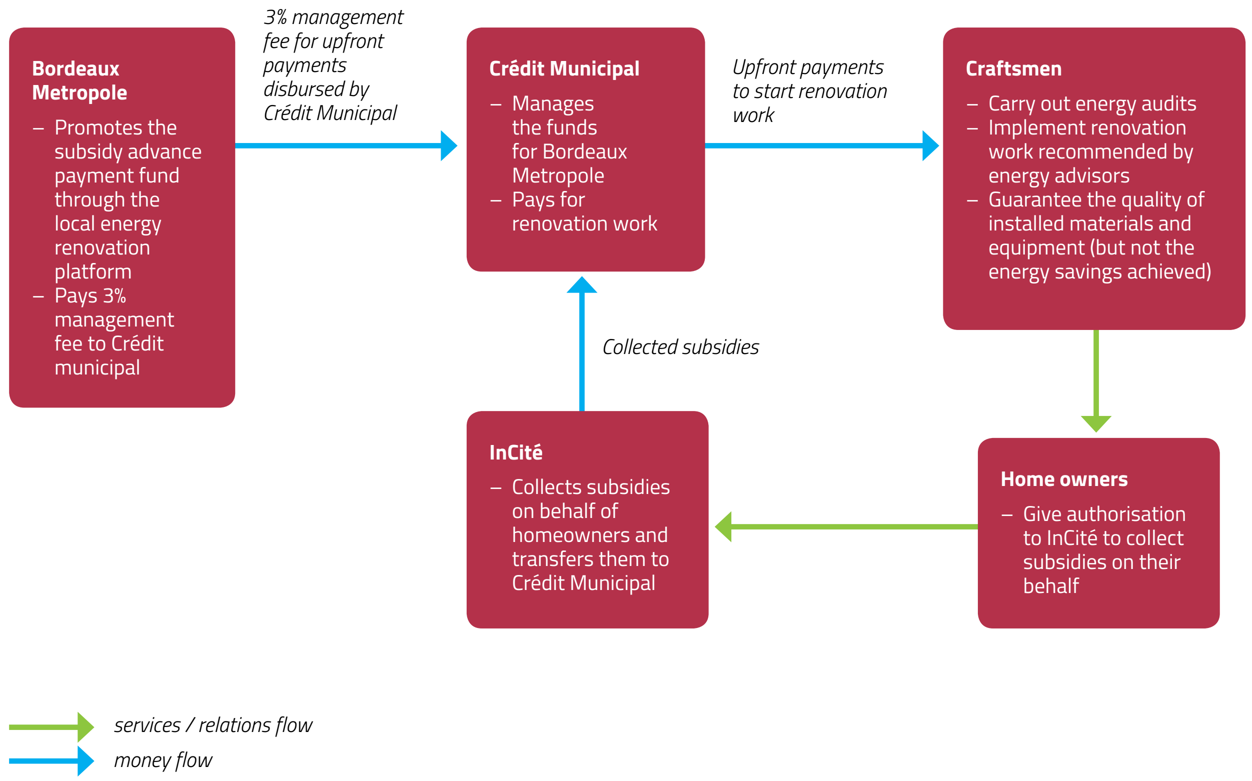
Low interest energy renovation loans: Bordeaux Metropole does not subsidise low interest loans offered by local banks and does not pay any administration fees for their management. These are managed in full by the partner banks which determine homeowners' eligibility criteria based on their creditworthiness. The Metropole has not set up any guarantee fund to cover any non-payments by homeowners. The entire risk is born by the partner banks.



Subsidy Advance Payment Fund
Bordeaux Metropole signed an agreement with two partners - Crédit Municipal (local public bank) and InCité (local public-private company) to jointly set up a **'Subsidy advance payment fund'**.

The agreement states that:

– **Crédit Municipal** pays in advance for renovation work directly to craftsmen/companies.
– Homeowners authorise **InCité** to collect subsidies on their behalf (no grants are channelled through the owners) which are then paid to Crédit Municipal.
– **Bordeaux Metropole** pays a fixed management fee of 3% for advanced payments paid by Crédit Municipal.



Low interest energy renovation loans step-by-step

Step	Action
Set up a team	- 1.5 Full Time Equivalents (FTEs): project manager and technical experts, two experts on financial, legal and admin. issues intervened on an ad-hoc basis.
Carry out a market study	- **A market study** was carried out by an external consultant who was selected through a tendering procedure (indicative cost: €60,000 to €80,000) - **Key findings:** 44% of buildings are owner-occupied, 68% of low to medium income households could have access to a bank loan, 10% of low to very low income households unable to secure upfront financing although eligible for subsidies. - **Key recommendations:** focus on homeowners occupying the buildings, global approach to energy renovation work through the Local Energy Renovation Platform, specific tailor-made financial support for each target group. - The market study was an **important phase** of the project. It provided the elected officials with a snapshot and specificities of the local area as well as clear recommendations on what measures to take. This facilitated decision making for launching a plan for massive energy renovation.
Develop a business model	- Bordeaux Metropole did not have sufficient **budget** to set up a fund that would disburse low interest loans to homeowners. - There was **no interest in managing the fund** as it requires complex administrative procedures and at least 1 full time staff member to manage it (based on a previous experience with a similar financing scheme). - **Trigger action**: motivate a limited number of partner banks to offer attractive energy renovation loans and boost competition through the Platform. This solution is 'lighter' in the eyes of the politicians because it does not require any investment. When it is proved to work, a second step can be envisaged such as a third party investment or a guarantee fund to motivate households who cannot access a bank loan or propose a specific solution for condominiums in the form of a collective loan (see 'Next steps' below).
Set up strategic partnerships	**Establishing the Local Energy Renovation Platform** - **Launch costs for 2016-2017**: €400,000 (incl. operational and communication costs) - **Staff costs**: €100,000 / year for 2 FTEs coordinating the Platform.
Set up strategic partnerships	**Partnership with banks** - Bordeaux Metropole contacted local banks and proposed they become official **partners of the Platform**. The partnership has been concluded with a limited number of **5 to 6 banks** only so as not to disperse the volume of loans, give a certain exclusivity to the Platform partners and speed up its launch. The Metropole expects that the Platform will foster competition and the volume of loans will gradually rise which will encourage banks to further reduce the costs of the loans. Banks are encouraged to position themselves quickly as the number of partner banks is limited. - **The choice of banks**: was done through a **competitive dialogue**. The Metropole gave priority to banks with whom it already had good cooperation in the past on similar projects. It also gave priority to banks with numerous branch offices in the geographical area to ensure the best possible proximity for the households. - **Partnership agreements** stipulate that the partner banks will actively promote the Platform and the 0% Eco-loan as a priority. They will also provide their own energy renovation loans. These will offer **more advantageous conditions to Bordeaux Metropole citizens** compared to average conditions at the national level. This specific offer has to be a real added value for the territory. The Metropole could not oblige the banks to include detailed conditions of the soft loans in the agreement though. Banks also commit to monitoring the number of loans disbursed and to sending regular reports to the Metropole. - Banks were interested in the partnership. The Platform offers them a unique **marketing opportunity**. It allows them to keep their existing clients and gain new ones while increasing their loan portfolio. - **Difficulties**: each bank network has different internal policies, rules and decision-making processes. Their commercial strategies also differ. Therefore, the Metropole could not apply a single cooperation framework and all partnership agreements are different (tailor-made).
Set up strategic partnerships	**Partnership with other key actors** - The Metropole also developed strategic partnerships with **local businesses and craftsmen**. It set up an inventory of businesses that signed up to a 'Bordeaux Metropole Quality Charter' or that are certified under a national quality certification scheme, 'RGE'. This inventory is promoted on the Platform. - **Other partners** who participate in developing and operating the Platform include public authorities such as the French environment and energy management agency (ADEME), the Local Energy and Climate Agency (ALEC), Energy Information Centres (EIE), professional building sector associations such as the French Building Federation (FFB), the Confederation of Crafts and Small Building Enterprises (CAPEB), and the Chamber of Commerce and Industry (CCI).
Launch the scheme & communicate	- The Platform was officially launched at one of the biggest national events on the energy transition (Les Assises européennes de la transition énergétique) that took place in Bordeaux in January 2017. A large communication and media campaign included radio advertising spots, articles in newspaper and magazines, billboards and other urban advertising, social networks and flyers. - A webmaster makes sure that the Platform website is displayed at the top of a list of research results on Google and other search engines when Bordeaux Metropole citizens search for information on energy renovation work. - Partner banks promote the Platform to their clients.
Monitoring and improvement	- Homeowners need to register to be able to access all information on the Platform and to open their **personal 'energy renovation account'** where they can exchange information with an energy advisor (invoices, energy audit results, etc.). - Bordeaux Metropole will thus be able to **monitor** the number of connections, accounts and appointments taken with energy advisors. It will also monitor the number of loans disbursed. - Other statistics can be compiled to better understand the households' profile and to adapt the strategy in case of unsatisfactory results. - Depending on the data the households are willing to communicate, it may be possible to set up a database of the actual energy savings and satisfaction of homeowners with their energy renovation. This could help Metropole to set specific objectives in terms of % of energy savings for certain types of housing.

Homeowners' advantages

Technical assistance through the Local Energy Renovation Platform

1. The homeowner visits the **Local Energy Renovation Platform** (online) and **creates a personal account** which is validated by an energy advisor.
2. The homeowner runs an on-line **self-energy audit** of the house / apartment or has an energy audit carried out by a **certified professional**. The result is analysed by an energy advisor.
3. The energy advisor develops an **energy renovation plan** including expected energy savings and estimated **renovation costs**. The homeowner validates the measures he wants to take and publishes them in his personal account to receive the **service offers and quotes from craftsmen**.
4. The energy advisor and homeowner analyse the craftsmen' service offers and quotes, select and **validate the most appropriate ones**.
5. The energy advisor helps the homeowner to identify all **subsidies** he is eligible for and **relevant bank offers**.
6. The homeowner applies for a **0% Eco-loan** and receives additional **loan offers** from partner banks to cover his funding needs if unable or unwilling to pay from his own savings. He signs a contract with a partner bank and **gets a loan**.
7. The homeowner signs a contract with certified technical consultants /architects / construction companies / craftsmen who have signed the quality charter with Bordeaux Metropole and gets the works done.
8. Once the renovation work is finalised, the energy advisor helps the homeowner to prepare the **application forms to obtain subsidies**.

Low interest energy renovation loans

Eligibility criteria

Type of housing	Type of households	Measures
-All types of housing (single-family, apartments, condominiums) built before 1st January 1990 -The owner-occupied housing units are the main target, however, rented properties are also eligible	-Households meeting the eligibility criteria of the national 0% Eco-loan -No specific conditions regarding the households' income	In the framework of the national **0% Eco-loan**, at least two measures out of the list below must be implemented: – Thermal insulation of roofs, walls, doors and windows; – Installation, regulation or replacement of heating systems connected or not to energy efficient ventilation systems or hot water production; and – Installation of hot water production equipment using renewable energy sources. All work has to be performed by certified professionals holding quality accreditation. Eligible costs also include energy audits, project management (e.g. architect fees), insurance, etc. In the context of the **soft loans** offered by partner banks: homeowners can only have one energy renovation measure carried out (e.g. window replacement).

Loan conditions

National 0% Eco-loan	Partner banks
If the beneficiary implements 2 eligible measures: Loan amount: max. €20,000 per housing unit Maturity: max. 10 years Interest rate: 0% If the beneficiary implements **3 eligible measures**: Loan amount: max. €30,000 per housing unit Maturity: max. 15 years Interest rate: 0%	The conditions below indicate the existing standard market conditions offered by partner banks to households as of November 2016. The interest rates range from 1.50% to 3.20% with maturity of up to 15 years. The banks undertake to offer loans with more advantageous conditions to Bordeaux Metropole citizens. All partner banks are encouraged to propose further advantages to homeowners such as reduced or zero loan administration fees, a grace period, longer maturity, etc. **Partner bank 1** Loan amount: max. €25,000 Maturity: max. 10 years Interest rate: 1.50% - 1.85% **Partner bank 2** Loan amount: N/A Maturity: 5-15 years Interest rate: 1.85% - 3.05% **Partner bank 3:** Loan amount: max. €75,000 Maturity: 10 years Interest rate: 1.55% - 1.80% **Guarantee:** No specific guarantee required by the banks **Beneficiary's own contribution:** No minimum contribution from the homeowner is requested by the bank. The 0% Eco-loan can be combined with other existing subsidies. Other partner banks: to be confirmed

Financing scheme highlights

Next steps

In the near future, Bordeaux Metropole wants to facilitate access to attractive financing to households that are not eligible for the **0% Eco-loan and soft loans** (some 10,000 low income households) offered by commercial banks as well as condominiums. Three options are being explored:

- **Set up a third party investment operator**: either a public company financed in full by the Metropole or a public-private company (Société d'économie mixte) that would provide financing to homeowners. This operator would take into account the cash flow generated through energy savings and offer long-term financing which would further increase the number of solvent households.
- **Set up or contribute to a guarantee fund**: this would cover all the risks of default payments currently borne by the partner banks which would allow them to soften their loan eligibility criteria.
- **Develop specific financial support for condominiums**: grants for energy efficiency renovation work of buildings' communal areas for very low income households and grants to pay a project manager who assists the condominiums in the preparation and implementation phases of the renovation. About €250,000/year should be allocated for this action.

Bordeaux Metropole has signed an agreement with the national promotional bank **Caisse des Dépôts** to maximise financial support for condominiums that want to carry out ambitious energy renovation. The bank will provide: an investment subsidy for low energy renovation (€4 m); a subsidy for a global audit (€96,000); and aid for financial engineering (€76,000).

Need more details about this case study?

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OPTION 1

Parma, Italy | Key figures

BUILDING STOCK

18,671 buildings

80,595 housing units

47% houses **53%** condominiums

400 social housing units

PEOPLE

Population of 191,734

Majority of people living in Parma have an average revenue of less than EUR 22,000/year and are eligible for a commercial bank loan.

- Less than 4% of households have low or very low income and are not eligible for a commercial bank loan.

TERRITORY

Area of 260.8 km²

32% Carbon footprint of the city housing stock

In Parma the housing stock is responsible for more than 32% of CO_2 emissions. The city council has decided to focus on residential buildings as this sector accounts for more than 70% of the building stock.
Two specific actions within Parma's Climate Plan are related to energy retrofits. The first is the renovation of **1,000 condominiums**. It has been estimated that through this measure it is possible to avoid 4,500 tons of CO_2 emissions by 2020 . The second is to focus on single family houses or apartments.

The issue

Homeowners' low awareness and confidence in energy retrofits
Parma citizens do not show a great interest in implementing energy efficient refurbishments. Some of them are afraid to invest as they are not confident in the process and are wary of a poor result after renovation.

The Municipality's big challenge is to **raise public awareness** and convince citizens that investing in energy measures is a sensible decision, as it not only limits and decreases the energy use of their homes but also improves the quality, comfort and value of the property.

In **condominiums**, the decision-making process is perceived as the biggest obstacle as it is difficult to reach an agreement that is satisfactory for all owners. In this regard, the municipality notes the importance of involving the **condominium managers** as the main partners and intermediaries in the internal decision-making process and promotion of energy efficiency measures.

Existing financing tools are insufficient and unattractive
Apart from the non-financial barriers, Parma citizens do not have access to attractive financing. Currently several financial instruments support energy renovation but they are either unattractive or not well known:

– **Commercial banks** offer two types of loans to finance energy retrofits:
– **Consumer loan**: short payback period and high interest rate (average of 10%).
– **Mortgage**: long payback period and only attractive when purchasing the home.

3 **The State** offers:
– A **65% fiscal deduction** for implementation of measures going beyond the national energy efficiency standards.
– **'Conto termico'** – a national grant funded by the Ministry of Economic Development. The grant is offered to private homeowners who want to replace their heating system with more energy-efficient technology.
The conto termico and the fiscal deduction cannot be combined.

A market survey shows that citizens perceive the energy bill reduction, tax deductions and increasing energy prices as the most motivating factors encouraging them to energy retrofit their homes. A free energy audit is also a strong incentive. As regards the loans, 63% of survey respondents found the incentive in the form of a soft loan very attractive. 66% would accept a 0% interest loan, while 34% would be willing to pay at most 2% interest.

Solution

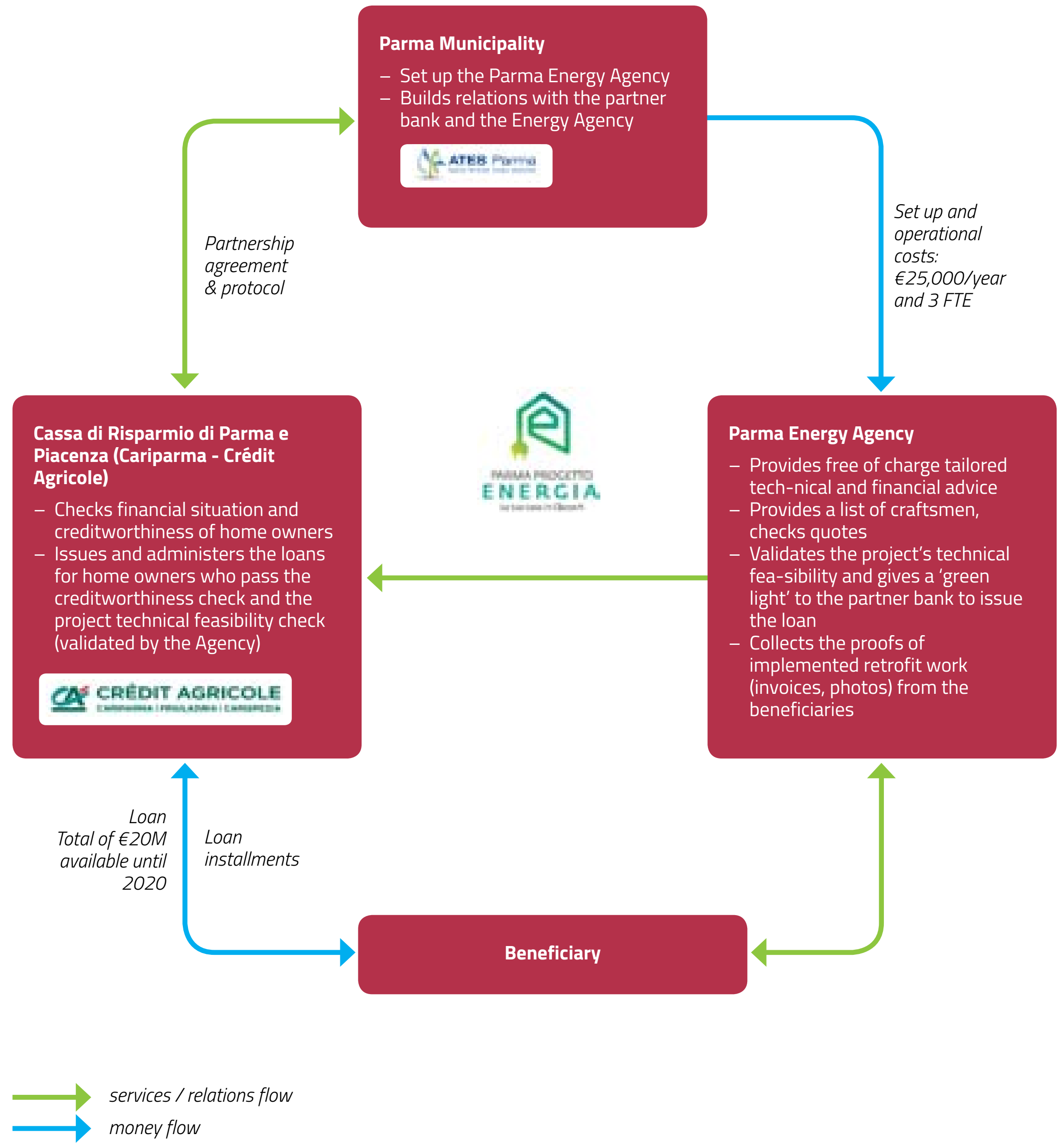
In order to raise awareness, provide technical support and offer complementary financing solutions to its citizens, the municipality of Parma:

– **Developed a soft loan financing scheme in cooperation with a local bank**
The municipality together with the Cassa di Risparmio di Parma e Piacenza (Bank Cariparma - Crédit Agricole) set up a financing scheme that provides low-interest loans to home-owners of single individual houses and condominiums, in order to increase energy efficiency and the use of renewable energy in their dwellings.

– **Set up a partnership with Parma Energy Agency whose role is to raise awareness and provide technical assistance to homeowners**
The Parma Energy Agency that was set up by the Municipality of Parma provides support to homeowners in developing the technical and financial aspects of their energy retrofit projects, selecting craftsmen and implementation of energy saving measures.

Involvement of the municipality and the independent local energy agency adds value and credibility to the energy renovation programme and the soft loan scheme.

Business Model



Soft loan scheme step by step

Step	Action
Set up a team	- The Municipality's technical and economic departments collaborated on the financing scheme development – approx. 3 full time equivalents (FTEs).
Carry out a market study	- A market study was carried out to: ▪ Analyse the composition and age of the Parma building stock. ▪ Identify an economically optimal set of retrofit measures. ▪ Identify the main financial and non-financial barriers as well as the most appealing incentives for homeowners. ▪ Evaluate the economic, social and environmental impact of a revolving fund / soft loans, including a Social Return on Investment. - **Key findings**: better knowledge of the building stock and measures that need to be implemented; main homeowners' incentives - increasing energy prices, energy bill reduction, tax deductions, free energy audit and soft loans of max. 2% interest rate. - The part of the study related to the building stock was carried out by the Energy System Research in collaboration with the Ministry of Economic Development (cost: €3,000). The rest of the study was done by the Interdepartmental Centre for Energy and Environment of the University of Parma (cost: €2,000)
Develop a business model	- Due to recent **budget cuts**, the municipality of Parma was not able to allocate any funds to a revolving fund or to a soft loan financing scheme. - The only option was to establish a **partnership with a financing institution** interested in providing soft loans without any financial involvement of the municipality. The preliminary discussions with banks showed that these were not willing to get involved unless a municipal **guarantee fund** was set up to cover potential loan payment defaults. - At the first stages of the business model development, the city discussed the possibility of setting up a regional guarantee fund with the Emilia Romagna region which is managing the **European Structural and Investment Funds** (ESIF). Unfortunately, according to the Region, the ESIF were committed to public sector projects and it was impossible to re-allocate them to finance projects targeting the private residential sector. - Finally, Cariparma agreed to become a partner despite the fact that the guarantee fund could not be created.
Set up strategic partnerships	**Partnership with banks** - Parma launched a **call for an expression of interest** that was open for one month. The call contained 5 majors requirements: ▪ Earmark an annual budget of min. €10 million to finance energy efficiency work (up to €50,000 per project) until 31/12/2020. ▪ Loan maturity of between 5 and 10 years. ▪ An interest rate lower than 5%. ▪ A service delivered from local offices. ▪ Publication of a specific form to stimulate loan applications. - To try to ensure a response from the banks, the city discussed the idea prior to the launch. However, **none of the local banks made an offer**, even though the deadline was extended by one more month. The municipality later found out that one local bank was interested in the project but some **key points were missing** in the call. For example, the standard procedures between the bank, the Municipality and the Parma Energy Agency were not described and the laws and regulations related to energy retrofits of condominiums were not clear. - The City published a second call. **Cassa di Risparmio di Parma e Piacenza** (Cariparma - Crédit Agricole) responded. **The partnership agreement** stipulates that the partner bank will allocate €20 m to a soft loan until 2020 and actively promote the loan. The agreement includes the commitments taken by the Municipality and the bank as well as the specifications of eligible beneficiaries and the loan conditions (amount, maturity, interest rate). Another document called 'protocol' specifies the cooperation and standard procedures between the Municipality, the Bank and the Energy Agency. - **Cariparma - Crédit Agricole joined for the following main reasons**: ▪ To attract new customers and reach a new market. ▪ Cooperation with a municipality is an added value. It gives credibility to the soft loans offered by the bank. ▪ The Energy Agency is believed to reduce risks - Parma also strived to explore the partnership opportunity with the **European Investment Bank** and the European funding instrument called 'The Private Finance for Energy Efficiency' **(PF4EE)**. However, none of these attempts was successful.

Set up strategic partnerships	**Partnership with other key actors** - The Parma Energy Agency actively cooperates with the building sector and contractors specialised in the field of energy renovation
Launch the scheme & communicate	- The soft loan scheme was officially launched by the Mayor and a partner bank representative in December 2016 at a press conference. - A communication campaign is currently being developed (late 2016) and involves the Municipality, the bank and the Energy Agency. The Energy Agency acts as **a front office** for citizens. - The communication tools include: ▪ A webpage on Parma's website ▪ A Facebook page ▪ The municipality's newsletters ▪ The bank's newsletters ▪ Media Relations ▪ Printed materials: brochures, leaflets, posters ▪ Info point: Parma Energy Agency ▪ Info corners: (offshoots of the info point): in bank offices and municipal buildings ▪ Video campaign ▪ Agreement with contractors and other professionals (Architects' associations, …) ▪ Adverts on public monitors across the city
Monitoring and improvement	- The bank, the municipality and the agency will meet every 6 months to monitor the results and procedures, number and (total amount of loans issued, revision of the standard procedures)

Homeowners' advantages

Technical assistance

1. Homeowners interested in energy retrofits visit the **Parma Energy Agency**. They get initial advice on potential energy saving measures and existing technologies.
2. When they have decided to carry out energy renovation measures, they present the project to the Agency which **checks its technical feasibility** and gives the Bank the go-ahead to issue the loan.
3. Homeowners contact the bank which analyses their **financial situation** and issues the loan provided they pass the creditworthiness check. The renovation work can start.
4. Parma Energy Agency **checks if the work is completed** (invoices, photos, drawings, declaration of completion of work and of conformity).

Soft loans

Eligibility criteria		
Type of housing	**Type of house-holds**	**Eligible measures**
Single family houses and apartments	- Parma inhabitants - Homeowners - Have to pass the banks' creditwor-thiness check	- Thermal insulation of roofs, walls, glass walls, doors and windows - Installation, regulation or replacement of heating systems connected or not to energy efficient ventilation systems or hot water production. - Installation of renewable energy sources. All work must be performed by certified professionals able to deliver a decla-ration of conformity required by the law. Only measures going beyond the national energy efficiency standards are eligible

Loan conditions	
Cassa di Risparmio di Parma e Piacenza (Cari-parma - Crédit Agricole)	**Loan Amount**: max €50,000 **Maturity**: 5 to 10 years **Interest rate**: Variable interest rate; Euribor (3 months) + 2.9% Current market conditions: Euribor 3 months is negative. Parma homeowners get the interest rate of 2.9%. **Guarantee**: Not required. The Energy Agency ensures the money is used for energy retrofits and not for another purpose.

Financing scheme highlights

Strong points	Weak points
– Management carried out by the bank, less bureaucracy for the municipality – Impartial technical check made by the Energy Agency – There is no similar financial product on the market with such attractive conditions. Given the low interest rate, energy savings and the fiscal deduction, the investments quickly pay for themselves. – The presence of the Municipality in this project increases of citizens' trust. – Contribution to the city's energy transition strategy approved by the City Council	– Energy retrofits remain a complex issue for homeowners. The procedure of a 'double check' (technical and financial) may be seen as overly bureaucratic. – Requires good coordination among the bank, municipality and the energy agency and regular meetings

Recommendations: High quality and continuous marketing campaign

Next steps:
- The Municipality is working on a project called Sustainable Condominiums that is directed at multi-residential buildings. The Municipality has signed a protocol with 5 ESCOs whereby they commit to performing energy audits on condominiums, developing and applying EPC contracting and creating a local network of building enterprises, tradespeople, designers and banks.

Need more details about this case study?

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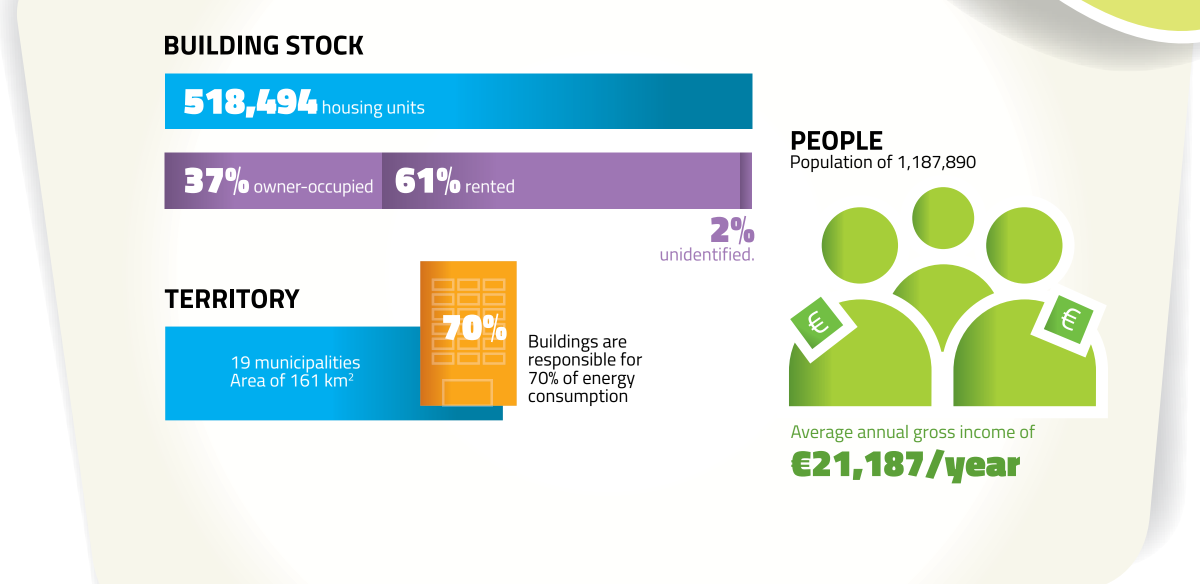
OPTION 2

Brussels Capital Region, Belgium | Key figures



Source: Institut Bruxellois de Statistique et d'analyse

The Brussels Capital Region has established ambitious energy and climate goals. It is on the way to reducing its CO_2 emissions by 20% by 2020 while aiming to achieve a 30% reduction by 2025 and 80 to 90 % CO2 reduction by 2050. In 2016, the Region developed an **Energy, Climate and Air Protection Plan (PACE)**. Buildings which are responsible for 70% of energy consumption play a central role in this plan and other policies developed at the regional level.

The issue

Lack of attractive financing for homeowners with very low to medium incomes
In Brussels Capital Region, **commercial banks** offer the following two types of loans to finance housing energy retrofits:
- **A consumer loan** which usually has a maturity of 10 years and relatively high interest rates of 3 to 10%.
- **A mortgage** that can include energy renovation costs. Interest rates are lower than for a consumer loan but the maturity is usually the same (10 years). The current average interest rate for a mortgage varies between 1.5% and 3%.

The Region and some of the municipalities offer financial incentives to encourage citizens to carry out energy renovation work in their homes such as:
- **'Energy grants'** for energy retrofit work (energy audits, insulation, ventilation and heating systems) that meets ambitious energy objectives set by the region. The level of ambition is related to the Energy Performance of Buildings Directive (EPBD) which sets a minimum standard for insulation.
- **'Renovation grants'** which can finance any work related to the renovation of a building such as scaffolding, façade rendering and electrical installation renovation.

Although the Region offers incentives to citizens such as technical assistance and grants, some of them face **difficulties with pre-financing the work**. Homeowners can often finance up to 50% of renovation work via grants, however, they receive the grants only once the renovation works are finalised and paid for. Many homeowners, in particular those on very low incomes, are unable to **pay all the invoices upfront** and/or they do **not have enough money in their bank accounts** to pay for the rest of the investment (not covered by grants). Moreover, people with low and very low incomes may not be eligible for existing loans offered by commercial banks because the risk for the banks is too high.

Solution

The Brussels Capital Region decided to launch a **Brussels Green Loan**, a zero to low interest loan which helps homeowners to pre-finance energy renovation work.

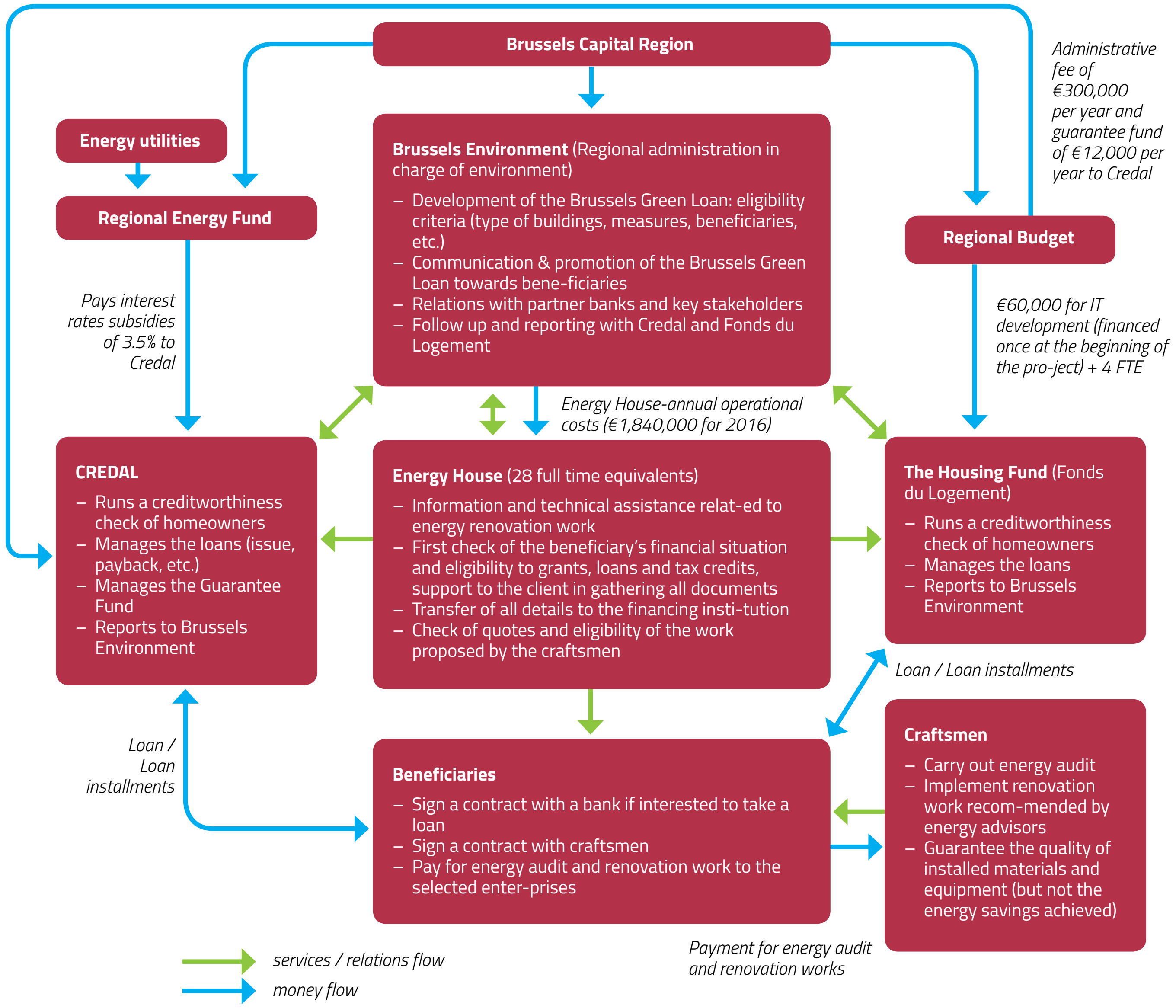
Homeowners have a choice between:

1- **A short-term consumer loan** with an interest rate of **0% or 1%** which they have to reimburse in up to 10 years.	2- A **long-term mortgage** with a personalised interest rate **between 0% and 2%** which needs to be reimbursed within a max. of 30 years. Long maturity results in lower monthly installments.
This loan is offered by **Crédal**, a financial cooperative that aims to promote a fairer and more supportive society.	This loan is offered by **the Housing Fund** (Le Fonds du Logement/Woningfonds) of the Brussels Capital Region which is a cooperative company. Its objective is to defend access to housing rights.

Interest rates depend on the homeowner's income but are very advantageous in every case.

The added value of the Brussels Green Loan is that even **low and very low income households** and people with no access to commercial loans are eligible. Crédal and the Housing Fund's core business is to support citizens in their project of buying a home and provide them with loans.
The Brussels Capital Region's **target is** to issue **700 loans in 2017**.

Business Model



Business Model: Crédal

Crédal issues loans and the **Brussels Capital Region** covers all other costs related to the Brussels Green Loan such as Crédal's operational costs related to its management, subsidies to reduce the interest rates and a guarantee fund:

3 **Operational costs** of about €300,000 per year cover Crédal's staff and other costs related to the management of the Brussels Green Loan:
   – Overhead costs - Telephone, facilities, travel costs, training, IT, others.
   – Human Resources - 3 Full Time Equivalents (FTEs) for the loans + 1 FTE for general coordination.

   This amount is disbursed in stages depending on the number of loans issued in future years (staged subsidy). Crédal receives 2/3 of the budget, the remaining 1/3 being released once 250 loans have been issued.

3 **Interest rate subsidy**: the Region subsidises the interest rate of the Brussels Green Loan in order to reduce it and make it more attractive for homeowners. The subsidy is fixed with a 3.5% interest rate, as requested by Crédal. This means that if the beneficiary gets a 0% loan, the Region pays an interest rate of 3.5%. If the beneficiary gets a 1% loan, the Region pays a rate of 2.5%.

3 **Guarantee fund**: the Region has set up a guarantee fund to cover any payment defaults (failure of a homeowner to pay the interest or principal on a loan or security when due). The Region is thus bearing the financial risk related to non-payments. The guarantee fund is managed by Crédal (staff costs are included in the operational costs).

From 2008 to 2010, the region allocated between €12,000 and €24,000 per year to the guarantee fund. The current balance of the guarantee fund comes to €160,924 which is 2.16% of the total amount lent. Given that the risk is really low (1 case of non-payment since 2008), it was decided to stop feeding the guarantee fund in 2016.

Since 2008, Crédal has issued **857 loans for more than €8 m**. For the Region the **cost per loan is €2,221**. This means that €**1€**invested by the Region into the Brussels Green Loan has triggered private investment in energy efficiency measures of **€4.8**.

Business Model: The Housing Fund (FDL)

The core business of FDL is to provide mortgage loans. The Brussels Green Loan completes their offering by providing a specific product related to energy renovations.

The internal funds allocated by FDL to the Brussels Green Loan come from the early reimbursement of mortgages. The Region has provided a single budget of €60,000 for Information Technology developments and 4 FTEs for management of the loan. The Region also pays the difference between the interest rate paid by the beneficiary and the variable rate of approximately 2.5%.

There is no guarantee fund backing the loans issued. The Housing Fund bears the risk in full. At this stage (end 2016), only 6 green loans have been issued by the Housing Fund.

The Brussels Green Loan step by step

Step	Action
Set up a team	- 0.5 full time equivalent in charge of the development of the scheme at Brussels Environment - Profile: financial background (accountant or credit specialist) - In charge of drafting and running public tendering, negotiations and follow-up with potential partners
Carry out a market study	- **A market study** was carried out to determine what incentives already exist to motivate citizens to invest in energy renovation work and the market gaps. - **Key findings**: The market study recommended setting up two different financial products: one soft loan for medium income households and another soft loan for low and very low income households. - **Indicative cost**: Part of the study (existing incentives) was conducted internally and the market study was subcontracted to an external expert (€80,465 - inclusive of VAT).
Develop a business model	The Brussels Green Loan as it exists today is the result of the following reasoning: - A soft loan is needed to complement the existing financing instruments and to boost energy retrofits. - The Region is not allowed to lend money so there is a need for a partner financial institution for which delivering loans is a core business. - The Region wanted to provide a loan that is complementary to the existing 'energy grants', 'renovation grants' and the Energy House technical assistance services. - There is a need for a holistic approach to achieving ambitious energy renovations.
Set up strategic partnerships	**Partnerships with banks** - The Region launched a **call for an expression of interest** with the aim of attracting partner banks willing to co-develop two types of soft loans, as recommended in the market study. - One financial institution responded to the call. **Crédal** was ready to co-develop the Brussels Green Loan for low and very low income homeowners, who are already the main target group of this solidary cooperative bank. - Unfortunately, **commercial banks** showed no interest in cooperating even though the Region hoped they would be interested in co-developing a soft loan for medium income households. Brussels Environment who negotiated with the banks on behalf of the Brussels Capital Region identified the following main reasons why commercial banks did not respond to the call for an expression of interest: ▪ The Region was imposing a certain level of control on the issued loans (to make sure the eligible work is financed) which was not in line with the banks' standard procedures. ▪ Burdensome administrative procedures and a lack of flexibility in relation to the work with the Region. - The Region finally enlarged the Brussels Green Loan to medium income households and is now offering the Housing Fund's financial product under the 'Brussels Green Loan' brand. The loan thus covers a majority of homeowners. - **Partnership agreement**: a key point that should be included in the negotiations / contracts with banks is **staged financing** – their costs are reimbursed depending on the amount of loans issued.
Set up strategic partnerships	**Partnerships with other key actors** - **The Energy House**: employs 28 FTEs and delivers technical assistance to homeowners. - **Training** is organised by Brussels Environment to train regional associations active in the field of energy retrofits. Case studies featuring fictive energy renovation projects and soft loan beneficiaries were used to illustrate the loan mechanism and to ensure that the staff are able to identify potential clients and check their eligibility. Among the training participants were Réseau Habitat (The Housing network). - All partners are involved in **promoting** the Brussels Green Loan in order to secure its viability and facilitate the process for beneficiaries.
Launch the scheme & communicate	- Brussels Environment supported by an external communication agency developed a webpage and flyers as well as a media communication campaign on the internet, in newspapers and on the radio. - **The name of the product**: initially, the name of the loan was The Brussels Social Loan. After a few months and very low take-up, Brussels Environment carried out a survey to understand why eligible beneficiaries showed no interest. The conclusion was that the target groups did not recognise themselves in the word "social" as they thought that they earned too much to receive the loan. The decision was taken to modify the name and to call the loan "The Brussels Green Loan". - The Region is used to developing 'institutional communication materials' which can be quite rigid and not attractive enough for young people or other specific target groups.
Monitoring and improvement	- To monitor the results, Crédal is required to provide 4 times per year a report on their activities including the key figures. The Housing Fund provides reports twice a year. - The most important statistics requested from Crédal are: ▪ Total amount lent and number of loans issued ▪ Average life of the loan ▪ Average amount lent ▪ Guarantee fund balance - The Region also requests figures about number of homeowners contacting Crédal and checks links between the Energy House and Crédal to secure the quality of the information transferred. - One of the reporting weak points: it is complicated to monitor the energy efficiency measures implemented and the actual energy savings achieved. The Energy House is not in charge of such monitoring. The Region needs to set up a procedure to collect figures and analyse the impact on CO_2 emissions.

Homeowners' advantages

Technical assistance

1. Homeowners with an energy renovation project go to the **Energy House**. They get initial advice and recommendations on potential energy saving measures and existing technologies. Their personal situation is partly analysed and they receive information about grants and financing solutions for which they are eligible. At this stage, the energy advisor can visit their homes and check on the spot which measures can be carried out.
2. Homeowners are responsible for finding **craftsmen** and architects and getting quotes.
3. The Energy House advisor checks the quotes and official documents presenting the home owner's personal and financial situation. They check whether the households and the proposed measures are eligible for grants, the Brussels Green Loan and other financing instruments.
4. When homeowners wish to apply for a loan, an appointment is made with the financial institution which issues the loan.

The Brussels Green Loan

Eligibility criteria		
Type of housing	**Type of households***	**Eligible measures**
-Single family houses and apartments -Situated in the Brussels Capital Region	All Brussels citizens over 18 with a limited income*	Insulation and heating system

**Type of households eligible for the Brussels Green Loan*

No. of dependants	**Taxable Income** (yearly indexed)		
	A - Single person	B - Households with 2 persons or more with 1 income	C - Households with 2 persons or more with more than 1 income
1	€ 45,895	€56,094	€71,303
2	-	€61,193	€76,492
3	-	€71,391	€86,690
4 and more	-	€76,490	€91,789

Loan conditions	
Crédal: consumer loan	**The Housing Fund: mortgage**
Loan amount: from €500 to €25,000	**Loan amount**: from €3,600 to €25,000
Maturity: 1.5 - 10 years	**Maturity**: up to 30 years
Interest rate: 0% or 1% 0%: for people with annual income of less than €30,000 (single) / €60,000 (family) 1%: for the others	**Interest rate**: 0% for people with annual income of less than €15,000 Formula used for other beneficiaries (Max 2%): Net taxable income x 2 / 66,293 (yearly indexed)
Grace period: none	**Administration fees**: €50
Administration fees: none	**Mortgage commitment fees** : +/- €60 (if requested)
Guarantee: not required from homeowners - secured by the Guarantee Fund set up by the Region	**Guarantee**: not required from homeowners - secured by the Guarantee Fund set up by the Housing Fund
Beneficiary's own contribution: minimum homeowner contribution is not requested by the bank.	**Beneficiary's own contribution**: minimum homeowner contribution is not requested by the bank.

Financing scheme highlights

Strong points	Weak points
– Tailor-made advice for homeowners – Attractive interest rate (0-2%) – Accessible to low and very low income families – Very low risk (1 case since 2008) – Ambitious energy efficiency targets to obtain grants	– Expensive for the Regional budget – Time-consuming for the bank advisors to carry out a financial check and provide information to homeowners (on average 16.5 hours for Crédal). – Risk borne by the Region – Absence of a procedure to monitor the results in terms of CO_2 emission reduction – The fact that two lenders are involved in the financing scheme makes it more difficult to set up simple common procedures and conditions – The Brussels Environment internal communication team does not have the expertise to communicate on financial issues – A substantial number of people involved: can slow down the process

Recommendations

– Keep your financing mechanism simple and easy to understand.
– Keep the mechanism easy to manage, monitor and follow.
– Make sure you have a visible and efficient front office.
– Carry out a professional communication campaign.
– Think in advance about how to monitor the effect of investment in terms of CO_2 emissions.

Next steps:
The Region intends to:
– Increase the amount of loans issued by reinforcing its communication campaign.
– Investigate options on how to increase the renovation rate of condominiums through specific technical assistance and a financing instrument.

Need more details about this case study?

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Riga, Latvia | Key figures

OPTION 3

BUILDING STOCK

- **23,353** residential buildings
- **241,520** individual apartments
- **16,243** million m² total floor area
- Average thermal energy consumption: 200 kWh/m²/year
- Average cost of renovation: EUR 150/m²

TERRITORY

Area of 307 km²

36% — The city housing accounts for 36% of energy consumption

PEOPLE

Population of 647,424

- Population of 1,150,000 in Riga region

6,000 buildings which cover almost 75% of the total floor area (12 million m²) were built during the post-war period and need urgent renovation. The city housing accounts for 36% of energy consumption. Emissions related to district heating account for about 28 % of total emissions in the city territory.

The issue

The city wants to achieve its climate goals

Latvia's National Reform Programme was set up to reach the sustainable development targets defined in the "Europe 2020" strategy. At the local level, the city of Riga approved the Riga Development Plan 2030 which includes energy and climate related measures in the housing sector. The mayor also signed the Covenant of Mayors, thus committing the city to reducing its CO_2 emissions by at least 20% by 2020. Since this objective has already been reached, the new emissions reduction plan approved by the City Council aims to reduce emissions by 60% by 2030.

Poorly insulated multi-residential buildings

In Riga, one can distinguish three types of buildings:

- **Post-war buildings built before 1996** with poor insulation. These are privately owned and house about 60% of the city's population. Homeowners pay high utility bills although comfort is low. During the winter period, approximately 10% of an average salary may be used to cover these bills. The energy saving potential is between 50 – 60% with the average cost of renovation being €150 /m².
- **Pre-war buildings built before 1940** with relatively good insulation which are also privately owned.
- **Buildings built after 1996** which comply with European construction standards.

The post-war buildings have the biggest energy saving potential.

The energy renovation process is too slow and existing financial instruments are not attractive

When it comes to energy renovation, 6,000 post-war multi-apartment buildings have the highest priority. However, the renovation process is too slow. By 2015, only 68 buildings (1.13%) had been renovated. One of the reasons is that 75% of households plus 1 have to agree with the renovation. Although this may seem quite feasible, there is not enough information on possible options for carrying out the renovation. Secondly, the financial benefits are perceived to be low and not motivating despite the fact that the initial projects have shown promising results (energy savings of up to 60%).

Several financial instruments for energy renovation were available in the past or are still on the market but they have proved to be **unsustainable or unattractive** for homeowners:

- **Grants** provided by the government through a national grant scheme set up in 2006 were successful from the point of view of homeowners. However, the whole budget had been spent by 2007.
- **Loans provided by commercial banks**. Banks offer individual loans which are not relevant for multi-apartment buildings where measures need to be taken collectively and the loan conditions are not very attractive for homeowners. They are often too expensive or require a guarantee which not all citizens have access to. In addition to high interest rates (up to 7%), banks require 70-80% of flat owners to agree with the renovation and they do not cover the renovation costs in full. Finally, banks issue individual loans assigning contractual obligations to each flat owner which can create a barrier when selling an apartment.

Solution

On behalf of the city of Riga, Riga Energy Agency (REA) assessed several financial instruments that could fill the market gap.

Finally, REA selected the most relevant tool and proposed setting up a **revolving fund and offering low interest and long-term loans** to homeowners and non-profit organisations via ESCOs and tenant cooperatives. The loans are gradually repaid and flow back to the fund. Then they can be used again (the money revolves).

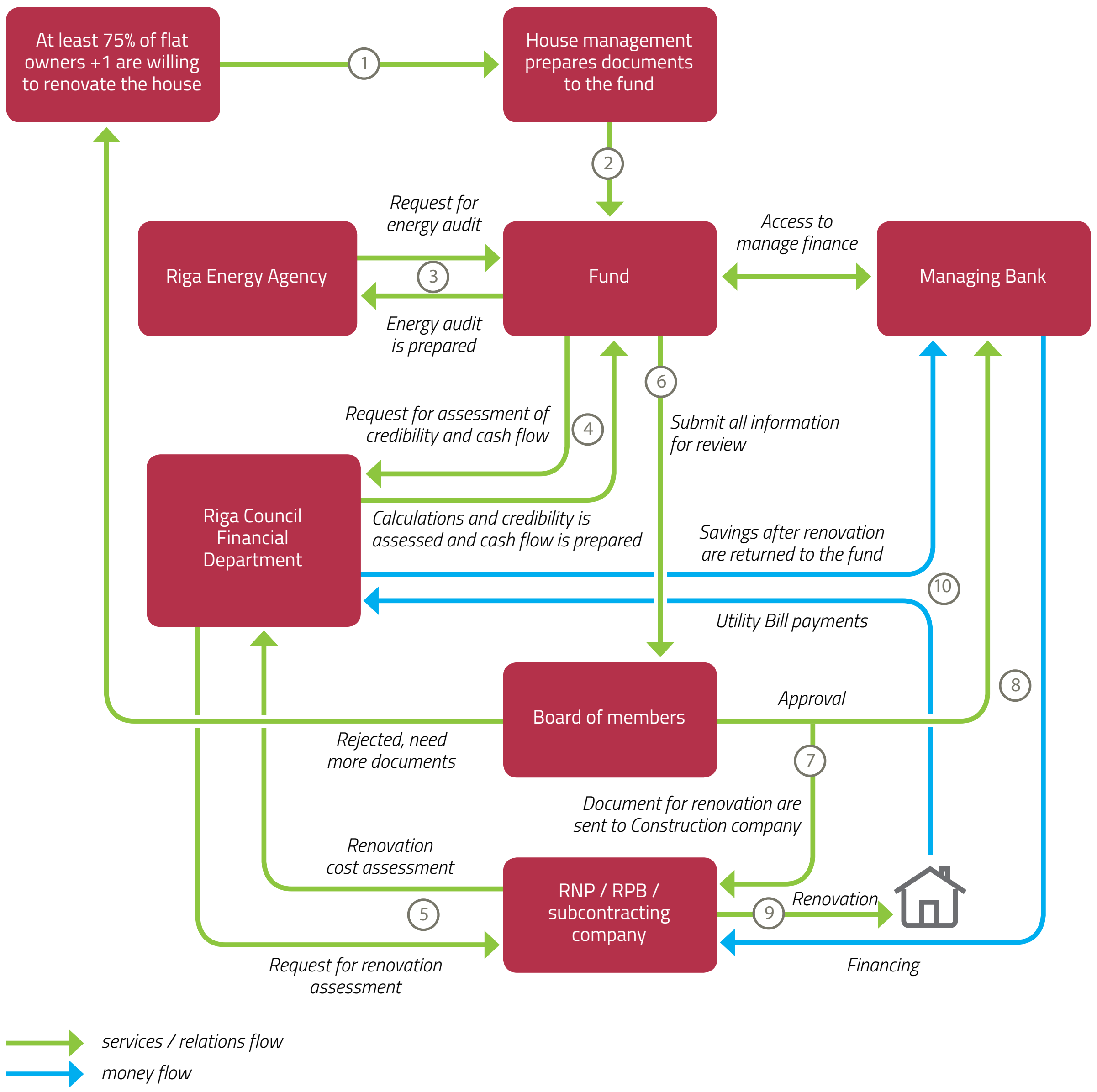
The soft loan is designed in a way that the **monthly loan installments** are always lower than the money saved thanks to energy savings. The loan is paid back through the utility bills managed by the Riga municipality administration. Homeowners have more flexibility when selling their property as the future homeowner takes on the responsibility of paying the utility bills. The debt is attached to a property not a homeowner.

The city provides free-of-charge **technical expertise** to homeowners and does not require any **guarantee** apart from the homeowners' utility cash flow (banks normally require a lot more).

The Fund targets the **homeowners of the priority post-war multi-apartment buildings** with energy consumption exceeding 177 kWh/m²/year, whose average annual debts on utility bills are below 10% and who have voted for renovation (75% of households+1 flat owner). Although 60% heat energy savings have proved to be feasible in the past, REA's business model assumes energy savings of 40%, to be on the safe side.

A short-term goal is to renovate 10 buildings in the first year and then at least 20 buildings per year.

Business Model



Application	1. At least 75% + 1 vote (or 2/3) of flat owners are willing to renovate. 2. House manager prepares the documents and application that are submitted to the fund.
Review process	3. Riga Energy Agency (REA) 3.1. The energy audit request is submitted 3.2. The energy audit is prepared and returned to the Fund 4. Riga Council/Financial Department 4.1. Request for assessment of creditworthiness and future cash flow 4.2. Calculations and creditworthiness are assessed and cash flow is prepared 5. Riga House Managers (RNP)/ Riga City Builder (RPB) 5.1. Request for renovation assessments 5.2. Renovation cost assessment provided
Process of approval	6. The fund gathers all information about the building and submits it to the Board of Members. 7. If the Board of Members approves the application, the documents approving the renovation are sent to a Construction company. 8. Managing Bank 8.1. Immediately after the application for renovation is approved, the request to provide financing is sent to a Managing Bank. 8.2. Financing is provided to a construction company.
Renovation and post-renovation	9. At this stage, a construction company is able to start the renovation. 10. Repayments 10.1. Once the renovation is completed, the building energy consumption is reduced. Homeowners pay back the loan through the utility bills to the Riga Financial Department. 10.2. Savings after the renovation are then calculated and sent from the Financial Department to the Managing Bank.

Fund value

It is planned that the Fund will start with **EUR 34.5 million**, of which EUR 4.5 million would be a contribution from Riga City Council and EUR 30 million would be a **loan from a financing institution or an investment fund**[1]. It is expected that additional capital would come from a local municipal heating producer and supplier in addition to international financial institutions such as the European Investment Bank (EIB) or the European Bank for Regional Development (EBRD). The most important point with regards to external financing is that the interest rate charged by a financing institution / investor should be below 1% which will ensure the fund offers loans at the lowest possible rate for citizens. Should the city be unable to attract an external investor, the business model would probably fail. With capital of only EUR 4.5 million, the whole revolving concept would not be able to perform at the scale planned. The plan is to first carry out 5-6 pilot building renovations, make necessary adjustments if needed and gradually increase the renovation rate and scale. The proposed model can easily be adjusted in terms of financial flow changes. Thus larger investments will result in an increased renovation rate.

Fund management

- **Governance** of the Fund is ensured by a Board of Members which includes people who have the expertise, reputation and proper understanding of renovation-related issues.
- **Administrative decisions** are taken by the City Council. One of the Council Committees also elects the Board of Members.
- **Operational management** of the loans and Fund cash flow in general is the role of the Managing Bank. The Bank will handle the accounts and provide advice on finance management if needed (in the event of unused capital, the funds could be reinvested short-term and risk-free). The City Council will be launching a public procurement tender to select a commercial bank who will fulfil this role. Meanwhile, the city Financial Department takes on these tasks.

Management costs: the Fund management costs are estimated at €100,000 per year. These will be covered by the interest rate the soft loan beneficiaries will pay.

[1] The city council has been negotiating with potential investors (2016-early 2017).

Revolving fund and soft loan scheme step-by-step

Step	Action
Set up a team	The revolving fund business model was developed by Riga Energy Agency in close cooperation with Riga City Council
Carry out a market study	- **Key findings**: the target group is the 6,000 priority post-war buildings built before 1996 with poor insulation; commercial loans are not attractive and a national grant scheme proved attractive but did not last. - **Experience with financial instruments in the Baltic region**: in Estonia and Lithuania, the central governments set up revolving funds and soft loan schemes in the past. The study summarised the main lessons learnt: ▪ Establishing an investment fund and organising a public tender for its management are time-consuming. In Lithuania this process took 1.5 years. ▪ A combination of grants and loans is attractive. In both countries, grants are used to pay for the project preparation, to some extent they cover the investment costs (rewarding the most ambitious projects) and support low income households. ▪ A forceful information campaign is necessary to convince citizens to take out a loan.
Develop a business model	- REA assessed several potential financing instruments. One option was that a bank would offer **a mortgage** to homeowners, however a large share of apartments are already mortgaged and do not qualify for a second one. Another solution was a bank **loan** that would be issued by a partner bank against future financial savings. In most cases, the duration of such a loan would not be more than 5 - 10 years which means a short-term loan with relatively high monthly installments. Riga did not have sufficient budget to offer grants and this solution was not considered sustainable anyway. - REA thus developed a business model for a **revolving fund and soft loans**, inspired by two regional examples - Jessica Holding Fund in Lithuania and KredEx revolving fund in Estonia. This was the most suitable solution for managing both financial flows and quality control for construction work. Other solutions did not seem relevant due to specific regional circumstances. - The assumptions set by REA when developing the business model were: ▪ The loan should be available for a long period (ideally up to 30 years). After renovation, utility bills should decrease by at least 40%. The model introduces a loan payback discount for citizens. Costs for redemption and interest should not exceed the energy savings achieved. ▪ No extra injection of money over time is needed (but welcome). Revolved money must be reinvested in renovation. ▪ The Fund operation must be efficient. ▪ The volume of renovated homes per year has to be stable for the model to be sustainable. - The Fund can offer what banks cannot: ▪ A lower interest rate ▪ Long maturity ▪ No guarantee required beyond the house utility cash flow (banks normally require a lot more) ▪ Free-of-charge technical expertise - The **biggest challenges** are to: ▪ Establish the Fund - negotiations related to administrative and technical issues are lengthy and time-consuming. Many issues still need to be solved and decisions taken. REA has been working on the development of the Fund for more than 2 years. ▪ Secure the seed money and refinancing: the city plans to start with a limited number of pilot projects, adjust the Fund's standard procedures and prove the sustainability of the model. This will hopefully attract more private funds.

Set up strategic partnerships

Partnership with banks:
- Riga City Council is seeking **partnerships with financing institutions** willing to invest in the revolving fund through an equity or to provide a loan and to manage the Fund.
- The Financial Department will launch an **open tender or a competitive dialogue** with potential partners and disseminate information through the media and the Commercial Bank Association. The partner bank should be trustworthy and be able to provide low interest rates.
- The **European Investment Bank (EIB)** was considered as a potential partner. The reason for approaching the EIB was an interesting interest rate and scalability that could be obtained, as the aim of renovating 6,000 buildings would require up to €500 million over the next 30 years. Specifically, having funding of €500 million would allow Riga to sustainably renovate 200 buildings per year, which would result in 6,000 houses over a 30-year period. However, the interest rate that would be paid to the EIB is also a **potential weakness of the business model**. The city does not need all the money right at the start of the project. There are two ways to cover the cost of borrowed funds that are not used. First, the city could only borrow the money at the time it is needed. In such a case, there should be a clear and fast process of transferring funds, so that the renovation process is not stopped.
  Second, the city could borrow all the money and the Managing Bank that operates the Fund could cover the interest rate by making a profit from the borrowed money, for example by lending overnight on the money market. The decision will be taken by the City Council.
- The City Council's main interest is to **provide secure loans with the lowest possible interest rate to citizens**. The fact that the Fund governance is secured by the City Council should make the whole process sustainable and credible. Meanwhile, the Managing Bank's expertise in finance will allow the maximum potential to be leveraged, while ensuring professional management of the Fund's financial flows.

Set up strategic partnerships

Partnership with other key actors
- The Fund will be established as a separate structure under the control of the City Council which is the main decision-maker but there are a number of different stakeholders involved in the process including REA, housing management companies, utilities as well as associations representing homeowners.
- **The renovation work** will be carried out by a Municipal Construction Company (Rīgas Pilsētbuvnieks) or a Municipal Housing Management Company (Rīgas Namu Pārvaldnieks). However, further subcontractors could be involved in the future.

Launch the scheme & communicate

The fund has not been launched yet but a number of REA activities including the promotion of energy renovation through seminars, conferences, regular newsletters which raise awareness on renovation issues, free-of-charge advisory services provided to citizens by a local Information Centre and an update of the multi-apartment building energy consumption database, are preparing the ground for the launch of the Fund.

Monitoring and improvement

REA plans to monitor the following: number of buildings renovated thanks to the revolving fund, overall energy consumption and CO_2 emission reductions by households as well as financial indicators and additional benefits.

Homeowners' advantages

Technical assistance provided free of charge by the Riga Energy Advice Centre.

Reduced monthly costs, higher energy efficiency and more comfort. After renovation, homeowners pay for their energy and the monthly loan installments. The total annual costs (energy bill, redemption and interest) should be lower than the original energy bill. A 5% discount is introduced which makes the loan more attractive, especially for older people. As a consequence, the duration of the loan will be longer (on average 1 year). The table below gives an overview, assuming an energy bill of 100% at the start.

	Before renovation	After renovation	After renovation and after payback time
Energy bill	100%	60%	60%
Redemption and interest	0%	40%	0%
Discount	0%	- 5%	0%
Total bill	100%	95%	60%

Soft loans

Eligibility criteria		
Type of housing	**Type of households**	**Measures**
Type of housing: – Housing units in Riga that require renovation. The loan targets multi-apartment buildings built after the war and before 1996. – Energy consumption above 177 kWh/m² (this is part of the energy audit). – 75% + 1 owner must agree with the renovation.	**Type of households:** – All types of households	**Eligible measures:** – Insulation of an attic, roof, ground floor and external walls. – Replacement of windows, replacement or insulation of external doors. – Renovation of a ventilation system. – Renovation or replacement of a hot water preparation system, incl. insulation of pipelines. – Renovation or replacement of heating units. – Renovation of a heating system, including replacement of radiators, installing temperature controls, allocators and other heat metering devices

Loan conditions

Loan amount: approx. €150/m²; on average €350,000 EUR per building

Maturity: between 10 and 15 years

Interest rate: below 3%

Guarantee: reduced energy bills are the guarantee for the Fund. The assumption is that all beneficiaries have lower monthly spending and are able to pay back the loan. Existing debts on utility bills must not exceed 10%.

Beneficiary's own contribution: no own contribution is required.

Financing scheme highlights

Strong points	Weak points
– Focus on a target group with the highest energy consumption – Discount for homeowners makes the loan more attractive – Sustainable model, fund can operate for 30 years – Reimbursed money is used for new loans	– Decision to operate the fund for 30 years may slow down the pace of renovation.

Need more details about this case study?

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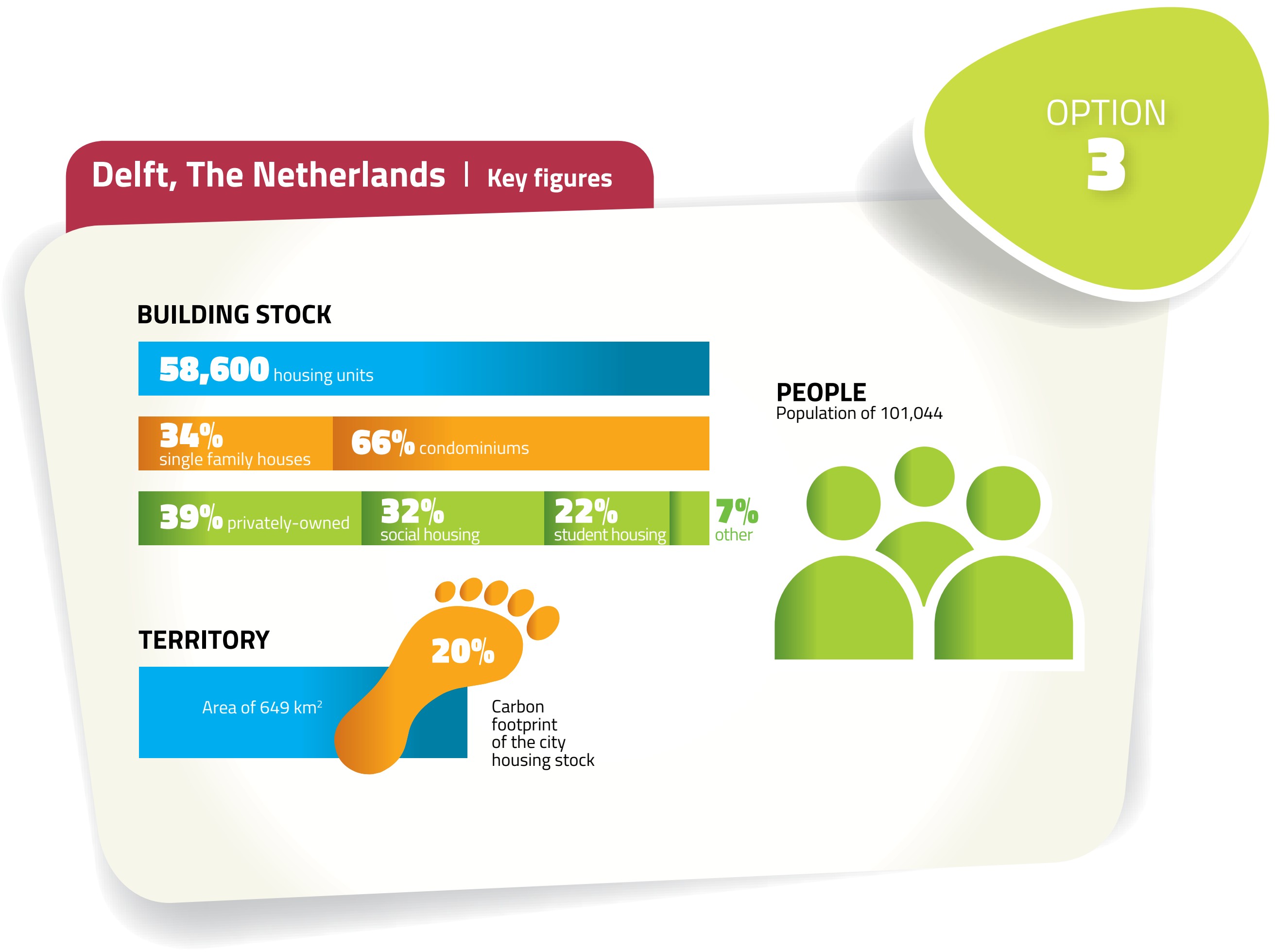


The issue

A challenge to achieve the climate goals
In 2003, Delft adopted **a Local Energy Action Plan**[1] with the following main goals to be achieved by 2012 compared to 1990:

- Decrease the energy consumption of Delft by 15%.
- Reduce CO_2 emissions by 15%.
- Cover 5% of total energy consumption with renewable energy.

No financial instruments available to homeowners for energy renovation of the existing housing stock
In 2003, Delft set up the **Delft Climate Investment Fund** (DCIF). A budget of **€12 million** was made available for 9 years to invest in the built environment - office buildings, industrial buildings, new housing, social housing companies, etc.

At first, the "3E Delft Climate plan 2003-2012" focused on the **new housing** areas and renewable energy. One of the Fund's main goals was therefore to develop new highly energy-efficient houses. To stimulate this, the DCIF provided grants to housing associations and developers who implemented ambitious energy saving and renewable energy production measures (at least 15% better than the Dutch EPC[2] legislation).

Although the housing sector was an important energy consumer back in 2003, **existing private residential buildings were excluded from the DCIF** and there were no financial instruments available to private homeowners – neither at the national level nor at the local or regional levels.

[1] *3E Klimaatplan Delft 2003-2012 (Local Energy Action Plan)*
[2] *Dutch Energy Performance coefficient for new buildings*

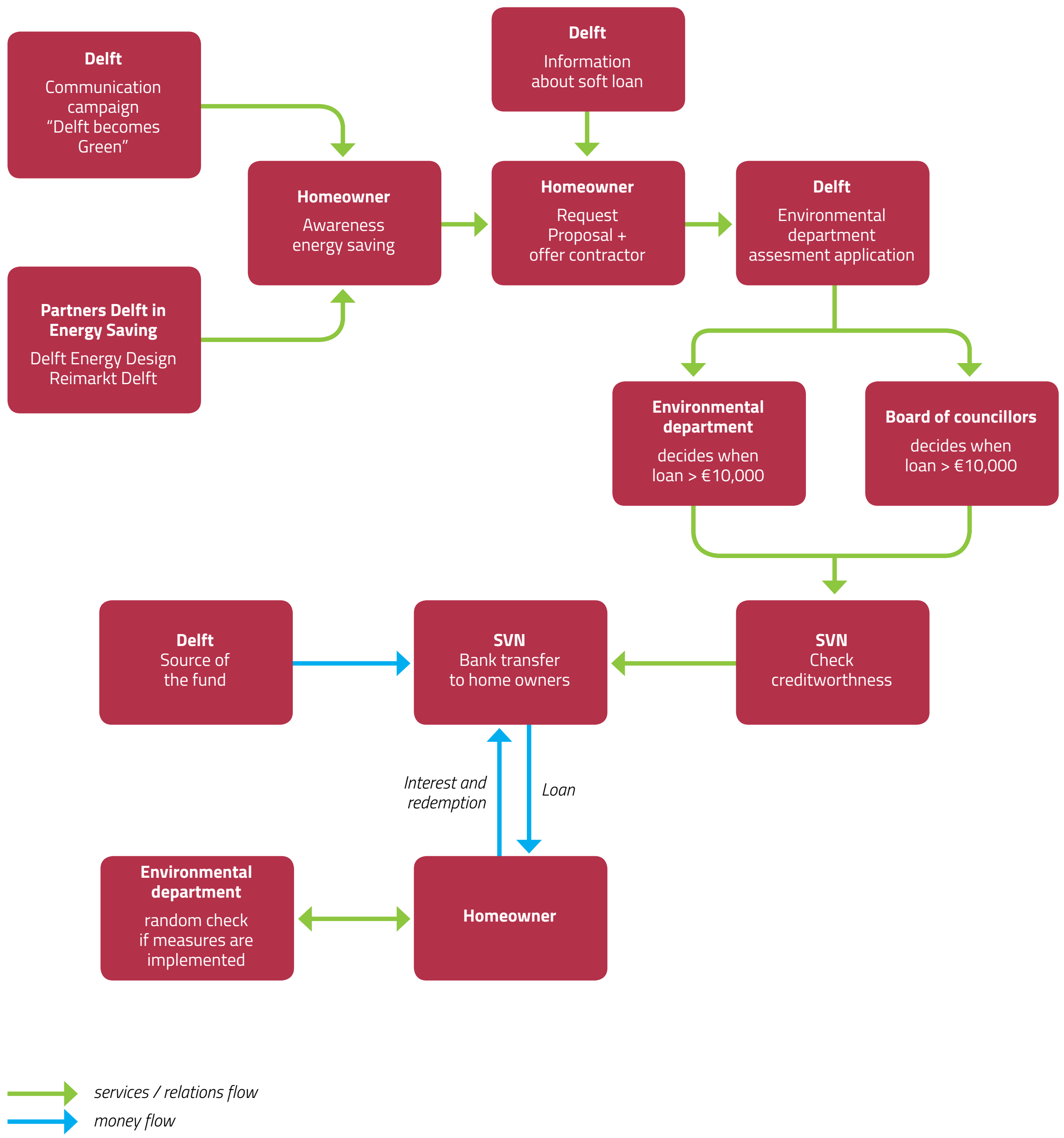
Solution

In 2006, the city council decided to set up a **specific financial instrument** that would encourage homeowners and tenants to invest in energy saving measures and renewable energy. The instrument was also made available to community organisations, associations and NGOs. As subsidies were not an option for the private housing sector (individual house owners), due to the restrictions of the DCIF regulation, a **Delft Revolving Fund (Fund) and a soft loan scheme** were set up.

In 2010, Delft started a new programme to encourage private homeowners to renovate their homes. A wide range of new instruments was set up in cooperation with the local energy agency. As part of a "neighbourhood-based approach", a team of advisors, builders and public officials visited neighbourhoods to promote measures suited to their specific types of houses. A communication campaign was also launched to raise awareness about the benefits of energy renovation.

Business Model

Low-interest energy renovation loans
The city of Delft used its own budget to establish the Fund. The Fund issues low-interest loans on attractive terms to homeowners. The Fund is governed by the municipality and managed by the bank - Stichting Volkhuisvesting Nederland (SVn). SVn operational costs are paid by the municipality: 0.9% of the loan until maturity of the loan.



Business model step by step

Step	Action
Set up a team	To examine the options for a financial instrument to encourage private homeowners, the environmental department set up a project team of experts with financial, juridical, communication and environmental backgrounds. An independent project leader was assigned to lead the project team.
Carry out a market study	Delft did not conduct a market study for the following reasons: - When the Fund was created, there were no other financial instruments available for energy renovation of the private housing stock. - It was clear from the beginning that the fund should be available to all homeowners in Delft. - Partnerships and a campaign relating to energy savings were already operating in Delft.
Develop a business model	- The **Delft Revolving Fund** and a soft loan scheme were set up with the seed money of **€200,000** earmarked from the DCIF. The instrument was requested by the city council which is why setting up the scheme was relatively easy. - The Fund was launched in 2006 and since then both the Fund and the approach of homeowners have evolved. The Fund has been growing over the years as more money has been injected into it. In 2013, the Fund value reached **€500,000**. In 2015 the Fund merged with other municipal revolving funds (e.g. a fund issuing a renovation loan for historical buildings, a mortgage for first-time-buyers on the housing market, etc.). The total value of the merged **'Delft SVn Fund**' now totals **€3.5 million**. - Since the Delft Revolving Fund is part of the Delft SVn Fund, the Financial Department of the Delft Municipality no longer manages the process. The fund is now on a bank account at the SVn and is **more flexible** as it does not need to undergo regular administrative procedures linked to **municipal budget negotiations and allocation**s. For the first 9 years, the fund was under the direct control of the Delft financial department. - Since 2010, the soft loan scheme has been part of a **multi-annual programme to stimulate awareness** and activate investment in energy saving measures. In the 2010 – 2013 period, the municipality ran a successful campaign in several areas in Delft with pre-selected builders. Because houses in a particular area often have the same characteristics, the costs of the measures could be reduced. For this campaign, the Delft Climate Investment Fund (DCIF) was adjusted so that a **combination of a subsidy and soft loan** could be provided. In 2014, the municipality modified the campaign to test out a more market-driven model bringing supply and demand together using a so-called 'market funnel'. The subsidy was ended and the soft loan remained.
Set up strategic partnerships	**Partnerships with banks** - **The fund is managed by the SVn** - a bank owned by municipalities (Bouwfonds Nederlandse Gemeenten) - founded in 1996 at the initiative of several Dutch municipalities. Dutch municipalities in cooperation with the national government have funded several urban renewal projects using SVn funds. - As Delft participated in the SVn from the beginning and was already using financial instruments to facilitate social development, it was a **natural partner** to deal with the fund management and administration of the loans. Delft did not face any competition rule issues as the SVn holds the status of fund manager for municipal initiatives.
Set up strategic partnerships	**Partnerships with other key actors** - Delft has signed agreements valid for four years with two private organisations who act as local **Energy Advice Centres**. 'Delft E Design' is a cooperative structure of energy advisors from Delft who provide personalised advice to homeowners. 'Reimarkt Delft' is a company that was selected through a tender and uses a more standardised approach. These organisations guide homeowners through the process of renovation and recommend reliable constructors. Together with the municipality, both organisations are currently working on a more **market-driven approach**. However, homeowners can also obtain the loan when they hire other consultants or builders. - With both companies it was agreed that the municipality will keep the Fund operating during the term of the agreement (4 years). Private homeowners thus have the opportunity to **finance energy saving investments** recommended by the advisors. - The city of Delft is also cooperating with other local stakeholders such as the Technical University of Delft, energy companies, etc.
Launch the scheme & communicate	- Information about the soft loan is available on the **Delft website**. Homeowners are informed about the criteria and procedures to obtain the loan and can also download the loan application form. - Delft is using the **communication campaign "Delft wordt Groen (Delft becomes Green)"** on **Facebook** to raise awareness and stimulate action and investments. The soft loan scheme is promoted more discreetly, as in the municipality's view it is not desirable to encourage citizens to live 'on credit'. For this reason the campaign focuses on energy saving as its goal. As people were interested in taking measures, the soft loan (the instrument) was introduced.
Monitoring and improvement	- Since 2006 the municipality has approved 35 loans for a total amount of €400,000. The total costs of measures carried out was €500,000. More households have been applying for the loan, since the one-stop-shop run by Reimarkt and Delft E Design was launched. - The municipality does not monitor results in terms of energy savings or type of households who took a loan. It has set the minimum value for insulation measures and can thus estimate energy savings.

Homeowners' advantages

Information and technical assistance

1. Homeowners visit the Delft website where they can get all the information about the soft loan.
2. They prepare an energy renovation plan with the expected costs and an offer from one or more builders. If homeowners so wish, they can get support from Delft E Design or Reimarkt Delft but they can also hire another advisor or make their own renovation plan.
3. Homeowners apply for a soft loan. The City board decides in a maximum of eight weeks about the application (this can be extended by another 8 weeks). The work can only start once the loan is approved and granted. Homeowners or organisations can submit special requests for a larger loan.
4. Delft E Design or Reimarkt Delft guide the homeowners through the process of renovation and ensure contacts with reliable builders.

Loans - conditions

Eligibility criteria		
Type of housing	**Type of households**	**Measures**
– All privately-owned housing units (18,000 units concerned) and with the approval of the housing association also publicly-owned units (specific for solar panels). Delft does not make any distinction between different types of housing or areas. – Community organisations, associations and NGOs.	No eligibility criteria related to income or age. Investments in energy saving measures have to compete with other investment priorities (e.g. a new kitchen). City strives to make the loan as open, easy to obtain and attractive as possible.	– Insulation of building envelope meeting certain values. – Electricity and heating systems. – Ventilation and heat recovery. – Renewable energy production technologies.

Loan conditions

Loan amount: max. € 10,000. A higher amount is possible upon a special request. This amount is sufficient for individual measures but not for extensive renovation. If homeowners opt for extensive renovation they can submit a special request and the city board can decide to offer a higher amount.

Interest rate: 4% lower than the market (10 year interest) with a minimum of 1.5%

Maturity: 10 years (early repayment is encouraged, not penalised)

Guarantee: SVn runs a financial check on creditworthiness. The revolving fund is a guarantee for SVn. In the event of defaulters the size of the fund is reduced. The risk is thus covered by the municipality of Delft.

Beneficiary's own contribution: no own contribution is requested from homeowners other than paying back the loan and interest.

Financing scheme highlights

Strong points	Weak points
- Short internal procedures - Clear management costs - Own fund which means control and flexibility to change the eligibility criteria when needed (customised for extensive renovation) - Fund is simple and easy to set up - Use of existing good relations (SVn)	- Limited budget - Risks for the municipality

Recommendations: Start with a small fund financed by the municipality to make the launch relatively easy. Later, you can make your fund grow or revise it.

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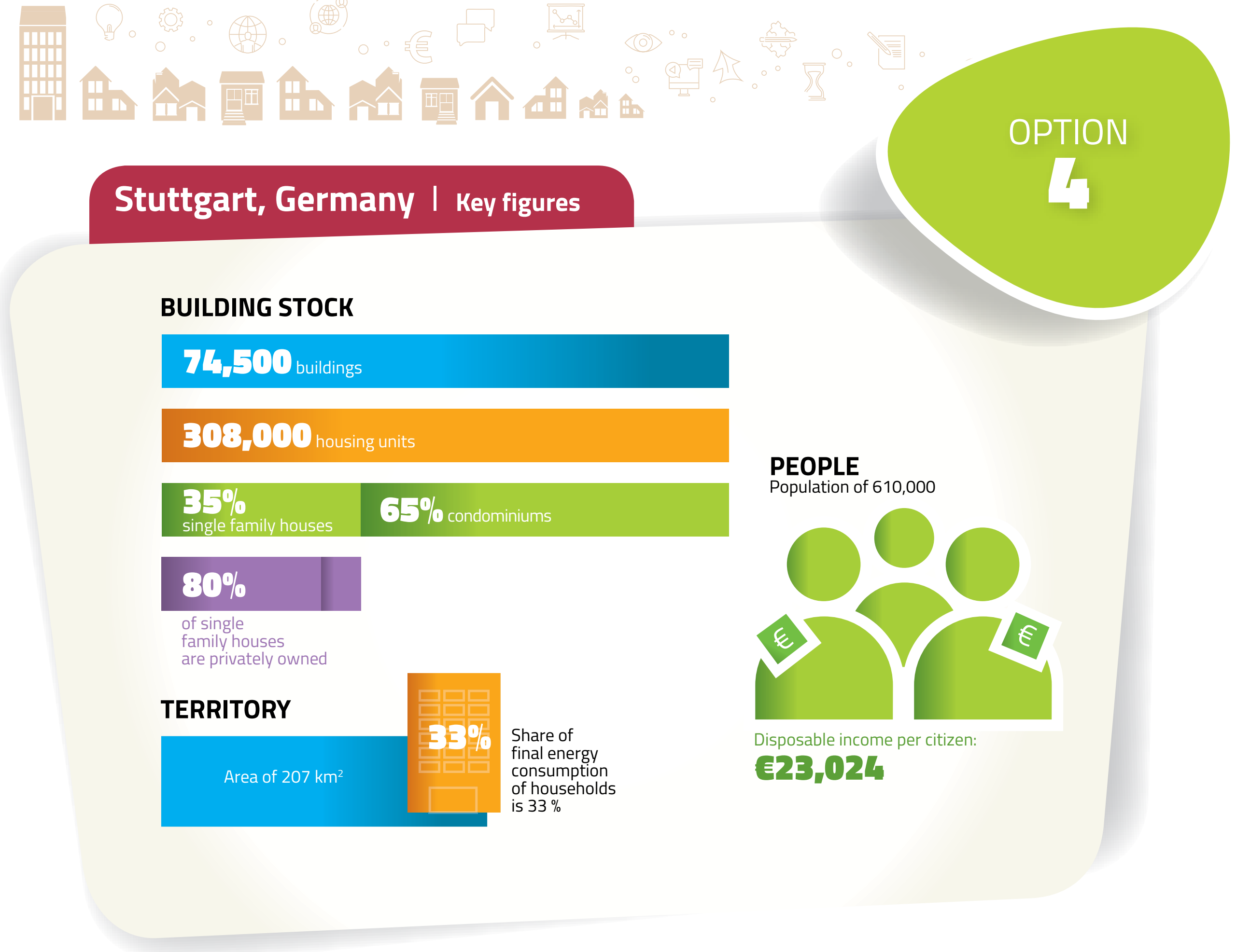


The aim of the German Federal Government is to have a nearly climate-neutral building stock by 2050. This implies reducing space heating demand by 20 % between 2008 and 2020. There is also a target of reducing primary energy demand by 80 % by 2050.

Stuttgart's short-term goal is to reduce the primary energy consumption by 20 % compared to 1990 and to raise the share of renewable energy to 20 % by 2020. Over the long term the City of Stuttgart has a vision of becoming climate-neutral by 2050.

The issue

The energy refurbishment rate of Stuttgart's building stock is too low
About 80% of Stuttgart's buildings were constructed before the existence of the first Thermal Insulation Regulation in 1977. As a consequence, **a very large energy saving potential** remains unexploited. In addition to the regulations related to energy efficiency in new buildings there are regulations for the energy refurbishment of existing building stock. In the event of an extensive renovation, the primary energy demand of the renovated building should not exceed by more than **15 % the energy demand** of a comparable new building. The state of Baden-Württemberg where Stuttgart is situated adopted additional minimum requirements for heating modernisation in existing buildings. When key components of the heating systems are replaced, heat production has to include **15 % of renewable energy**.

In 2014, about two thirds of Stuttgart's residential building stock used gas for heating, followed by oil (15%), district heating (11%) and electricity (10%). Only 2% of residential buildings (generally single-family houses) had a heating system based on renewable energy such as biomass, solar energy or geothermal energy.

The annual energy refurbishment rate of the residential sector in Stuttgart is stagnating at 1% per year. In multi-apartment buildings it is even lower. If the city wants to achieve its energy and climate goals, the rate must increase to 2% by 2020. This means, on a voluntary basis, going beyond the European Energy Efficiency Directive objectives and scope.

Existing financing instruments are underused
Germany has several nation-wide programmes promoting energy retrofits:

– **The German development bank Kreditanstalt für Wiederaufbau (KfW)** offers **soft loans** for energy retrofits of private residential buildings.
– **The market incentive** programme of the Federal Office of Economics and Export Control - Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA) offers **grants** for replacing the heating system and integrating renewable energy technologies (solar, biomass, heat pumps).

The KfW and BAFA financial incentives can only be combined in the case of **a global retrofit** that meets the high KfW energy efficiency standards (so called «KfW Efficiency House"). When the homeowners carry out individual measures they need to choose between one of the two incentives.

In addition, in 1998 the city of Stuttgart set up its own **grant scheme**. From 1998 to June 2013 the city awarded energy renovation grants worth €24 million, leading to a total investment of €249 million. Thanks

to this, 13,536 housing units were renovated.
The financial framework for energy retrofits is currently very favourable. Nevertheless, many homeowners are concerned about **frequent changes in the legislative framework and funding instruments**. As a consequence, they are adopting a «wait and see» stance.

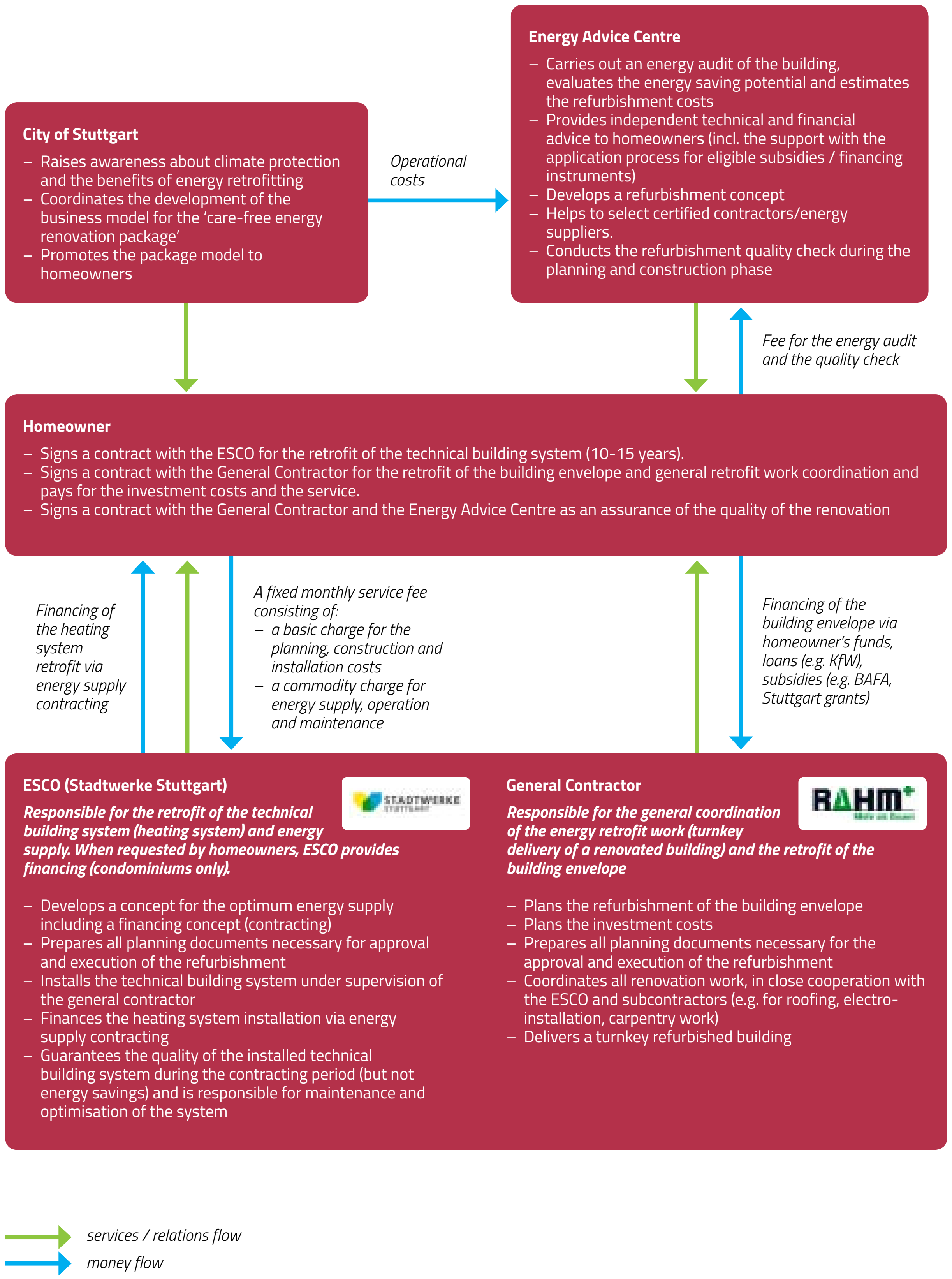
Non-financial barriers are more important than the financial ones
A market study revealed that **financing was not the main barrier** to energy retrofits of residential buildings. A set of **non-financial barriers** has been identified including unclear requirements for energy retrofits, untrustworthy providers (damage to buildings), high costs and lack of profitability, cost-benefit dilemma (owner vs. tenant), large effort vs. overtaxing of the owner, disturbances to residents during the work and difficult decision-making in condominiums.

Solution

The city of Stuttgart has developed a **'care-free energy renovation package'** for homeowners. The package is applicable for two types of retrofit work - the **heating system** and/or the **building envelope** – and it includes the following **services**:
- Concept and planning
- Building and construction
- Operation and maintenance (for the heating system only)
- Financing (for the heating system only)
- Guarantee and assumption of risk.

The package offers a high level of **security and flexibility to homeowners** in the form of:
- **Standard model contracts** and tendering documents developed by the city of Stuttgart.
- Independent technical and financial **advice** accompanied by continuous **quality control** provided by Stuttgart's Energy Advice Centre (EAC). The EAC guarantees that the contracted craftsmen and building firms comply with the "Stuttgart Retrofit Standard" which was developed to ensure high quality energy renovation.
- **High quality retrofit work is** implemented by the municipal energy utility **Stadtwerke Stuttgart** (ESCO) and a private company **'Rahm+'** which is also the general coordinator of the renovation work. The ESCO guarantees the technical building system during the contracting period.
- **An energy supply contracting** model is offered to homeowners who wish to replace their heating system but cannot or do not want to take out a loan (e.g. due to their age or creditworthiness) or spend their savings. Instead of a loan, they pay a fixed **monthly service fee** to the ESCO which is the owner of the heating system.
- **Secure energy supply** - highly efficient, resource-saving and climate-friendly.
- **Modular contracts** – homeowners can benefit from and finance all or part of the proposed services.

Business Model



The care-free energy renovation package step by step

Step	Action
Set up a team	- A core team responsible for implementation of the contracting scheme consists of the members of the city's energy department, the Energy Advice Centre and the ESCO. - They spent about 10 hours/week or 0.25 Full Time Equivalent on the project.
Carry out a market study	- **Low refurbishment rate** despite homeowners' good financial situations, numerous subsidies and other incentives. - About 80 % of residential buildings were constructed before 1977. In about 40 % of buildings no energy retrofit measures have been carried out since 1998. One measure (mainly renewal of the heating system) has been carried out in about 30 % of buildings. - **Factors** such as the form of ownership, age of the owner, number of owners, construction age and size of the building have a significant influence on refurbishment activities. The refurbishment rate is the highest in small buildings or single family houses with a middle-aged owner-occupier. - **Owner-occupied buildings** could have a big potential (refurbishment rate is 2-3 times higher if an owner lives in the building) but 67 % of such owners are 60 years and older. - In Germany, different forms of contracting exist but **energy supply contracting** is the most common model with a market share of 85 %. Nevertheless, households are not willing to spend money on energy retrofit services and they are reluctant to sign a long-term contract. Condominiums rarely use energy supply contracting.
Develop a business model	- The city's objective is to encourage global energy retrofits. The initial business model idea was to develop a 'care-free package' which includes the **financing of global retrofits** (incl. building envelope) secured by the general contractor. - Unfortunately, this **idea failed** as none of the potential investors was willing to provide financing. Moreover, the investors found the contracting scheme too complex and suggested that homeowners hire a consultant to obtain legal and contractual advice. - Based on the market study results, the city decided to develop a business model applicable to all types of housing and homeowners. However, it is focusing mainly on **condominiums of a min. of 20 apartments** in multiple ownership for two main reasons: their low refurbishment rate and high energy consumption make energy retrofits profitable for the ESCO. - The city organised a series of workshops to discuss the business model idea with potential energy service providers and housing companies which: ▪ suggested including the contracting in the municipal grant scheme, ▪ had an issue with increasing rental prices due to energy renovation in a city with already high rents, ▪ suggested a one-stop shop for energy retrofits with high quality assurance instead of a contracting model. - Finally, one private company (Rahm+) agreed to play the role of general contractor. It coordinates the whole energy retrofit and implements energy efficiency measures on the building envelope on the condition that the **homeowners pay for the investment**. The ESCO (Stadtwerke Stuttgart) agreed to **finance the heating system** replacement via the energy supply contracting.
Set up strategic partnerships	The city decided to cooperate with its key partners for the following reasons: - **The Energy Advice Centre (EAC)**: is a reliable and independent institution (non-commercial association) with extensive energy consulting experience. It is funded by the city of Stuttgart and its Chairman was also nominated by the city. - **Stadtwerke Stuttgart (ESCO)**: is a municipal organisation and the city's key partner in realising Stuttgart's energy transition. It has experience with providing energy services and energy supply contracting. The EAC and the ESCO are municipal organisations and they were chosen with no tender needed. The most important criterion was that they are reliable partners which have already worked with the city on various projects. - **General Contractor**: offers a wide range of high quality construction and renovation services. The company has high competence in the field of refurbishment and is an expert in turnkey construction. The city presented the business model idea to several companies and Rahm+ was the only one interested and willing to sign a partnership agreement.
Launch the scheme & communicate	- The municipality is responsible for raising citizens' awareness of climate change and the city's energy transition. The communication and marketing of the package is part of its global communication strategy. - **Flyers and posters** have been developed and disseminated at several local events such as an annual event for condominiums' property managers which is organised in cooperation with the Landesbank Baden-Württemberg (LBBW) called "WEG Forum". They were also published in the annual guidelines on energy retrofits for property managers. - **All key partners are involved in the communication** and promotion activities, especially the EAC which acts as a front office for homeowners.

Homeowners' advantages

Homeowners visit the Energy Advice Centre and get a new energy-efficient house in just four steps:

Concept phase	Planning phase	Implementation phase	Use phase
– Energy audit – Independent technical and financial advice – Energy retrofit concept	– Retrofit approval – Selection of technology – Detailed planning of the costs and contracting – Quality check by the EAC	– Installation of technical systems by the ESCO – Building envelope retrofit by the General Contractor – Quality check by the EAC – Turnkey delivery of the renovated building.	– Maintenance and optimization of the technical building system by the ESCO during the contracting period – Monthly fee payments to the ESCO / reimbursement of loans (e.g. KfW)

Energy supply contracting

Eligibility criteria		
Type of housing	**Type of households**	**Measures**
All types of housing. For condominiums, the following condition applies when a CHP unit is installed: condominiums of a min. of 20 housing units or energy consumption of min. 200,000 kWh/year only are eligible. At this size it becomes financially attractive for the ESCO. For other technologies like solar power or heat pumps there are no such conditions.	Stuttgart citizens, homeowners, landlords and tenants (in agreement with the owner)	>Technical building system (e.g. heating system, photovoltaic or storage battery, heat pumps, etc.)

Conditions

Investment amount: no limit

A fixed monthly service fee:
- **A basic charge** for the planning, construction and installation costs.
- **A commodity charge** for energy supply, operation and maintenance.

Guarantee:
The ESCO guarantees the proper functioning of the technical building systems during the contract period. It does not guarantee energy savings. However, the overall costs for the homeowner should be lower after the renovation. Before the contract is signed, the ESCO runs a financial check.

Risk:
The ESCO takes on the risks:
- Operating risks
- Homeowners not paying the service fees
- Liable for errors in planning & construction

The ESCO has its own financial guarantee system.

Beneficiary's own contribution: not required

Financing scheme highlights

Strong points	Weak points
– A quality guarantee from the Energy Advice Centre: "Stuttgart Retrofit Standard". – Low staff costs for coordination and low risks related to subcontractors' defaults thanks to the general contractor. – No upfront costs for the technical building system retrofit (remuneration through monthly fees) and a guarantee during the contracting period.	– Dependence on the ESCO during the contracting period. – May appear complicated for homeowners as the contracts are signed with the global contractor and the ESCO for the global renovation. – Lack of cost transparency because of a fixed price for the whole refurbishment.

Recommendations:
- A detailed market study mapping the inhabitants' needs is very important. Each city faces its own challenges which may be surprising (e. g. in Stuttgart financing is not a problem and yet energy retrofits do not happen).

Next steps: In the medium term the city aims to develop a contracting service for global energy retrofits. It has not lost hope of finding investors willing to finance the retrofit of the building envelope.

Need more details about this case study?

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