

Financing Ambitious Local Climate Objectives



D.2.4. Blueprint FLC solutions
Deliverable leader: SuMa Consulting

WP 2 – FLC Vehicle
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1 Introduction

The aim of the FALCO-project is to induce investments that go beyond business as usual by supporting potential investors with solutions that address persistent financial and non-financial barriers. Focus is on three types of investments:

- Energy efficiency measures for SME's;
- Renovation of private buildings (e.g. apartments / private houses / private schools / ...);
- Renovation of public buildings.

Based on financial and non-financial barriers project owners encounter, FALCO partners develop appropriate solutions. The work to develop the solutions has been organised in 'breakthrough projects'.

This deliverable contains the description of the financing solutions developed so far:

- ER2.0 – a fund in order to accelerate the renovation of private houses;
- SME – solution.

Information on the financing solution for the other breakthrough project(s) (e.g. renovation of public buildings) will be added once the financing solution has been developed.

2 ER2.0 – for energy renovation of private houses

2.1 Preliminary remark

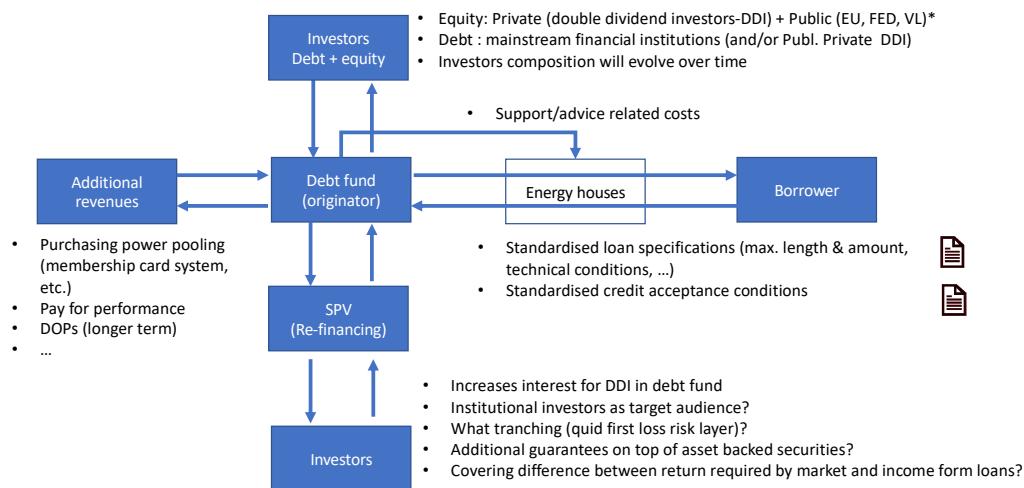
As from January 1, 2019 access to the Flemish energy loan will be limited to private borrowers with a yearly revenue below a certain threshold (hereafter referred to as the 'social group'). The Flemish energy loan that was available for private renovators, and that are not part of the social group has been terminated (thereafter refer to as "the target audience"). The ER2.0 Loan described below aims at providing a financing solution specifically tailored to the needs of the part of the private renovator's population that has no access to the revised Flemish energy loan. More in particular the ER2.0 solution aimed at addressing the need for financing and support/advice of the target audience so as to encouraged to invest more in energy renovation as compared to the keys when they would use the classic financing solutions generally available on the market. We note that although the social group it is not part of the target audience, the ER2.0 Loan will be available to the social group on the same terms and conditions as will be the case for the target audience. The proposed ER2.0 financing model provides a structural solution, and that can be built gradually in several phases, adopting a modular approach. This way we can provide a short-term solution for the target audience, while other modules (such as the refinancing solution) can be implemented at a later stage.

The ER2.0 financing solution will not be ready on January 1, 2019, i.e. the starting date of the revised Flemish Energy Loan. Hence, we will also try to formulate a solution so as to cover the period preceding the availability of the ER2.0 solution.

Finally, we also prepared a calculation sheet allowing to simulate the cash flow implications of alternative ER2.0 financing models and scenarios.

2.2 Overview

The ER2.0 solution can be represented schematically as follows:



* Public funding ((de-risking) and refinancing solution (increasing economic return DDI) will help attract private investments

The ER2.0 solution builds on the following main components:

1 - **Debt fund** - Central to the model we have a *debt fund* that offers directly or indirectly via the energy houses standardized personal loans together with advisory services to private individuals for the purpose of energy renovation investments. The debt fund is structured as a revolving fund.

2. **Standardised loan** – Whereas, previously the Flemish energy renovation loans offered by the energy houses could apply different terms & conditions as well as acceptance criteria, the ER2.0 offers standardised terms & conditions as well as standardised acceptance criteria. This standardisation offers higher transparency for the investors, and facilitates the correct evaluation of risk at portfolio level.

3 - **Refinancing solution** - To accelerate the revolving of funds, the ER2.0 model provides for a refinancing solution. This component the implementation of this component is conditional to the creation of a sufficiently large portfolio of loans (e.g. around hundred million for a refinancing via securitisation).

4 - **Additional revenues solution(s)** - To Cover the cost of the advisory services upon the renovation process and/or increase the financial viability of the ER2.0 solution, we have designed a solution allowing to capture part of the value added created by the ER2.0 solution for economic actors benefitting from an acceleration of the energy renovation pace. Our preliminary analysis identified the following items as critical success factors (CSF) for the ER2.0 financing model:

- CSF 1: How to ensure debt capital is adequately remunerated so that potential investors can be convinced to invest considerable sums in the proposed debt fund. Ancillary question: how can a difference, if any, between the interest rate charged to the ER2.0 client and the remuneration of the investors in the debt fund, be covered?
- CSF 2: Who bears the first loss? The remuneration required by debt fund investors depends to a large extent on the risk they take. Once first losses have been placed (with investors with a certain risk appetite), additional – more risk averse - investors could be willing to accept a lower compensation for investments in the debt fund.
- CSF 3: How are we going to cover the operational costs and the cost of the advisory/technical assistance by the Energy Houses, in addition to cost of capital?

To achieve economic viability, the financial model should achieve a structural equilibrium between, on the one hand, the cost of capital and the operational costs and, on the other hand, the revenues (interest) from the loan portfolio as well as any additional revenues (e.g. Membership card system). Preferably, the ER2.0 should be allowed to build a reserve/buffer that could be used as a catalyst for further acceleration of the pace of energy renovation investments.

The key challenge and focus of our endeavours is with reducing the costs and increasing the returns for each of the model components, *without* jeopardising the attractiveness of the ER2.0 solution for the investors *and* renovators.

Below we describe the main components of the ER2.0 financing model in more detail: the ER2.0 Fund (debt funds, the ER2.0 Loan, the ER2.0- refinancing solution). In addition, we provide several alternative options for covering the above-mentioned critical success factors for the ER2.0 solution.

2.3 The ER2.0 Fund (Debt fund)

Before describing the ER2.0 Fund, we briefly elaborate on the working capital, capital cost and revenues.

2.3.1 Working capital

The Fund's working capital covers 1) equity and 2) debt e.g. in the form of a loan (junior or senior debt) or bond¹, subordinated/junior debt² of long- or short-term bank credits. The working capital will be complemented by 'other resources' such as subsidies, bequests and

¹ Example a 'Green Bond Plus' (in Dutch: Groene Obligatie Plus), which is a bond which invests exclusively in green projects (to be determined ex ante), whereby the government supports the bond in one way or the other (for example, and interest subsidy, a capital or return guarantee, etc.) See final report "LNE helpt Vlaanderen op weg naar een groene economie", p.31 and following available at <http://www.lne.be/themas/beleid/mina4/leeswijze/projecten/groene-economie/p003480-51-083-03-eindrapport-voor-website.pdf>

² Subordinated loan: it consists of a loan where the investor accepts to be paid after other debt investors in the case of insolvency. Hence, subordinated loans are often referred to as quasi equity, as its risk profile (and reward) is close to that of equity. In compensation for the higher risk the investors expect to be awarded a risk premium.

donations that are transferred irrevocably and free of charge to this fund³.

Equity - share capital and the undistributed profits (reserves). The equity is held by the shareholders. Shareholders can receive dividends in consideration of their financial stake (distribution of profits). Equity will absorb the first losses as debt has precedence over equity in the event of defaulting.

Debt (borrowed capital) – debt is borrowed capital temporarily made available by investors in consideration of a compensation. Different sorts of debt can be envisaged: from the classic bank loans, to loans with the general public, selected group of private investors or institutional investors, for example via a bond.

2.3.2 Costs

Capital cost

The cost of capital is the financial compensation that the ER2.0 Fund must pay to equity and debt investors for making available their financial means to the fund.

Focus on double dividend investors

A number of economic sectors and societal actors benefit directly from an increasing the pace and/or the ambition of emission reduction objectives. This is for instance the case for product and service suppliers active in the energy renovation market as well as local or regional public authorities:

Key stakeholders form industry	Key stakeholders form public sector
<ul style="list-style-type: none"> • Producers and suppliers of building materials, insulation materials, insulated glazing, • Producers and suppliers of energy related appliances, equipment and installations (e.g. heating system, solar panels, air-conditioning, etc.) • ICT companies providing energy related software (e.g. monitoring and management software to allow for demand side management) • Suppliers and contractors: ESCOs, large property and project developers, financial institutions • Renewable energy producers • Etc. 	<ul style="list-style-type: none"> • The federal/ regional governments given their commitments under the EU/UN climate agreements/conventions) • Local authorities (notably in the context of the covenant of mayors • EU authorities - European Fund for Strategic Investments • Etc.

Each of these stakeholders can be considered as double dividend investors (DDI).

DDI have a return composed of two components:

- The **financial return**, the financial compensation in consideration of making his financial means available to the fund, and

³ These 'other resources are unlikely to constitute the backbone of the fund's capital structure, but can of course be taken in to account as complementary funding sources.

- The return associated with the accelerated implementation of (energy) renovation investments:
 - For the private sector DDI this second return takes the form of an additional economic return generated by a higher in turnover and/or cost reductions that relate to the increased pace and/or ambition of the renovation agenda.
 - For public sector actors this takes the form of a positive budgetary impact as a consequence of positive effects on employment, revenues from personal and corporate tax, avoided policy costs (reduced need to finance climate change mitigation policy measures with budgetary means).

Given this twofold return, it seems reasonable to assume that a private sector DDI may accept a lower than competitive *financial* return (i.e. standard market return), insofar as the sum of the financial return *and* the additional economic return is at least equal to a purely competitive financial return that would normally accrue to the investor. Mutatis mutandis, it seems reasonable to assume that a public sector DDI may accept a lower than competitive *financial* return, insofar as the sum of the financial return *and* the positive budgetary impact is at least equal to a purely competitive financial return that would normally accrue to the investor.

Remark: The concept of Double Dividend Investors could be extended to Triple Dividend Investors so as to integrate additional values/benefits that are less monetizable (e.g. biodiversity benefits associated with some climate change measures).

Idea for operationalisation of DDI contribution: deferring the ETS compensation to industry

The contribution of private sector Double Dividend Investors could be generalised by deferring the ETS compensation to industry. To understand this idea, we need to point to the fact that a large part of the electricity production falls under the EU emissions trading system (EU ETS). Electricity producers under the EU ETS will need to purchase EU Allowances (EUA) so as to cover their greenhouse gas emissions (each EUA allows the emission of 1 ton CO₂eq). The cost thereof will be reflected in the electricity price they charge to their clients. Member states are allowed to compensate energy intensive industries for said price increase. In practice, the Flemish Government uses the part of the recurring proceeds from the periodic sale of EUAs to finance the aforementioned compensation to the companies. Hence, the idea that, by deferring the payment of the compensation to industry with 1 year, and during that period use the funds earmarked for compensation in the ER2.0 Fund (or overarching fund) this would amount to a loan from industry to the renovation market⁴. If this approach is repeated every year then the fund can dispose of substantial means over its lifespan. Note that the industry sectors concerned could receive a low interest rate in consideration their funds being made available to the ER2.0 Fund. Said interest rate would be below market, considering the economic benefit accruing to the renovation sector. Practically, this solution requires the collaboration of the Flemish government OR an agreement with industry authorising the ER2.0 Fund to use the compensation payments during 1 year (in consideration of a small interest).

⁴ Possibly this could be limited to the portion of the compensation that goes to parties that benefit from an accelerated implementation of climate plans (industries benefiting from renovation).

First loss

One of the key questions when structuring the fund pertains to the risk allocation, and more importantly who will bear the first loss. One of the parties who will bear the first loss has been identified, it will normally be easier/cheaper to find additional investors. Obviously, the party bearing the first loss will need to receive a higher return than the other investors, compensation for the higher risk.

Note that robust acceptance conditions, as well as the (personal) warranties (e.g. joint and several liability of married borrowers, distraint on wages⁵) can reduce the credit risk substantially. Nevertheless, there will be cases where the debt cannot be recovered or that the recovery costs exceeds the outstanding debt. In the event the accumulated non-recoverable debt would jeopardise the reimbursement of the ER2.0 investors, the party bearing the first loss may need to absorb the non-recoverable loss.

This first loss allocation can take different forms. We considered below: 1) risk-bearing capital/ tranching, 2) accumulation of reserves, and 3) external warranties or guarantor

1) Risk bearing capital/tranching

In the absence of external guarantee / insurance, equity holders will bear first losses pro rata their share in the fund's equity. Alternatively, equity holders can agree a different risk allocation whereby a part of the equity holders will accept a higher risk in return for a higher compensation. For example, such agreement could provide in two categories of stakeholders whereby the first category bears the first loss, in consideration of a higher return.

For the equity or debt sources reference can notably be made to the following EU funding sources:

- The European Fund for Strategic Investments (EFSI /'Juncker fund'): the EFSI can provide equity to funds that finance different projects, but can also provide junior debt (achtergestelde leningen) guarantees and other 'credit enhancement' instruments⁶. *"EFSI can for example use debt instruments, guarantees, equity, quasi-equity instruments, credit enhancement tools or venture capital. It will be able to finance projects directly or participate in funds that finance various projects."*⁷
- The European Energy Efficiency Fund (EEEF) provides loans (both senior and junior debt) or guarantees for investments in energy efficiency or renewable energy projects.

Section 2.9.4 describes the EIB funding options more in detail.

⁵ In Dutch : 'loonbeslag'

⁶ These are instruments that improve the creditworthiness of the borrower. The lender has a higher certainty that he will be reimbursed by the addition of for example an insurance a pledge, or a third party guarantee. The lower risk will normally lead to more favourable/cheaper loan conditions.

⁷ The European Fund for Strategic Investments - Questions & answers, answer to question 55, see http://ec.europa.eu/priorities/jobs-growth-investment/plan/docs/efsi_qa_en.pdf

Whilst the above funds may provide a source for equity (and/or risk mitigation), both public sector (Local authorities, or Flemish region) and private sector (private equity investors or large companies from the energy renovation business) could also be solicited to provide equity and/or bear first loss in consideration of a remuneration compensating their risk exposure.

In addition to a participation in equity or debt, public sector (local authorities) could support the fund in other ways, for example: by covering part of the technical assistance services' cost, or by providing a guarantee for a debt to or from the ER2.0 Fund, etc.

In practice: during the pilot phase we envisage to start the fund with an equity of approx. 10 million euro and debt around 50 million euro. (ratio Equity/debt = 1 euro/5 euro)

2) Constitution of reserve

Part of the ER2.0 Fund revenues could be used to constitute a reserve to absorb non-recoverable loans.

The Membership Card System's (cf. deliverable D2.2 of the FALCO project and section 2.3.3 below) revenues may offer an interesting alternative or complementary source for funding the reserve, as it the MCS revenues accrue at the time the risk arises (i.e. at the time of the use of the loan).

3) External Guarantee

This is the case where a third party agrees to take the (first) loss risk in consideration of a risk premium.

Possible option: Flemish region guarantee up to the economic value of the additional emission reductions.

Participation in financing of climate change investments is in practice limited by its implications on the public budget and debt in accordance with the EU's Stability & Growth Pact and ESA 2010⁸. Therefore ESA neutrality is often set forward as a fundamental requirement for Flemish region financial support. Below we provide an idea on how the Flemish government could support financing local climate change action plans without relaxing the ESA-neutrality constraint.

The Flemish government guarantees the debt to or from the ER2.0 Fund up to the economic value of the additional emission reduction secured by the ER2.0 Loans. In concreto, this

⁸ Reminder: Member States are free to decide how to use their public funds as long as they stay within the boundaries of the budgetary and debt agreements with the EU. The ESA rules do not prohibit the Flemish authorities to fund (local) climate action plans. But to maintain budgetary equilibrium expenditure in one area will need to be compensated by cuts in other areas. This explains why in times of economic hardship, where important budgetary cuts have already occurred, it is not easy to undertake further cuts to the benefit of higher expenses for local climate action plans. An ESA neutral solution – although not strictly necessary – facilitates the much needed political and societal support for climate change investments.

means that instead of paying a certain amount per emission reduction, the Flemish government provides a guarantee. The economic value can be the carbon market value (external reference) or a an agreed upon (societal) value of an emission reduction, e.g. considering other societal co-benefits employment, additional parafiscal revenues, etc...) that can be linked to the emission reduction projects. The guarantee could be defined in a budgetary neutral way insofar the guarantee does not exceed the real budgetary/economic benefits. To the ER2.0 Fund such guarantee could lower the cost of capital.

From a government's point of view two situations can occur:

- The risk does not materialise and in the guarantee is not called upon. In this case the realised emission reduction does not entail a cost for the government and on the authority enjoys from the economic benefits that are associated with the emission reductions;
- The risk materialises, and the guarantee is activated, in whole or in part. In this case it is the government would have paid forward for emission credits. Insofar as the sums paid are below the effective benefits in the form of savings/additional income budget neutrality can be upheld.

In practice, this means that the guarantee at the disposal of the ER2.0 Fund will increase over time, as structural emission reduction measures will generate emission reductions year after year. Hence, after a while the fund will have considerable guarantees, which should allow it to attract additional private debt funding at a reasonable cost.

For example: suppose that the ER2.0 Fund finances investments with an additional emission reduction of 10.000 tons CO₂eq per year for 10 years (100.000 tons CO₂eq on 10 y), and that each ton of CO₂eq has an economic value 10 euro. In that case of the Flemish government's guarantee increases by 100.000 euro per year as long as the investments produce additional emission reductions, in casu 10 years. Hence, if the risk doesn't materialise the guarantee amounts to 1.000.000 euro after 10 years.

Remark: this approach can also be used as a precursor or for a compensation mechanism (domestic offset projects mechanism – cf. infra 0) whereby the Flemish government and other interested public or private parties would pay a third party for reducing its emissions, in exchange of the right to claim the emission reduction.

2.3.3 Revenues (secondary operating resources)

In this section we consider the ER2.0 Fund's revenues. We distinguish financial and result-based revenues.

Financial revenues

The financial income relates to the compensation that the ER2.0 Fund receives from the renovators that have taken out an ER2.0 Loan via the energy houses.

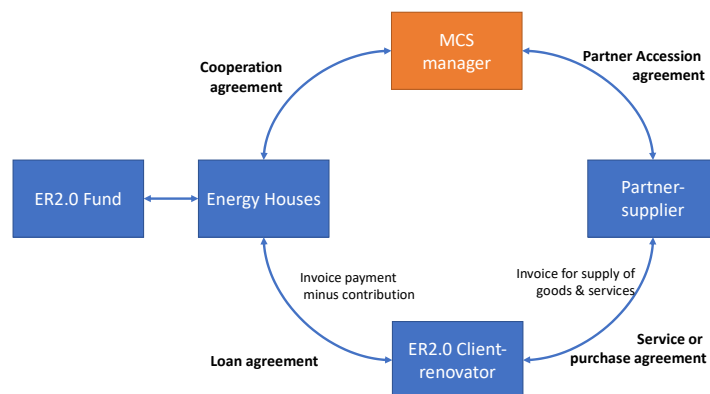
Result based revenues

Membership Card System -

The financing solutions developed within FALCO (hereafter referred to as FALCO solutions) will expand the energy renovation market, thereby allowing the renovation & retrofitting

sector (incl. its suppliers) to enjoy additional revenues. The Membership Card System (MCS) wants to capture part of the economic value accruing to the renovation sector and use it to further increase the pace and ambitions of energy renovation investments. These new investments will again generate additional revenues, that the MCS will put to use to further accelerate renovation.

By analogy with a classic membership benefit card system, service and product suppliers (hereafter "ER2.0 partner suppliers") can agree to offering clients who renovate via an ER2.0 Loan (hereafter ER2.0 customers) a rebate on the usual prices and / or that the energy houses / fund receive a fixed or variable contribution in function of the purchases of ER2.0 customers at these suppliers. In this way, Energy Houses bundle their ER2.0 customers' purchasing power to secure a part of the economic value accruing to the ER2.0 partner suppliers thanks to the ER2.0 Loans. These funds can then be used to grant cheaper and/or additional ER2.0 Loans and/or cover part of the guidance costs.



By offering the right incentives (e.g. a preferential interest rate for the ER2.0 Loan used for purchasing works and products of ER2.0 partner suppliers), ER2.0 customers are encouraged to work with partner suppliers. Suppliers who are not yet affiliated to the MCS at the time the customer comes can still do so up to the moment of issuing their invoice.

Administratively, the MCS only requires a small additional check by the Energy House. Upon the payment of the loan amount, the energy house verifies whether the submitted invoice pertains to an ER2.0 partner supplier. If so, it immediately settles the part of the agreed upon rebate that goes to the MCS.

Note that the MCS could also offer a platform for additional services. For example, it could accommodate quality monitoring of partner suppliers, whereby the ER2.0 customers could evaluate the ER2.0 partner suppliers. This could offer an additional incentive to further improve the quality of the services and goods from the renovation sector ('trip advisor'-like peer to peer information on the renovation sector actors).

For a more detailed presentation of the proposed MCS system please refer to deliverable D2.2 of the FALCO project.

Domestic offset projects

This revenue stream is conditional on the results achieved with the Fund. The nature of the

results that will generate revenues is dependent on the type of results the interested stakeholders are prepared to pay for. For example, the Flemish government, which saves the market value of an emission allowance for every additional ton of CO₂eq reduction, can fully or partially transfer this market value to the Fund that made the reduction possible. An additional route consists of allowing companies wishing to offset their emissions to contribute to domestic emission reduction projects (domestic offset projects or DOPs). In return, the companies receive a certificate stating that they have compensated x ton CO₂eq (voluntary compensation) or a corresponding number of emission allowances (from the Flemish government) that they can use within the EU ETS to meet their obligations (see art. 24a EU ETS Directive⁹).

The payment conditions and modalities can provide provisions with regard ensure the additionality of the reduction requirement (methodology), reduce the risk of overcrediting (e.g. limiting the crediting period, sub par issuance of emission rights, etc.), the social or environmental quality of the reduction project, etc.

The relevance of DOP increases together with the carbon price on the emission trading market or (voluntary) compensation market.

Compensation for services

Flemish government

As we understand, the Flemish Government will enter into agreements with the individual energy houses whereby, in exchange for the implementation of a package of services to be agreed upon (support for renovators), the energy houses receive a fixed compensation. These funds accrue to the energy houses, not to the ER2.0 Fund. Where appropriate, the ER2.0 Fund can take this Flemish support into account when determining the reimbursement to the energy house for support services in the context of the ER2.0 Loan. In the reimbursement of the Energy houses, a two-tier reimbursement model can be used whereby the fixed lump sum reimbursement provided by the Flemish government is the basic financing and the ER2.0 Fund, in function of the number of dossiers that are effectively converted into an ER2.0 Loan (and / or the total volume of loans), a contribution to the energy house. This result-based or volume-related fee from the ER2.0 Fund encourages energy houses to organise loan and advisory activities in an effective and efficient way.

As currently we have no view on the amounts that will be allocated by the Flemish government, we have taken into account a limited contribution from the Flemish government (10% of the total advisory/support costs) in the calculation of the cash flows (see section 2.8).

⁹ Article 24a of Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC introduces the possibility of 'domestic offsetting' in the context of the Emissions trading scheme. "Artikel 24 bis stelt " 1.[Implementing] measures for issuing allowances or credits in respect of projects administered by Member States that reduce greenhouse gas emissions not covered by the Community scheme may be adopted".

Financial institutions

Part of the ER20 Clients that receive assistance from the Energy Houses, will eventually decide not to enter into an ER2.0 Loan but rather opt for a classic bank loan or (partial) re-admission of their mortgage loan.

Energy houses could negotiate a fee with these banks covering the cost of the advisory services provided by the energy house that lead to the bank loan. An alternative option would be to bring this mutatis mutandis this could be included under the MCS system. We have not taken this additional income stream into accounting in our cash flow planning.

2.4 The ER2.0 Loan product

2.4.1 Description of the ER2.0 Loan

Main characteristics

The ER2.0 Loan is a personal loan available to households willing to improve the energy performance of their homes, but who are not eligible to benefit from the Flemish loan since the Flemish Government decision to phase out green loans targeted to middle-income households (low-income households are still eligible to benefit from the soft loan mechanism).

Main characteristics of the ER2.0 Loan are listed below:

- Type: Installment credit¹⁰, no mortgage¹¹,
- loan amount: minimum 5.000 euro; maximum 50.000 euro
- Loan maturity: maximum 20 years
- Uptake modalities: maximum in 4 tranches within 2years
- Interest rate: Fixed interested rate between 2% and 2,25% (under current market conditions), depending on the maturity.

¹⁰ Under the Belgian legislation (WER Art I.9. 48°): *lening op afbetaling : elke kredietovereenkomst, ongeacht de benaming of de vorm, waarbij geld of een ander betaalmiddel ter beschikking wordt gesteld van een consument, die zich ertoe verbindt de lening terug te betalen door periodieke stortingen;*

¹¹ Under the Belgian legislation (WER Art I.9. 53/1°) *hypothecair krediet met een onroerende bestemming: de kredietovereenkomst gewaarborgd door een recht op voor bewoning bestemde onroerende goederen of een hypothecaire zekerheid die bestemd is voor de financiering van het verwerven of behouden van onroerende zakelijke rechten en de ermee verband houdende kosten en belastingen, of de herfinanciering van een dergelijke kredietovereenkomst. Wordt eveneens beschouwd als een hypothecair krediet met een onroerende bestemming :a) de kredietovereenkomst niet gewaarborgd door een hypothecaire zekerheid bestemd voor de financiering van het verwerven of behouden van onroerende zakelijke rechten, **met uitzondering van de renovatie van een onroerend goed;** ...*

- Reservation fee: none
- Early repayment option: to be determined
- Warranties: Joint and several guarantee of co-borrowers and transfer of debt claims and wages

These loan specifications will be further finetuned and - where relevant - aligned on the terms and conditions (e.g. the type of investments authorized under the ER2.0 Loan and) of other mechanisms in support of energy efficiency (such as renovations premiums for certain type of energy efficiency investments) available to Flemish households. Such harmonization of conditions may facilitate Energy houses to act as distribution channel for other supporting measures (one-stop-shop). In relation hereto, it may be relevant to develop an instrument that allows the target audience to rapidly assess whether they can satisfy all requirements, to qualify for the ER2.0 Loan/support measures.

Note: the maturity of personal loans is limited by law to 10 years. To be able to provide a loan of a longer maturity (>10 years) an accreditation as social lender is required. To be accredited as social lender, the loan product should provide for a maximum income-thresholds, and limit access to the loan product to those household that stay below the threshold.

Borrower

The ER2.0 financing offer is available to households, owners or tenants willing to improve the energy performance of their housing:

- All co-owners are borrowers, as are the spouses or legal cohabitants who occupy the home as a family home;
- All landlords are eligible, also landlords who own multiple properties and / landlords who rent their property through social rental offices.

Conditions related to works technical specifications

Following cumulative conditions apply to refurbishment works to be eligible for funding by an ER2.0 Loan:

- Works on buildings older than 10 years (i.e. eligible to VAT reduction);
- Works belonging to a closed list of sustainable energy investments (cf. list provided by the Energy Ministry VEA), possibly complemented by max 50% of associated works related to stability, moisture, security (e.g. electricity), sustainable water management (incl. green roofs), finishing works.
- Works carried out by entrepreneurs / installers (reimbursement exclusively based on invoices, incl. 6% VAT);
- Access to ER2.0 will only be possible after prior visa of the works by an energy house, who will check whether the energy conditions are met and if specific guidance will be needed before, during or after the works.

Acceptance conditions

Conditions for acceptance relate to the evaluation of borrowers' creditworthiness. Different conditions are currently being applied by Energy houses. To facilitate the risk assessment by potential investors and thereby reduce capital cost, it is paramount to define clear, complete and harmonized conditions and to ensure strict adherence to these conditions by all Energy houses offering ER2.0 Loans. In addition, harmonisation of acceptance conditions will pave the way to the design an efficient refinancing solution for sell portfolio of standardised loans at a later stage.

Further information relating to the conditions for acceptance is provided in Annex (see section 2.9.2). These conditions are the result of discussions and exchanges between Energy houses identifying improvements and harmonisation opportunities. The ER2.0 acceptance conditions were aligned with those commonly used by commercial banks, to facilitate the latter's involvement in the solution design and implementation (e.g. through an investment in equity or debt).

A standardized scoring methodology was developed to assess acceptance conditions for individual loan applications. These conditions are listed below:

- DTI – debt to income
- Margin after budgeting
- Income stability
- Credit incidents / payment defaults (as notified to the Central Individual Credit Register)

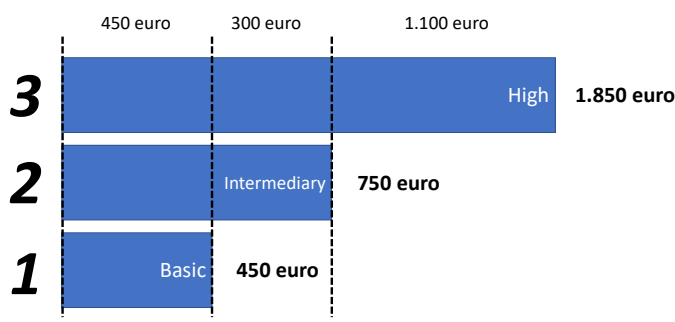
2.4.2 ER2.0 technical assistance

Energy houses complement their financial services with technical guidance, aimed at providing technical advice and assistance to households wanting to improve the energy performance of their homes. The current level of technical assistance is subsidised by public authority and therefor can be offered free of charge.

Note that, as compared to the (former) Flemish energy loans, the ER2.0 Loan proposition facilitates the borrowing of larger sums: it allows a higher loan amount and longer pay back periods. Hence, it is reasonable to assume that lenders will combine several energy efficiency measures in one renovation. This increases the (technical) complexity of the renovation, and requires a more tailored and advanced technical assistance service proposition by the Energy Houses

Hence, from an ER2.0 perspective we distinguish three technical assistance services level to be offered by the Energy Houses. The Basic service level is mandatory, while Intermediary and High service level are optional and will be provided at the borrower's request considering his needs and requirements.

Costs associated with these three service levels are estimated below:



Hereafter we provided further details on the items included in the proposed service levels services. These costs estimations we used to evaluate cash flows and financing needs. Note however that both the activities covered by the service levels as well as the cost thereof may undergo further modifications upon finetuning the service levels.

Basic service level (mandatory)

Besides administrative formalities (including verification tasks), this service level includes the following activities:

- Analysis of energy bills (gas and electricity)
- Solar energy: analysis of solar radiation and topographic maps
- Roofs insulation: analysis of thermography and topographic maps
- enrolment in group purchases
- Identification of relevant contractors
- Overview of available financial incentives/subsidies
- Technical assistance: a maximum of 1 hour at Energy Houses' premises (no site visit).

The cost of this level is estimated to amount to 450 euro: Remote Technical guidance (1 hour) @ 90€ incl. VAT) and ER2.0 Loan processing costs @ 350€/dossier.

Intermediary level (optional)

The intermediary level complements the Basic service level items with the following items:

- Site visit
- Personalised tips and advice
- Prioritisation of energy investments
- Technical guidance relating to planned investments
- Financial assessment of investment options
- Detailed assessment of available subsidies

Intermediary services provided by technical advisors are estimated to require 300 euro (incl. VAT), based on approximately 3,5 hours of assistance @ 90 euro/hour (incl. VAT).

High service level (optional)

The High service level complements the Intermediary service level items with the following items:

- Assistance with the selection of contractors: assistance with preparation of Request for Quotation and comparative analysis of quotations received
- Assistance with application for subsidies
- Supervision of works and control of implemented works, including comparison with initial quotation.

High level services provided by technical advisors are estimated at approximately 1.100 euro (incl. VAT) based on 12 hours of assistance @90 euro/hour (incl. VAT).

2.5 Refinancing solution



2.5.1 Refinancing as catalyst for non-financial return of double dividend investors

The loans granted by the fund are repaid in installments over 5, 10, 15 or 20 years. The fund will therefore be able to issue new loans only in function of the repayment of the loans (rolling fund approach). By refinancing the outstanding loans, we can accelerate the rotation of the funds from the fund, i.e. grant new loans more quickly.

For double dividend investors, i. e. investors who benefit from accelerating the pace of renovation investments (see point 0), a refinancing solution can significantly increase the attractiveness of investing (via equity or debt) in the ER2.0 Fund. Indeed, each time the original ER2.0 Fund resources are re-used to grant new loans, additional co-benefits (economic return or policy results) accrue to these double dividend investors. Refinancing thus acts as a catalyst for the non-financial returns of double dividend investors.

In the current state of development of the ER2.0 solution, the focus is mainly on the development of an attractive loan proposition. The development of a refinancing solution is at this stage less of a focus, as it is contingent upon the development of a sufficiently large loan portfolio. Hence, a refinancing solution will mainly be required at a later stage. Hence, at present we focus on ensuring that the ER2.0 solution is compatible and satisfies all key requirements, such as standardised ER2.0 Loan product and standardised acceptance criteria, that will facilitate future refinancing solutions.

2.5.2 Alternative refinancing solutions

Refinancing via a securitisation solution

This pertains to the conversion of the loans (non-marketable assets) into cash to create an additional source of financing. More precisely the loans' future incoming cashflows are sold in order to immediately dispose of funding.

The ER2.0 Fund, the original owner of the claims (asset originator), sells a portfolio of receivables (which generate future income streams) to a separate company set up for this purpose (special purpose vehicle or SPV). This SPV then issues Asset Back Securities (ABS), i.e. securities that are covered by the portfolio's income from receivables, for example a bond. With the income from the sale of these securities, the SPV pays the ER2.0 Fund the agreed sales price for the loan portfolio. The ABS are often subdivided into different tranches with different risk profiles (so-called tranching), depending on the risk profile, which offer a different return. Because the assets are placed in an SPV, they are protected from the assets (and therefore also from the debts) of the ER2.0 Fund. As asset originator, the ER2.0 Fund must retain at least 5% of the risk ('retention requirement') - Capital Requirements Regulation (articles 405 and 409 CRR).

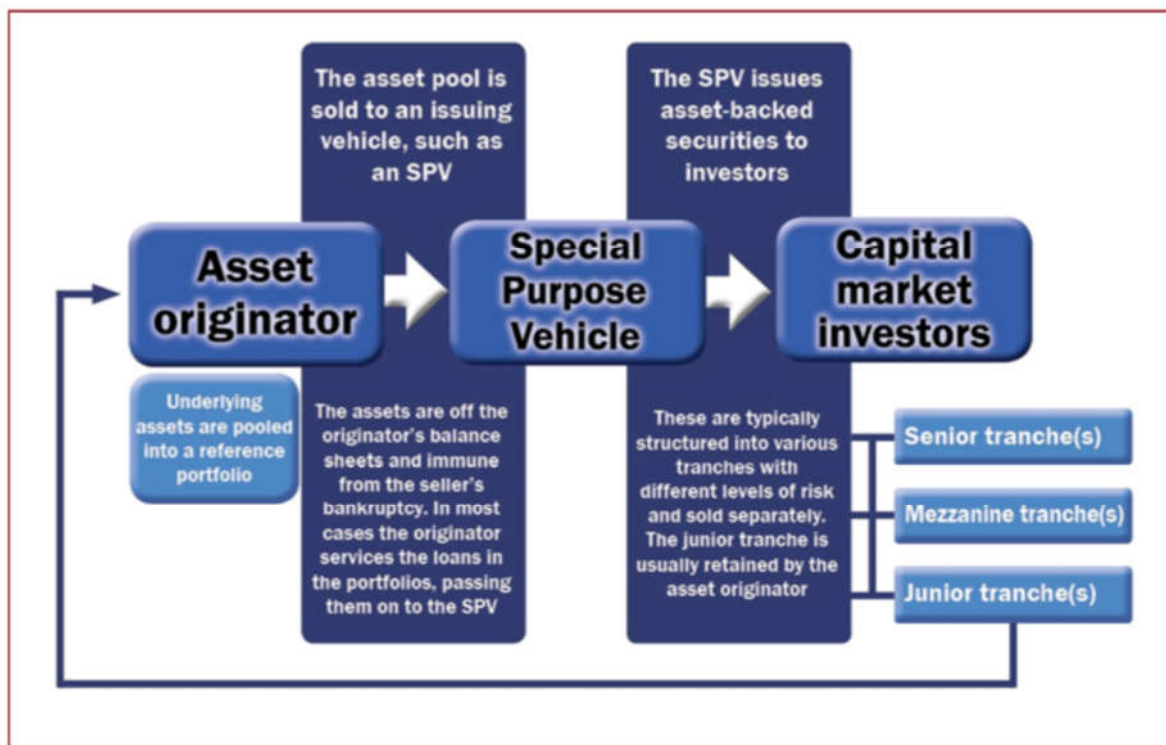


Figure 1 - Securitization process¹²

In addition to creating an additional source of funding, the literature also indicates that the securitization can contribute to:

- Securing large investment amounts from the market (this is linked to the capital requirements of banks) and
- in some cases, a lower financing cost.

Other refinancing solutions

There are also other refinancing options that do not require a Special Purpose Vehicle, such as 'covered bonds'.

Covered bonds are debt securities usually issued by a financial institution and collateralised against a pool of assets that, in case of failure of the issuer, can cover claims. Unlike asset-backed securities created in securitisation, the covered bonds continue as obligations of the issuer (no Special Purpose Vehicle). Hence, the investor has recourse against the issuer as well as the collateral covering the bonds (dual recourse).

A covered bond is a bond with an enhancement: the recourse to a pool of assets that secures or "covers" the bond if the originator becomes insolvent. These assets act as

¹² S. Kidney, D. Giuliani & B. Sonerud, Stimulating private market development in green securitisation in Europe, April 2017, POLICY PAPER, www.climatebonds.net

additional credit cover. Unlike the case of an ABS in a securitisation solution, defaults in the loan portfolio will not directly affect the bond holder.

For other refinancing solutions such as forfeiting we refer to the Barriers & Solutions matrix (deliverable 2.1 of the FALCO project).

2.6 Validation of key assumptions

2.6.1 Description and validation of assumption

General assumption with regard to business model

A1.1 : No competition from banks (offer personal loans > 10 years)

Assumption

Currently the main (and only) competition for a ER2.0 Loan with a loan period of more than 10 years would come from clients using the possibility to the reuptake (part of) their mortgage, insofar as the remaining mortgage period exceeds 10 years. Mainstream banks will not offer personal loans beyond 10 years (this would require applying for an accreditation as social lender)

Validation

Based on our discussion with three mayor banks we understand that banks have discussed the opportunity to modify the maximum period for personal loans beyond 10 years. This encountered resistance both at the level of Febelfin (as this would require important modifications to the banks' loan management systems) and from Consumer organisations (risk of overcrediting).

Risk assessment

Even if the banks would apply for a social lender accreditation, they will need to provide technical assistance services which parallel those of the Energy Houses. Hence, instead of competing a collaboration would be in the interest of both parties.

A1.2 Growth assumptions

Assumption

The number of ER2.0 Loans in the first year will be around 1000. The number of loans will grow at a rate of 20% per year in the following 5 years

Validation

- proportion of loan in the total number of renovations in Flanders: in period 2013 -2015 the renovations with building permit were +/- 16,000 per year in Flemish Region¹³. This does not include the renovations that do not require a building permit.

- number of Flemish energy loans: around 4,800 in 2018 (period before 1/1/2019)

¹³ Data source: see <http://www.statistiekvlaanderen.be/statistiek-wonen>

- number of Energy Houses indicating that they are prepared to offer the ER2.0 Loan: under validation,

Conclusion and risk assessment

Given the renovation numbers and the fact that the ER2.0 Loan has been prepared in co-creation with the several Energy Houses (so as to make sure to take into account their requirements), the initial ER2.0 Loan and growth rates seem reasonable. Furthermore, in the next stage further marketing efforts will be undertaken to present and promote the ER2.0 solution.

Assumptions with regard to the Debt fund

A.2.1 The Debt fund's cost of capital can be covered by revenues from ER2.0 Loans

Assumption

This assumption is key to allow the achieve structural financial equilibrium, it builds on the following underlying assumptions:

- The ratio equity/debt ratio is around 20/80 (or even less equity) – this
- financial institutions can borrow at the same / comparable interest rate to the Debt fund as the rate that is applied for the personal energy loans that they provide directly to private individuals.
- DDI investors who benefit from energy renovation are willing to accept a lower than market according to financial return (= return without economic return or policy return)
- Sufficient equity and debt can be secured
- Commercial banks will not want to participate to an ER2.0 Fund for fear of cannibalisation of own products

Validation

An equity debt ratio of 20/80 seems reasonable considering Basel III requirements as a reference¹⁴.

Note that, following our discussion with EIB and three Belgian banks. The critical point here will be to secure equity. The question is currently under investigation with the cities of Antwerp and Ghent. The idea would be to start with a coalition of the willing providing equity and then gradually enlarge the fund's equity upon subsequent investments rounds (capital increase).

Once (public) equity has been secured it should be possible to secure debt either with the EIB (5 to 8 euro for each euro equity in a public fund) and/or mainstream banks (at a similar equity debt ratio).

The interest rate indications for senior debt both from the EIB and mainstream banks are similar to or below the interest rates charged on personal loans for energy renovation of up to 10 years (between 1,4% and 2%).

DDI private sector has not yet been validated, but given the current preference for public fund scenario (with focus on equity mainly provided by public sector actors) this is of a lesser in the short term)

¹⁴ https://en.wikipedia.org/wiki/Basel_III - Hence, even a 15/85 ratio seeme reasonable

Commercial banks do not fear cannibalisation of own products, as they appeal to a different client segment, and as additional revenues from investing in the ER2.0 Fund are expected to offset any losses due to the aforementioned cannibalisation.

Assumptions with regard to ER2.0 Loan

A3.1 Attractiveness of ER2.0 Loan

Assumption

The ER2.0 Loan is sufficiently attractive for the target audience

Validation

Best estimate of energy houses that have been working on the ER2.0 Loan, who are in daily contact with their client base. A limited market research could be organised.

The Duwolim-Plus¹⁵ loan is in many aspects quite similar to the ER2.0 Loan. It has been introduced successfully in the province of Limburg. In addition, the SPEE fund providing loans similar to the ER2.0 in France (Picardie) seems rather successful.

Conclusions and risk assessment

The co-creation process with the Energy House and the experiences in the province of Limburg (Belgium) and SPEE fund in France seem to underpin the reasonableness of the assumption.

Assumptions with regard to refinancing

A4.1 refinancing conditions must be compatible with market rates

Assumption

The refinancing costs are not prohibitive, i.e. the interest of the ER2.0 Loan should be able to support the cost of capital and the transaction cost (possibly less if other revenues such as those from the MCS could be used to cover part of these costs).

Validation

If financing can be found for the ER2.0 Fund, then it should also be possible to find it for a refinancing solution. Transaction cost can be reduced by working with a highly standardised ER2.0 Loan and postponing refinancing until a sufficiently large Loan portfolio has been constituted (e.g. around 100 million euro)

Conclusions and risk assessment

This item should be further investigated in the next steps of the ER2.0 development.

Assumptions with regard to Membership card system

A5.1 Membership Card system can secure sufficient revenues so as to cover the cost of technical assistance

¹⁵ <https://duwolim.be>

Assumption

Membership Card system can secure sufficient revenues so as to cover the cost of technical assistance

Validation

The MCS has passed the logical validation test and is now awaiting further market validation through a limited market survey. See for further information in the deliverable 2.2 on the Membership Card System.

Conclusions and risk assessment

Awaiting market validation for final conclusions. See for further information the deliverable 2.2 on the Membership Card System.

2.7 Accreditation as social lender

To be able to grant ER2.0 Loans to private individuals, the lender must be accredited as 'social lender'. There are roughly two options:

Option 1: the ER2.0 Loans are issued in the name and for the account of the ER2.0 Fund. In this approach, the loan agreement is entered into directly between the ER2.0 Fund and the ER2.0 customer. The Energy Houses may agree with the ER2.0 Fund, to grant the ER2.0 Loans in the name and for the account of the Fund.

Option 2: The ER2.0 Fund lends money to individual Energy Houses that already have secured accreditation as social lender. The latter can then use the sums provided by the ER2.0 Fund to grant ER2.0 in their own name and for their own account: loan contract between an individual Energy House and ER2.0 customer.

Taking into account the lead time required for accreditation as social lender (see section 2.9.1), option 2 seems the fastest way to start rolling out ER2.0 Loans. The advantages and disadvantages of both options will be further investigated (inter alia from the investors' point of view).

Main differences from the investor's point of view:

- In option 2, the ER2.0 Fund bears the counterparty risk of Energy Houses (which is influenced by the elements other than the ER2.0 Loans)
- In option 2, a refinancing solution for the loans granted by the individual Energy Houses seems more complicated. Indeed, as ER2.0 Loans are granted by the individual Energy Houses, these may pursue different policies which ultimately will lead to variations in ER2.0 Loan conditions (e.g. in terms of acceptance criteria). Note that agreements between Energy Houses with regard to applying the same/very similar ER2.0 Loan conditions should be screened for compatibility with competition law provision on unlawful collusion. Alternatively, it could be investigated whether a scenario where the ER2.0 Fund imposed the use of standardised ER2.0 Loan conditions as a condition for granting their own loan to the Energy Houses, would be compatible with said competition rules. Note that such problem would not

arise in option 1 as, in this case, the ER2.0 Fund would be the sole counterpart in all ER2.0 Loans.

However, if the ER2.0 Fund itself wants to offer the ER2.0 Loan directly to private individuals, the fund must be accredited as a social lender. The administrative procedure for obtaining this accreditation is estimated to require 1.5 to 2 years. It may therefore be useful - pending accreditation by the ER2.0 Fund as a social lender - to opt for the alternative option whereby the ER2.0 Fund makes resources available to the energy houses, and it is the energy houses that the ER2.0 Loan.

2.8 Cashflow calculation

2.8.1 Calculation sheet

A cashflow calculation sheet was prepared to calculate the cashflow implication of alternative ER2.0 financing options and assumptions. The Cash flow calculation sheet can be provided in a separate xls-document.

2.8.2 Calculation assumptions

The key calculation assumptions and values are concentrated in the tab "INPUTS" of the aforementioned Calculation sheet.

2.8.3 Results

The key calculation results are concentrated in the tab "OUTPUTS" of the aforementioned Calculation sheet.

2.9 Annexes

Hereafter we provide additional information on the following topics related to the proposed solution:

- Accreditation by the FSMA (financial markets Authority) as a social lender (cf. section 2.9.1)
- Acceptation Conditions (cf. 2.9.2)
-
- Applicability of Public procurement law and rules of general good governance principles (cf. 2.9.3)
- Possible EIB financial support (cf. 2.9.4)

2.9.1 Accreditation as social lender (FSMA accreditation conditions)

General architecture of ER2.0 Loan: three options

Option 1: The ER2.0 Fund directly grants ER2.0 Loans to households, without any intervention of Energy houses as far as financial flows are concerned.

→ Requirement: The ER2.0 Fund must be accredited as “social lender” by the FSMA.

Option 2: The Energy Houses grant ER2.0 Loans to households. The Energy Houses sell the loan portfolio to the ER2.0 Fund.

→ Requirement: Only possible for mortgage loans.

Option 3: The ER2.0 Fund grants loans to Energy Houses which in turn, grant ER2.0 Loans to households. Repayments are made to the Energy Houses, who will use these ER2.0 Loan repayments to reimburse their own loan to the ER2.0 Fund.

→ Requirement: Energy Houses must be accredited as social lenders. If Energy Houses want to provide new loan products (such as the ER2.0 Loan), they need to obtain authorisation from the FSMA through (cf. the online application detailed below).

Conditions to be accredited as social lender by the FSMA

Conditions related to the lender

- Central management must be located in Belgium
- The lender must have an appropriate/authorised legal form.

Following documents and information must be submitted by the lender to the FSMA.

- Answer to the question whether the lender is a company as defined in art. VII.163, § 2 of the Economic Code;
- Its organogram;
- Clarification about close links with other persons
- Clarification about the nature and extent of their transactions related to mortgage loans and consumer loans, and about their organisation;
- Clarification about how data related to credit activities are managed and stored;
- Demonstration that their accounting rules are legally compliant;
- Proof that the contract model has been validated by the Federal Public Service Economy (FPS Economy);
- Evidence of acceptance of an out-of-court settlement procedure for consumer disputes;
- Professional e-mail address;
- Power-of-attorney, if the request has been submitted someone who has been granted such authorization.

Modification of the registration dossier

Every modification to data or documents making part of the registration dossier must be immediately communicated to the FSMA through the online application (responsible persons involved, number of persons in contact with the public, modification of the controlling structure of the company, ...)

Following modification require prior FSMA approval:

- A change in category: Credit intermediaries cannot be registered in more than one category. Intermediaries willing to change of category (e.g. from credit broker to associated agent) must obtain prior approval from FSMA;

- A registration request for an additional brokerage activity (e.g. a mortgage broker seeking registration as intermediary in banking or investment services)

The application dossier shall include the FPS Economy's approval of the credit agreement model (including the loan amortization schedule) that will be used by the credit provider

Timing

The FPS Economy notifies its decision related to the credit agreement model approval within **four months** of receipt of the complete dossier.

The FSMA notifies its decision within **2 to 6 months** of receipt of the complete dossier (including FPS Economy approval)

2.9.2 Acceptation conditions

It is essential to define clear, harmonized acceptance criteria, and have them applied in a consistent way by all Energy Houses to facilitate risk assessment and allow adequate pricing of their investments. Moreover, harmonization of acceptance conditions is paramount to facilitate the development of an efficient refinancing solution.

The main ER2.0 Loan acceptance conditions are set out below. To increase the probability of a participation of the banking sector in the ER2.0 Fund (through equity or debt), the acceptance conditions were aligned on banking acceptance conditions for personal loans, as currently widely applied in the market.

Key aspects

Scoring system based on following criteria / ratio's

- Debt to income (DTI)
- Margin after budgeting
- Income stability
- Credit incidents (e.g. payment defaults, as registered in the Central Individual Credit Register)

Calculation of ratios

Components to be considered to calculate ratios, including inputs and outputs, are described below.

Income taken into account to calculate DTI

- 100% of average monthly income (wage-earner)
 - If the pay slip reveals that the employment relationship has been running for more than 1 year, 1 recent pay slip can be considered as sufficient as soon as it is representative (no overtime for example).
 - For recent/short term employment contracts (interim, ...): average revenue calculated from three recent pay slips.
 - Meal vouchers value multiplied by maximum 18 times/month (full time contract – in case of part time job, pro rata will be calculated based on pay slips)
 - Home-work trips compensation are taken into account, but costs incurred by the employer are excluded.
- 100% of revenues from alternative income (sickness / pension allowance...)
 - A deposit voucher or certificate is sufficient
- 100% of unemployed allowance, with a maximum of

Head of household	1.100 €
One person Household	1.100 €
Cohabitant	650 €

 - A deposit voucher or certificate can be sufficient (max. 26 compensated days per month)
- 100% of revenues as self-employed
 - Registration in the Crossroads Bank for Enterprises as self-employed for at least 2 years (otherwise there is no basis to evaluate annual income)

- (“Net taxable income” – "tax"/12 from recent notice of assessment
- 80% of rental income (based on registered rental contract)
- 50% van het kadastral income of a rentable but not yet rented dwelling

Income for budget calculation

- DTI revenues +
- 80% alimony (own alimentation, excl. Children food)
 - Evidenced by judgement or signed contract + 3 pay in slips

Expenses taken into account for DTI and budget calculation

- 100% monthly costs of outstanding loans, as soon as their remaining maturity is longer than 6 months
- 2,5% of the outstanding part of a loan
 - Only for individual credit facility higher than 2.500 euro
 - In case no information is available, maximum amount mentioned in the Central Individual Credit Register shall be considered.
- 100% food expenses
- 100% paid rent

Balance budget for budget calculation

- 750€ for a single person
- + 250€ for a partner

1.1.1.1 Income stability

What can be considered as stable income sources?

- (Pre-)pension (incl. component of unemployment)
- sickness / pension / unemployment allowance
- Revenues from long term employment contracts (seniority mentioned on the pay slip, or any other evidence demonstrating that seniority higher than one year)

What cannot be considered as stable income sources?

- Recent employment contracts (<1 year)
- Interim income
- Rental income
- ...

Credit incident

Three mutually excluding possibilities:

1. None of the borrowers have a registered credit incident
2. At least one borrower has had a credit incident that has been regularised
3. At least one borrower has had a credit incident that has not been regularised

Other criteria for approval

Age

- If a borrower is older than 70 years old at maturity, then borrowers must fully own their housing and total consolidated debt of the principal borrower cannot be higher than 50.000euros at 65 years old.

House owner

- (Co-)borrowers must own at least 50% of their housing.

Scoring system (proposal)

Scores assigned to each criterium are listed below.

Debt to income (DTI)

- DTI \leq 30%
4
- 30% $<$ DTI \leq 36%
2
- 36% $<$ DTI \leq 40%
1
- 40% $<$ DTI \leq 50%
0
- 50% $<$ DTI
-5

Budget calculation

- Saldo $>$ 600€
6
- 360€ $<$ saldo \leq 600
5
- 180€ $<$ saldo \leq 360
3
- 0€ $<$ saldo \leq 180
1
- Saldo \leq 0
-5

Income stability

- Result $>$ 80%
0
- +50% $<$ result \leq 80%
-1
- Result \leq 50%
-3

Credits incidents



- No registration
0
- Regularised registration
-3
- Active registration (non regularised people) -10

Total scoring
.....

Decision

- Score \leq 0 credit request is rejected
- 0 < score < 4 to be discussed, based on rules to be decided.

Test of the criteria for approval

A calculation sheet has been developed to apply this scoring system on an automated manner. Updated conditions for approval are currently being tested by Energy houses, by applying this methodology to existing dossiers and comparing the results with those generated with the previous methodology.

2.9.3 Application of PPL en GGGP (in relation between ER2.0-Fund and Energy Houses)

Considering the time required to be accredited as a social lender, we consider granting ER2.0 Loans by the Energy Houses instead of directly by the ER2.0 Fund. The question here is whether the Public Procurement Law (PPL) applies to the relationship between the ER2.0 Fund and the Energy Houses, and if so, what practical consequences this would have. Even if the PPL would not apply, the general good governance principles (GGGP) would still apply. Here too, the question arises whether - and to what extent - the cooperation between the Energy Houses and the ER2.0 Fund is compatible with this GGGP.

Public procurement law (PPL)

The IWT 'Explanatory document: Public law obligations' (version September 2014¹⁶) states: *'A public contract is the contract for pecuniary interest' concluded between one or more contracting authorities or public undertakings and one or more contractors, suppliers or service providers and which relates to the performance of works, the supply of products or the provision of services. necessary for its duties or the execution of its mission. The order*

¹⁶<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKewj91beAvfTaAhXD26QKHbWQCChsQFggnMAA&url=https%3A%2F%2Fwww.vlaio.be%2Fnl%2Fmedia%2F556&usq=AOvVaw06W1dQTUrG-KMhnnLt4Rje>

(because that's what it is) is the subject of a mutual agreement (= more than one party). "Onerous title" means that each gives or delivers something in exchange for: the government usually the price. The onerous nature persists, even if the government provides no price, but another clearly measurable and monetizable consideration⁸. Each order therefore falls automatically under the provisions of the PPL. "

Preliminary analysis: If the Energy Houses take out a loan with the ER2.0 Fund, the PPL seems applicable. However, if the ER2.0 Fund makes resources available to the energy houses and reimburses the Energy Houses for the technical assistance costs to provide ER2.0 Loans in its own name and for its own account (of the Energy Houses), and the funds received including the financial revenues are reimbursed to the ER2.0 Fund (risk remains with ER2.0 Fund insofar as allocation is made in accordance with the agreed conditions), then at least at first sight there appears to be no application of the PPL. After all, there is no purchase of services by the Energy Houses from the ER2.0 Fund. Instead it is the ER2.0 Fund who buys a service from the Energy Houses. The Energy Houses are reimbursed by the ER2.0 Fund for their services, and not vice versa. In this case, the PPL seems only to apply in the relation ER2.0 Fund → Energy Houses if the ER2.0 is a public fund. Aside from this, this service also seems compatible with the mission of the Energy Houses. We will seek further confirmation of the preliminary analysis above, notably by reference to a legal opinion provided by a law firm addressing a similar question.

Implications of the General Good Governance Principles (GGGP)

Even if the PPL does not apply, the cooperation between the ER2.0 Fund and the energy houses still must be compatible with the General Good Governance Principles (GGGP).

The aforementioned IWT explanatory document specifies the various components of the GGGP: the due diligence principle; the motivation duty; the principle of equality; the principle of legal certainty; the reasonableness principle; reasonable time requirement. Based on a review of these principles, we consider that execution of a mission by an Energy House for the ER2.0 Fund is compatible with the GGGP.

It is important, however, to properly motivate this decision. The core mission of the Energy Houses and the fact that such an ER2.0 Loan is offered by the market may serve as an appropriate starting point for this motivation. The principle of equality does not seem to be a problem here either. The aforementioned IWT explanatory document states that the principle of equality "does not mean that certain companies / knowledge institutes cannot be approached or treated differently, but that this difference must at least be based on an objective criterion that gives reasonable justification." Here too, the fact that such an ER2.0 Loan is not proposed by the market seems to justify a difference in treatment.

2.9.4 Selected EU Funding options

[also relevant for the other FALCO breakthrough projects]

In this section we provide a preliminary analysis of EU funding options (mainly those provided by or via the EIB) as well as an initial analysis of relevance of these options for each of the FALCO breakthrough projects.

The European Energy Efficiency Fund (EEEF)

The EEEF aims to provide market-based financing for commercially viable public energy efficiency and renewable energy projects within the 28 EU Member States. It contributes with a layered risk/return structure to enhance energy efficiency and foster renewable energy

by unlocking the substantial potential in the European public sector in the form of a targeted public private partnership.

- EEEF contributes with a layered risk/return structure to enhance energy efficiency and foster renewable energy in the form of a targeted private public partnership, primarily through the provision of dedicated financing via direct finance and partnering with financial institutions.
- Investments should contribute significantly towards energy savings and the reduction of greenhouse gas emissions to promote the environmentally friendly use of energy.
- The **final beneficiaries of EEEF are municipal, local and regional authorities as well as public and private entities** acting on behalf of those authorities such as utilities, public transportation providers, social housing associations, energy service companies etc. Investments can be made in Euro, or local currencies, however the latter is restricted to a certain percentage.
- The European Energy Efficiency Fund can invest in three categories of projects: Energy Saving and Energy Efficiency investments, Investments in Renewable Energy sources, Investments in Clean Urban Transport.

To reach its final beneficiaries, EEEF can pursue two types of investments: Direct investment and investments into Financial institutions.

- Direct investments: These comprise projects from project developers, energy service companies (ESCOs), small scale renewable energy and energy efficiency service and supply companies that serve energy efficiency and renewable energy markets in the target countries.
 - Investments in energy efficiency and renewable energy projects in the range of €5m to €25m
 - Investment instruments include senior debt, mezzanine instruments, leasing structures and forfeiting loans (in cooperation with industry partners)
 - Also possible are equity (co-)investments for renewable energy over the lifetime of projects or equity participation in special purpose vehicles, both in cooperation directly with municipalities, or with public and private entities acting on behalf of those authorities.
 - Debt investments can have a maturity of up to 15 years, equity investments can be adapted to the needs of various project phases
 - The Fund can (co-)invest as part of a consortium and participate through risk sharing with a local bank
- Investments into Financial institutions: These include investments in local commercial banks, leasing companies and other selected financial institutions that either finance or are committed to financing projects of the Final Beneficiaries meeting the eligibility criteria of EEEF.
 - Selected partner financial institutions will receive debt instruments with a maturity of up to 15 years
 - These instruments include: senior debt, subordinated debt, guarantees
 - No equity investments in financial institutions
 - Financial institutions onlend to the beneficiaries of the Fund meeting the eligibility criteria to finance energy efficiency and/or renewable energy projects

EEEEF – main preliminary findings

- Considering EEEF end beneficiaries, this Fund could be suitable for the following breakthrough projects:
 - Social housing
 - Public buildings
- To apply for funding, Deutsche Bank, as the Fund Manager of EEEF, should be contacted. It will conduct the initial screening and, in case of a positive outcome of this first stage, detailed due diligence of the project.

Additional information: <https://www.eeef.eu/home.html>

Private Finance for Energy Efficiency (PF4EE)

PF4EE instrument is managed by the EIB and funded by the Programme for the Environment and Climate Action (LIFE programme).

The LIFE Programme committed EUR 80m to fund the credit risk protection and expert support services. The EIB will leverage this amount, making a minimum of EUR 480m available in long term financing.

The PF4EE instrument provides:

1. Risk Sharing Facility (PF4EE RSF)

This takes the form of a portfolio-based credit risk protection provided by means of cash-collateral

The **PF4EE RSF shall partly cover the credit risk associated with underlying newly extended EE Loans included in the Portfolio granted to Final Recipients** for the financing of Eligible EE Investments. Under the terms of the Collateral Agreement between the EIB and the Financial Intermediary, the Collateral will be deposited in a Collateral Account to cover the Losses incurred by the Financial Intermediary in respect of each defaulted EE Loan up to the Collateral Rate of the Losses, provided that the Collateral Transfer Amounts shall never exceed the lowest of (i) the Collateral Cap Amount and (ii) the Collateral Available.

2. EIB Loan for Energy Efficiency (Long-term financing)

The EIB will provide a financial contribution to the PF4EE Instrument by granting EIB Loans for EE to FIs requesting this type of financing to complement the PF4EE RSF. These EIB Loans for EE will be provided at the EIB's own risk, at **competitive rates** and with a **maturity of up to 20 years** (save for exceptional market conditions) for on-lending them to Final Recipients. The financial advantage generated by the EIB's financing conditions shall be passed onto Final Recipients in accordance with EIB procedures for intermediated lending to encourage the take-up of the EE Loans provided by the FIs. **EIB Loans for EE may finance up to 75% of the capital cost of Eligible EE Investments. The remaining part of the capital cost will be financed by the FIs and, generally, also by Final Recipients.**

3. Expert Support Facility (PF4EE ESF)

Expert Support to be provided would be defined individually for each Financial Intermediary but with **three clear objectives** in mind: (i) **ensuring** the actual lending to

Eligible **EE Investments** within the framework of the PF4EE Instrument **takes place**, (ii) developing capacity to make **energy efficiency lending sustainable within the concerned Financial Intermediary** and (iii) **guaranteeing the correct reporting of the impact** of the EE Investments supported by the PF4EE Instrument

To the extent needed, the PF4EE Expert Support Facility will provide the expert professional services to FIs in order to support, inter alia, the following activities: (i) **Staff training** on energy efficiency; (ii) Development of energy efficiency **products**; (iii) EE Loans **portfolio development**;

Final Recipients benefitting from the PF4EE Instrument should be defined in the context of the relevant Participating Countries' NEEAP (note: all breakthrough projects sectors are covered by the Flanders Region NEEAP).

Eligible Financial institutions: Private sector financial institutions and public sector financial institutions that **operate in the market in a manner comparable to a private sector financial institution**.

Financial institutions participating in the implementation of the PF4EE Instrument will be required, as a minimum, to **comply with the following criteria**: (i) to be duly authorised to carry out lending or leasing activities according to the applicable legislation and be established and operating in a Participating Country; (ii) to demonstrate operational capacity to manage the PF4EE Instrument; (iii) to demonstrate capacity to reach Final Recipients targeted by the relevant NEEAP priority and/or energy efficiency support scheme and/or EU Directives relating to energy efficiency within the Participating Country concerned; (iv) to have sound financial standing with a stable long-term outlook; (v) to have robust credit risk assessment and rating policies, procedures and systems; (vi) to be acceptable as an EIB counterparty in accordance with EIB's internal policies; (vii) to comply with relevant standards and applicable legislation on the prevention of money laundering, the fight against terrorism and tax fraud to which they may be subject and shall not be established and (viii) shall not maintain business relations with entities incorporated in any Non-Cooperating Jurisdiction .

PF4EE – main preliminary findings

- In theory, all breakthrough projects could benefit from PF4EE financial support.
- At first glance, PF4EE RSF and/or EIB loan for EE could be of particular interest when developing FALCO financial solution, in particular for the ER2.0 project.
- We should however bear in mind that eligible financial institutions should be private sector financial institutions and public sector financial institutions that operate in the market in a manner comparable to a private sector financial institution, which might not be the case with the Flanders Region support.

Considering the state of progress of the FALCO project and the project's timeframe, PF4EE ESF does not seem to be an option to pursue at this stage.

- Another uncertainty to be clarified relates to the procedures to apply for support. The website mentions a call for application launched in 2017, but no information is provided about any other call.

Additional information: <http://www.eib.org/products/blending/pf4ee/index.htm>

JESSICA

EU countries can choose to invest some of their EU structural fund allocations in revolving funds to help recycle financial resources to accelerate investment in Europe's urban areas. Contributions from the European Regional Development Fund (ERDF) are allocated to Urban Development Funds (UDFs) which invest them in public-private partnerships or other projects included in an integrated plan for sustainable urban development. These investments can take the form of equity, loans and/or guarantees.

Owing to the revolving nature of the instruments, returns from investments are reinvested in new urban development projects, thereby recycling public funds and promoting the sustainability and impact of EU and national public money.

Funding opportunities could be explored in the context of the adoption of the Flemish operational programme, to be adopted in the coming 24 months (when the EU Framework budget 2021-2028 will be adopted).

Jessica – main preliminary findings

- Funding opportunities could be explored in the context of the adoption of the Flemish operational programme, to be adopted in the coming 24 months (when the EU Framework budget 2021-2028 will be adopted)

Additional information: http://ec.europa.eu/regional_policy/en/funding/special-support-instruments/jessica/#2

EFSI

EFSI is an EU initiative launched jointly by the EIB Group and the European Commission to help overcome the current investment gap in the European Union by mobilising private financing for strategic investments. It will support investment in **transport, energy and digital infrastructure; education and training, health, research and development, information and communications technology and innovation**; expansion of renewable energy and resource efficiency; environmental, urban and social projects; as well as support for smaller businesses and midcap companies.

EFSI is based on a EUR 16 billion EU guarantee, which will offer a specific cover to the investments financed by the EIB Group in case there are any losses. In addition, the EIB is contributing a EUR 5 billion capital allocation.

EFSI will focus on projects which could not have been carried out, or not to the same extent, by the EIB, the EIF, or under existing Union financial instruments without EFSI support. Projects supported by EFSI shall typically have a higher risk profile than projects supported by EIB normal operations.

EFSI is demand-driven and provides support for projects everywhere in the EU
Following entities can apply for EFSI financing:

- Entities of all sizes, including utilities, special purpose vehicles or project companies, small and medium-sized enterprises (with up to 250 employees) and midcaps (with up to 3 000 employees)
- Public sector entities



- National promotional banks or other banks to deliver intermediated lending
- Funds and any other form of collective investment vehicles
- Bespoke investment platforms

EFSI – main preliminary findings

- At first glance, EFSI seems to focus on (medium to large scale) risky projects funding. It does not seem to be appropriate for intermediary financial institution such as the Debt fund which is currently under consideration in the context of the ER2.0.

Additional information: <https://www.eib.org/en/efsi/how-does-a-project-get-efsi-financing/index.htm>

Other

Other EIB products and services listed below were analysed.

- European Investment Fund (EIF): The EIF is a **specialist provider of risk finance to benefit small and medium-sized enterprises (SME) across Europe**. The EIF provides several equity and debt products.
 - ➔ Aimed at funding SME's general investments. Not specifically dedicated to sustainable energy actions.
- European Structural and Investment Funds (ESIF) Financial instrument, including the European Regional Development Fund (ERDF).
 - ➔ Funding opportunities could be explored in the context of the adoption of the Flemish operational programme, to be adopted in the coming 24 months (when the EU Framework budget 2021-2028 will be adopted)

3 Financing solution for SMEs

3.1 Context

Promoting energy efficiency at SMEs is a challenge. Not only in Belgium but in all member states. All governments are looking for best practices to boost energy savings in this target group.

There are many reasons why energy efficiency is not a priority for private companies and SMEs. SMEs focus on their core businesses and entrepreneurs want to invest in core processes rather than invest money in improving energy efficiency since these investments bring limited added value and, consequently, come with long payback periods.

Moreover, in many SMEs cost of energy is often a rather limited part of the total cost structure so that in the end the impact of energy savings on P&L will be limited. Finally, most SMEs don't have a dedicated person who oversees energy management, meaning that in many cases this item is taken up by the entrepreneur him/herself. 'No time' is therefore an argument that comes back regularly when speaking to SMEs.

On the other hand, it's also a challenge to get third parties interested to start investing in energy efficiency measures in SMEs. There is a non-negligible credit risk associated to SMEs, and many SMEs also require high levels of flexibility when tuning their production facilities which doesn't match easily with long term partnerships with third parties. In addition, investment levels at most SMEs are rather limited (between 20k to 100k euro at max) which is reflected in high transaction costs to establish a portfolio of a descent size.

To summarize: there are plenty of arguments available that might be blocking points to realize significant energy savings in SMEs.

3.2 Setting the scene

Given the multitude of elements that potentially restrain SMEs from investing in energy-efficiency, several choices had to be made regarding the financing solutions to be developed.

The starting point is the question to what extent third party financing through EPC is possible for private companies and SMEs in particular. Currently, first steps are being taken in the field of EPC with public clients such as cities & municipalities. By contrast, EPC in the private sector is much less well established in Belgium.

The impact of SMEs on EPC mainly relates to the much higher transaction costs needed to build up a portfolio, which is translated into projects with a shorter payback time and consequently lower energy savings which contrasts with EPC for public parties, where average payback periods of 7.5 years and energy savings of around 30% on the energy bill are considered are currently being realised.

3.2.1 Transaction costs

The impact of transaction costs on energy savings-project is illustrated in the following table and figure.

capex		2,000,000		2,000,000
design fee		10%		25%
Available for effective investment in energy savings measures		1,800,000		1,500,000
Target payback of 8 years		251,572		251,572
Payback of energy savings measures		7.16		5.96
Delta				-1.19
Energy Savings measures with payback < 3 years	20%		3	30%
Energy Savings measures with payback < 5 years	20%		5	25%
Energy Savings measures with payback < 8 years	34%		8	35%
Energy Savings measures with payback < 10 years	15%		10	10%
Energy Savings measures with payback < 12 years	11%		12	0%
	100%			100%

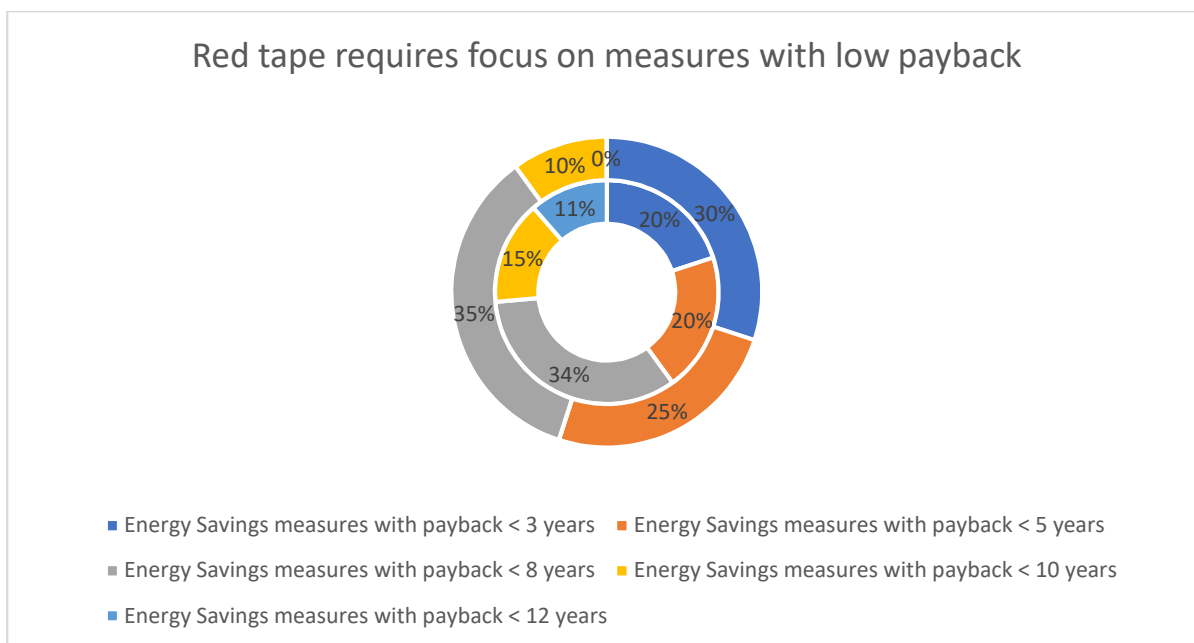
This table shows the impact of transaction costs on the IRR of an energy savings-project. Assume you consider an energy savings-project of 2 million euro. Assume furthermore that you can get this project funded if the overall payback equals 8 years at max.

In case you would be working for one large private company it's fair to assume a design fee of 10% to structure the project. However, when you consider investing 2 million euro of energy savings measures in SMEs, you will need to contact a substantial number of them to achieve a budget of 2 million euro. Consequently, you will need to spend much more effort in acquisition, which in the end results in higher fees to structure the project – assume 25%.

These higher acquisition costs have a significant impact on the structure of a project. To realize an overall payback of 8 years, you will need to focus on energy savings measures

with a lower payback. In case a design fee of 10% is needed, a project with energy savings measures that result in an average payback of 7.16 years is possible whereas a project with transaction fees of 25% requires energy savings measures with an average payback of only 5,96 years.

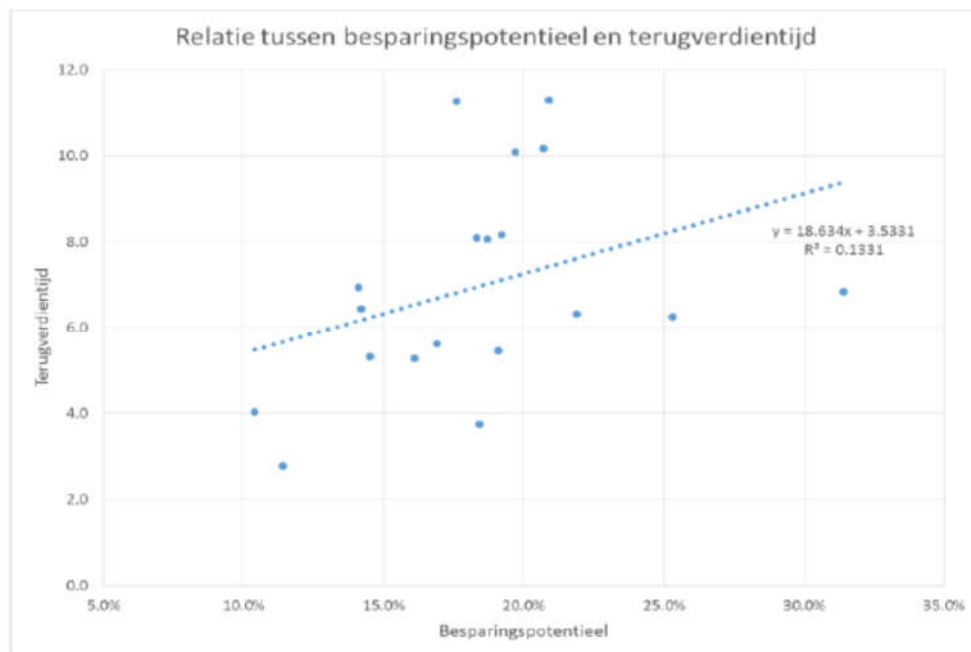
At first sight a difference of 1,19 years in payback seems rather small. However, when one considers following figure, it should be clear that in a situation with 25% of transaction costs it will be very difficult to integrate energy savings measures with a longer payback.



3.2.2 Shorter paybacks

As shown in the previous paragraph, there is a strong tendency to focus on energy savings measures when SMEs are considered. However, there is a second important element that should be stressed: energy savings measures with a low payback normally generate relatively limited energy savings as shown in the figure below.

This graph is based on 400 energy scans by VLAIO and clearly shows that large energy savings can be achieved by investments with a longer payback time. For example, to achieve an energy reduction of 25% you will need to invest in energy savings measures with a payback of 8 years whereas an energy reduction of 15% requires energy savings measures with a payback of 6 years.



Translating this insight back to the financial structuring of an energy savings-project, it should be clear that one will need much more companies contracted to achieve a portfolio of 2 million euro. In the following table, this impact is shown by comparing a scenario with energy savings measures that result in a payback of 7,5 years with a scenario where the energy savings measures have a payback of only 5 years.

First scenario will generate a bankable business case with an EPC-contract that lasts 10 years – e.g. IRR of 5,6% and requires a group of companies with an energy invoice that ends up to of 888k euro.

In the second scenario where energy saving measures are considered with a payback of 5 years, an EPC-contract of only 6 years will also generate an IRR of 5,5%. However, the required energy invoice is 3 times as big as in the first scenario (compare 2.666k euro versus 888k euro). In other words, much more SMEs should be found to come to an investment portfolio of 2 million euro.

			1	2	3	4	5	6	7	8	9	10
Cashflow		-2,000,000	266,667	266,667	266,667	266,667	266,667	266,667	266,667	266,667	266,667	266,667
IRR		5.6%										
Payback of 7,5 years -> 30% energy saving												
Required energy invoice		888,889										
Capex/energy cost		2.25										
			1	2	3	4	5	6				
Cashflow		-2,000,000	400,000	400,000	400,000	400,000	400,000	400,000				
IRR		5.5%										
Payback of 5 years -> 15% energy saving												
Required energy invoice		2,666,667										
Capex/energy cost		0.75										

Combining the insights from the preceding paragraphs, it is therefore crucial to develop strategies to keep transaction costs as low as possible to achieve significant energy savings

in SMEs. Lower transaction costs will enable energy savings with a longer payback and thus also more significant energy savings.

Based on these insights, it is therefore not surprising to note that the only successful energy savings programs for private companies/SMEs so far are mainly focusing on energy-saving measures with a low payback time, such as relighting programs (LED) which are currently often offered to companies via leasing formulas.

3.3 Search for a cost-effective interface to approach SME's

To reduce transaction costs when setting up EPC with SMEs different scenarios have been explored. Based on input from the public authorities which are part of the FALCO-consortium, several ongoing projects were detected that included a collaboration with private companies. One of these projects is the BISEPS project of the POM West-Flanders. The POM is the provincial development company of the province of West-Flanders that specifically provides services for companies, such as development of business parks and advisory services to companies on making their processes more sustainable.

BISEPS is a European funded project with the ambition to stimulate renewable energy in companies. One of the objectives is to get more PV on the roofs of these companies. Within the scope of BISEPS several PV-audits have been carried out, which, together with energy scans that are funded by VLAIO - the Enterprise Agency of the Flemish Region, gave a good overview of the potential of PV & energy-saving measures in these companies. After all, the intention was to combine PV with energy-saving measures (e.g. relighting, roof insulation).

Building on the results of the ongoing BISEPS project, we sought to decrease transaction costs substantially thereby improving the potential of EPC for private companies and SMEs. In this context, several consultation meetings were set up between 3E and POM West-Flanders design concrete business cases for which, within the framework of FALCO, financing solutions could be developed.

These analyses revealed several interesting elements:

- Many companies purchase their electricity at relatively low prices, which makes a business case based on PV challenging;
- A substantial number of companies have already installed PV; for those that have not, this can often be explained by the presence of asbestos in the roof and/or insufficient roof structure to install PV, resulting in a much more expensive installation cost with again a negative impact on the overall business case;
- Probably most important: many companies consider investing in PV and energy-efficiency rather as a "nice to have" than a "must have", which means that still a great deal of time and effort had to be put into raising awareness; Hence, the expected decrease in acquisition costs (transaction cost) couldn't be realized unfortunately.

These insights have also led us to adjust our approach. After all, the final objective of FALCO is to effectively realise investments. To improve the bankability of the business cases, it was therefore important to work out alternatives to significantly reduce the acquisition and structuring costs of EPC projects when dealing with private companies, SMEs in particular.

Two approaches were developed for this purpose:



- Focussing on networked SMEs instead of individual companies in combination with portfolio's where energy savings measures and investments in renewable energy are combined;
- Investigate the potential of an EPC-light formula that is much lighter in terms of structuring costs on the other, so that also lower investment amounts can be dealt with.

For the elaboration and especially the testing of both measures, 3E could call on Wattson NV. Wattson is a subsidiary of 3E, founded in 2016, which specifically focuses on EPC projects. By being able to work together with a company that is effectively active in the field, it was finally possible to switch quickly to the above-mentioned adjusted approach. Several meetings have been organized with Wattson and 3E.

The concepts were also immediately tested in close collaboration with several banks. Several meetings were held with BNPParibas, KBC, VDKBank and Belfius to check the potential and especially the bankability of both concepts. It was interesting to note that all banks showed a strong interest in the proposed approach to the extent that financing could finally also be obtained for both approaches.

3.4 EPC and project finance? Mission (im)possible?

3.4.1 Added value of Networked organizations

EPC in combination with third party funding is normally achieved through a project-finance approach. Project financing is a technique known to banks and is currently used very frequently for renewable energy projects in solar, wind and biomass.

In terms of energy savings, the number of projects based on project financing is much smaller. After all, project financing requires investment volumes of at least 2 million euros and preferably much more. For PV, wind and biomass this amount is not really a problem. With one project these minimum requirements are easily met. In the case of energy saving, however, it is much more difficult to find such investment volumes at one location/project. In a company/location you are more likely to find investment volumes of 200 to 300,000 euros. However, such amounts are impossible to bring under project financing.

To offer a solution to this problem, portfolios must be created in which various projects are pooled. Unfortunately, the pooling of 10 SMEs in one portfolio does not provide much relief as you are still confronted with the high acquisition cost of a 10 121 EPCs with each of the companies.

Today, we can observe the emergence of many new types of organisations, which have characteristics of SMEs but also characteristics which resemble to those of large companies. Typical examples are network companies such as chain stores that focus on retail. Each of these stores individually employs a relatively limited number of employees, each of these stores usually has its own P&L and targets to pursue, just like an individual company or SME. On the other hand, there are also characteristics of large companies where several services are centrally managed. Examples are the purchase of goods and services. Investments are often decided at group level, whereby each of the branches can submit projects that are then put in competition with projects from other branches.

From an EPC point of view, such a network organisation has several important advantages. Unlike individual companies/SMEs, this type of company has only one counterparty with whom the EPC is negotiated. As a result, the transaction costs are much lower than if an EPC had to be developed with each of the individual SMEs. Moreover, when an EPC is concluded, energy savings are aggregated over different locations. As a result, the

committed energy saving is rather an average, meaning that overshoots in some sites can compensate for any undershoots in others. The impact of this is explained in the following table.

		portfolio	individual
	budget	realized savings	
unit 1	100,000	50,000	50,000
unit 2	100,000	80,000	80,000
unit 3	100,000	100,000	100,000
unit 4	100,000	100,000	100,000
unit 5	100,000	100,000	100,000
unit 6	100,000	100,000	100,000
unit 7	100,000	100,000	100,000
unit 8	100,000	100,000	100,000
unit 9	100,000	120,000	110,000
unit 10	100,000	150,000	125,000
total	1,000,000	1,000,000	965,000

In this table two scenarios are compared: a portfolio scenario where energy savings are linked to the total portfolio and a scenario where energy savings will be determined for each individual location. In the business case it is assumed that each of the locations will generate 100k euro of energy savings. In practice, some locations are doing much better but others also worse than what is assumed in the business case.

At portfolio level we can observe that under- and overperformers are levelling each other out so that at portfolio-level the foreseen energy savings are being realized in practice. However, when it comes to the individual cases, this is no longer true. In most EPC it is common sense to share overperformance in terms of energy savings between the EPC-party and the client on a 50/50-basis. When the split between EPC/client is considered, overall energy savings is only 965k euro. Higher uncertainty of the revenue streams will result in a lower debt-share in the total investment thus requiring a higher equity stake. Since equity requires a higher return, the weighted average capital cost (WACC) will also be higher and therefore it will be more difficult to work out a convenient business case.

Furthermore, the balance sheets of network companies are much more stable and robust, which means that the credit risk of these types of parties is much smaller than in the case of individual SMEs. This also increases the willingness of financiers to allow for longer-term EPCs. This in turn enables energy-saving measures with a longer payback period, which ultimately results in higher energy savings.

3.4.2 Combinations of energy savings measures and renewables to increase bankability

In our discussions with the banks, it also emerged that financing energy-saving investment projects by means of project financing is still relatively new in Belgium. One element in convincing these parties was to include a certain amount of renewable energy in energy-

saving projects.

At present, almost all Belgian banks consider the financing of renewable energy to be relatively standard. Most banks now have a track record of about 10 years in these assets and therefore know the risks and mitigation strategies to deal with them. EPC, on the other hand, is of a relatively recent date. The track record of this project class is therefore still relatively limited.

Moreover, renewable energy projects have several attractive characteristics when it comes to financing. In the first place, renewable energy projects currently still receive operating support in the form of green electricity certificates in Flanders. This income stream is known and runs for at least 10 years. Furthermore, renewable energy projects have a running counter which makes it relatively easy to determine the return of such a project. These characteristics do not apply to EPC: no operating aid is currently foreseen from the government and, in contrast to renewable energy, there is much more uncertainty about the extent of energy savings.

At the start of a project, an estimate is of course made of the expected energy savings, but the probability that this deviates from reality is real. There is also the possible interference of the behaviour of the users of the building. In short, much more uncertainty about the savings and thus less secure income streams when it comes to an EPC project. This is being translated into stricter requirements on the part of the financiers, for example through higher Debt-Service Coverage Ratios that are requested.

But the bankability of an EPC can be significantly increased when a part of the investments consists of renewable energy. The attached table explains this.

Measures	Uncertainty on revenue stream	EE only	Savings budget	P90	EE/RE	Savings budget	P90
PV	95%	0%	0	0	40%	400,000	380,000
Energy savings: variable	70%	100%	1,000,000	700,000	60%	600,000	420,000
Total		100%	1,000,000	700,000	100%	1,000,000	800,000
DSCR			1.3	1.05		1.3	1.05
Annuity			769,231	666,667		769,231	761,905
Debt			5,400,397	4,679,797		5,400,397	5,348,339
			65%	65%		65%	65%
Bankable investment level			8,308,302	7,199,688		8,308,302	8,228,213
				-1,108,615			-80,089

Common practice for financial institutions when it comes to project finance is that banks will require a P90 analysis to evaluate the strength of the proposed business case. This exercise is done to consider the uncertainties which can be linked to each of the revenue streams of the project. Uncertainty of energy savings is higher than the production of renewable energy which results in much lower P90-values for energy savings (70%) when compared with renewable energy (95%).

In the standard business case a bank will apply a DSCR of 1,3 meaning that debt service

should always be lower than 769k euro when a total income of 1 million euro is expected. When an EPC of 10 years is considered, banks will typically take a revenue tail of 2 years so that debt-period comes to a period of 8 years. With an interest rate of 3% an annuity of 769k euro yields a debt-value of 5,4 million euro. If debt-share is 65%, total investment equals 8,3 million euro.

As already mentioned banks also require a P90-analysis. Revenues are downscaled according to the risk which can be linked to each of the revenue streams. In a scenario where, only energy savings are considered the available revenue is reduced to 700k euro. When it comes to P90 financial institutions adapt the required DSCR to a lower value – 1,05 to end up with an annuity of 666k euro or consequently a total debt of 6,7 million euro. When also equity is added, total investment equals 7,2 million euro which is significantly lower than the 8,3 million from the business case meaning that the bankability of this project will be under discussion.

However, when also renewables are taken into consideration, a similar P90 analysis results in a total investment value that is approximately the same as in the business case. In other words, the bankability of this project is much better than an energy savings only scenario!

3.4.3 From theory to pilot case

Based on the previous analysis a pilot case has been defined with the following characteristics:

- Combination of energy efficiency and renewable energy production to stabilize revenue streams and thus improve the bankability of the project
- An EPC with a private operator who oversees many nursing homes in Belgium and with whom an energy savings guarantee has been negotiated at portfolio level rather than at the level of each individual nursing home.

Proposed approach has successfully been tested by Wattson since an EPC was signed with Armonea – a private operator of nursing homes with facilities all over Flanders, Brussels and Walloon region. The EPC represents an investment value of 6 million euro to be realized on more than 40 sites. Typical energy savings measures are: renovation of boiler rooms – shifting from gasoil to gas, pellets, CHP, heat pumps, introduction of smart control of HVAC, relighting in combination with solar panels. Belfius has been contracted for refinancing this project. Energy savings of 30% should be achieved once this EPC has been implemented. Belfius has used to PF4EE facility from EIB for this project.

3.5 Added value of an ESCO-light procedure

3.5.1 Sale of receivables combined with a service fee

In the previous paragraphs, the focus was primarily on finding mechanisms to integrate energy-saving projects within a framework of project financing. One of the most important requirements is the scale of investments. Project financing is only interesting when sufficient investments can be bundled in a project.

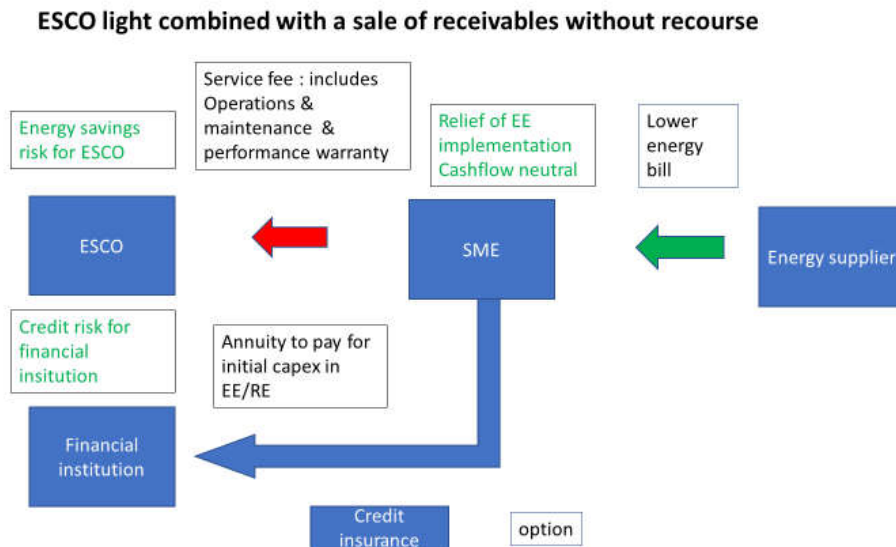
In this chapter we look at the extent to which there are alternatives to project financing so that smaller projects can also be invested. The solution worked out here, has been developed in strong interaction with Wattson and Belfius bank.

The starting point is that an ESCO party is normally not interested in placing the assets of an energy saving project on its own balance sheet. An ESCO is first and foremost a development company that designs, realises and finally manages EPCs during the term of the contract. The financing is done by investors, whereby the assets are placed in separate SPVs. As stated above, this approach requires scale and is therefore not suitable for projects of relatively limited size (< 1 million euro).

Putting the investments on-balance of the ESCO has some significant drawbacks. First, many ESCO's are not really designed to take huge amounts of assets on their balance sheet. This is especially true when it comes to start-up ESCOs with still relatively small balances. But even more important is the outstanding credit risk of the counterparty. ESCOs are used to deal with energy savings and know how to mitigate the associated risks. When it comes to evaluating and securing credit risk, ESCOs are a less appropriate party to deal with these types of risks.

To tackle this issue the following approach has been developed. Initially the ESCO is investing in energy savings measures at an SME on its own (i.e. the ESCO's) balance sheet but as soon as these assets are successfully commissioned the assets are sold to the client via a so-called installment sale. At that same moment the ESCO signs off a sale of receivables with a financial institution.

This approach is illustrated in the following figure.



Advantage of this approach is twofold: the assets disappear from the balance of the ESCO and the financial institution is now taking up the credit risk. Because of the sale of receivables, a direct link is established between the client and the financial institution whereas the ESCO still has a financial relationship with the client via the service fee. This service fee covers the maintenance and monitoring cost of the installations.

A last element should be mentioned. The business case has been designed in such a way that the total cost of repayment of an annuity to the bank together with a service fee to the ESCO should be smaller or equal than the expected energy savings from the business case. This also means that in a situation where the energy savings are smaller than expected, the service fee will be adjusted downwards whereas in a situation where the energy savings are higher than expected, the delta will be divided over ESCO/client (typically 50/50-basis).

In this way the ESCO is incentivized to focus on realizing the agreed level of energy savings but without being exposed to the potential credit risk of the client and without having these assets on its own balance sheet.

3.5.2 From theory to pilot case

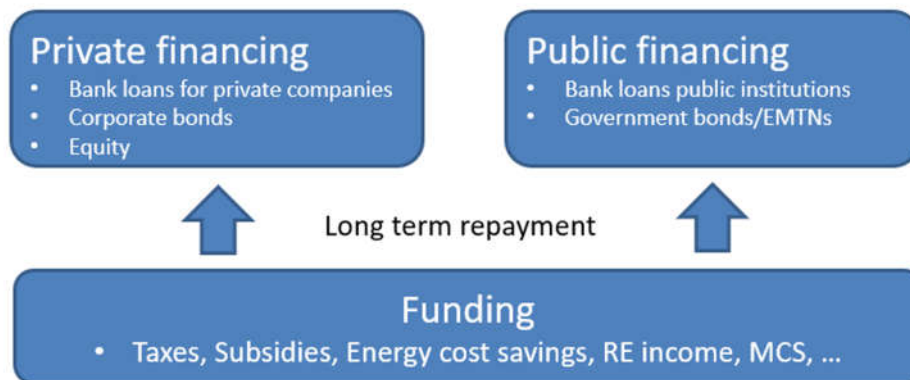
This approach has also been tested. Again, 3E could rely on its subsidiary – Wattson, with whom they established this ESCO light approach by signing off an EPC with a private school – Sint-Jozefinstituut in Bokrijk. Total investments are about 900.000 euro. The energy savings measures deal with relighting, new boiler rooms, smarter HVAC control and monitoring, insulation and a small PV-system. Contract lasts 14 years and an energy reduction of approximately 35% is to be expected. With regards to CO₂ a reduction with 50% should be possible. Belfius was also for this project the financial partner by providing a straight loan to Wattson during construction phase in combination with a sale of receivables. Again, Belfius used the PF4EE-facility from EIB. It should be clear that the PF4EE facility of EIB Belfius enables Belfius to offer a more competitive offer as compared to other banks.

To summarize, this second concept can be used to finance smaller energy saving projects.

However, the first point of attention remains applicable here too: namely the absolute necessity that the transaction costs can be reduced to a minimum. It is therefore uncertain to what extent this solution will really provide a solution for individual SMEs. If the government does not pursue a carrot & stick policy, the probability of a breakthrough here is rather small. In addition, given the credit risks associated with SMEs, the financial institution buying the accounts receivables from the ESCO will apply a risk premium on the purchase price. Hence, the ESCO's price setting for the installment sale to his client, is likely to take said risk premium into account, which would drive the price upward. On the other hand, the concept may offer interesting perspectives for public actors such as municipal administrations, schools, hospitals that are subject to public procurement procedures.

4 Financing renovation of public buildings

The development of financial solutions for the renovation of public buildings is together with the PDA the main focus of this FALCO breakthrough project. Financial solutions can be divided into solutions to finance upfront costs (investments) and solutions about how to (re)pay costs including the financing (funding).



4.1 Private vs. public finance

A study was performed by the FALCO partners to compare the advantages and disadvantages of private vs. public financing for the renovation of public buildings. This study was initiated by the preference of the financial departments of both provinces for public finance instead of private financing. Their opinion is based on the assessment of the amount of investment needed to realise NZE buildings in the longer run, the clear climate neutrality commitment and the budgetary situation of both provinces.

This section will be filled in at a later stage of the FALCO project when all information is available.

4.2 Financial solution(s) for the renovation of public buildings

The financial solution that will be used or developed for the renovation of public buildings will be explained in this section in a later version of this deliverable.

5 Financing renovation of apartments

Within FALCO, a new breakthrough project has been started in January 2019. The FALCO partners are now studying the feasibility of developing a financing solution for the renovation of privately owned apartments. The financing solution and/or the lessons learnt will be included in a later version of this deliverable.

6 Financing renovation of social houses

Social housing is offered in Flanders by social housing companies. For the investments of renovation or new construction, subsidized loans are offered by VMSW (Flemish Government): -1% loans.

The financial situation of the social housing companies has deteriorated over the last years. The rent (income) has been lowered and inflation (which allows an indexation of rent levels) remained below expectations, thereby causing insufficient cashflows to refund the loans contracted in the past. Especially in cities the financial situation of the social housing companies is bad.

In order to accelerate renovation of social housing, we identified specific barriers and developed ideas for financing solutions to overcome these barriers. In a second phase these ideas were presented to different actors involved in the renovation of the social houses to assess the feasibility of the proposed solutions.

The most important barriers are listed below.

- Split incentive. This is the most important barrier to investments in renovation of social houses. The investments have to be made by the social housing companies. They are legally not able to capture any part of the energy savings. The profit is a fully 100 % for the tenant. VVH (sector organization of the social housing companies) wants a change in legislation to lift this barrier. Such legislative change is, however, not expected in the short term.
- Lead time of the renovation dossiers. Because the investments pass through VMSW for financing, the renovation process is very time consuming. A shorter lead time can help the social housing companies to accelerate the renovations. Investing with own financial means (no need for a VMSW loan) could accelerate the pace of renovations. The social housing companies, however, do not have any financial means. Investigating solutions to overcome this barrier is one of the ways the acceleration can be realized.
- Lack of human resources to accelerate the investments (preparations of dossiers, etc.). Engaging personnel at the social housing companies is not possible, because of the cost factor.
- Lack of money at VMSW – especially if an important acceleration is required (factor x acceleration). Up to now, this barrier has not yet been addressed. The financial means at VMSW are sufficient. The Flemish Government has increased the budget in the past. A multiplication of the budget in the future, however, will not be possible. This underpins the need for investigating alternative financing solutions.
- Emptying the social houses during renovation. This is especially the case in apartment buildings, where all apartments must be empty at the same moment for deep renovation of the buildings. In individual houses, the renovation can be planned at the moment the tenant is changing. This is more an organisational/technical issue. Experiments have been done to renovate without emptying the social houses. An additional problem is the forgone rent during the renovation period.

In the paragraphs below we describe shortly the ideas for **financing solutions** that have been developed, explored and for which the feasibility was tested in interviews with the stakeholders. In summary the financing solutions aim to overcome:

- The lack of own financial means at the social housing companies (and with this also the potential future lack of financial means at VMSW);
- The lack of human resources and expertise at the social housing companies.

The figure below gives an overview of the financing solutions that have been explored in the during the FALCO project. For each of the financing solutions 2, 3 and 4, business cases have been elaborated by the FALCO team (Tractebel and Factor 4) based on detailed figures on status of the (apartment) buildings and investments to be done for the renovation

of the buildings that have been gathered and analyzed by colleagues at the city of Ghent.

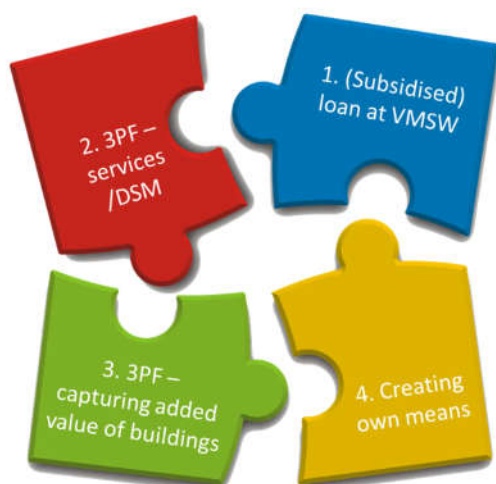


Figure 2: Summary of the explored financing solutions for investments on renovation of social houses

As will be clear from the text below, the solutions that have been explored so far, are difficult or impossible to realise especially due to legal barriers. These barriers have been identified during meetings with the social housing companies of the city of Ghent, with the department 'Wonen Vlaanderen' of the Flemish Government, with VVH (the sector organisation of social housing companies) and with VMSW (organisation within the Flemish government responsible for the loans for social housing) and based on the analysis of the Flemish law on social housing and financing the renovation of social houses.

Loans at VMSW (financing solution 1)

This financing solution is the business as usual practice and faces the barriers as listed above. To overcome these barriers, the VVH (Vereniging voor Vlaamse huisvestingsmaatschappijen) is putting its best efforts to table a change in the regulatory context, which for example would allow increase the rent for renovated and energy efficient social houses. However, such changes in legislation are not expected in a short term.

This financing solution is not explored further in the FALCO project.

Apart from loans from the VMSW, the social housing companies have the right to get a loan from local authorities, if these loans benefit from preferential tariffs. This option is not explored further, given the limited budgets available at the local authorities and the obligation to offer similar conditions as the VMSW (currently a negative interest rate of -1 %).

Creating own means (financing solution 4)

Creating additional revenues for the social housing companies could be realized (at least theoretically) in different ways, for example:

- by selling off part of the real estate portfolio,

- By renting 1 % of the surface to other than social tenants.
- By using financial constructions, other than loans: e.g. securization of future rents.

The first and second possibility has been explored only shortly. This option is not realistic because of following reasons:

- Selling housing units is not desirable because of the long waiting list for social housing.
- The part of real estate portfolio that can be rented to other than the social target audience is limited to 1 %. This part is already fully used by most of the social housing companies.

Other income can be developed (e.g. capturing part of the economic benefit of third parties), but will be treated in the other financing solutions that have been explored, as a mean of refunding the obtained financing or as a mean to make deeper renovation possible.

The third possibility is meant to make available large amounts of money to the social housing companies at time 0 in order to be able to invest in renovation of their buildings and without passing via VMSW (to avoid long lead times). A solution for refunding this money must be part of the solution.

Following possibilities have been explored:

- **Securization.** In the framework of the FALCO project, this option will not be feasible to realise because of the large amounts of money that have to be made available through securization (> 40 mio €). This exceeds the investment amount of the investments we aim to do within FALCO, but would be a valuable option later on.
This option has been presented and tested in interviews with Wonen Vlaanderen en VMSW. VMSW states that legally securization is a financial instrument, the social housing companies cannot make use of. The social housing companies have to pass via the VMSW.
- As a fall back position for securization (amounts needed too large), the option of usufruct and lease back was explored. Usufruct is a right in rem ('zakelijk recht' in Dutch). The social housing companies have the right to give the right in rem to third parties (e.g. local authorities) under certain conditions of the Flemish Government.

Third party financing (financing solutions 2 and 3)

In this group of solutions we distinguish different models:

- **ESCO-model**, where the ESCO invests in energy renovation and is payed back from the tenants or the social housing companies based on the services the ESCO is delivering. VMSW indicates that the technical knowhow the ESCO's can deliver is more important than the financing solutions they can offer.
ESCO services can either be directed to the social housing companies (and thus direct to common areas in apartment buildings) or to the tenants themselves. Because the tenants are not staying very long in the social houses, ESCO's would only be willing to invest in the warming installations, ... (short pay back periods). On the other hand, ESCO services to the social housing companies (common parts of apartments) will not result in large energy savings.
- **Demand side management (DSM)**, where a third party is investing in installations / renovation for / of social houses and earns money back from the energy balancing market.
Different contacts have been made in order to check the conditions under which private parties want to work with the social housing companies. One contact is interesting, because they want to work for the social housing sector (electric heating & electric sanitation water). These contacts will be reactivated in the summer of 2019, when they have proven their business case.
- **Third party invests in energy renovation of social houses and is paid back (incl. profit / interest) after selling the building.** Part of the added value that has been created by the renovation goes back to the third-party investor.

Checking this option at the VMSW resulted in the insight that this option is legally not possible (social housing companies may not sell their houses / buildings, unless when the houses or buildings are in very bad shape). Selling after renovating the building is thus not an option.

Common to these financing options is that there has to be an earning model for the social housing companies before they are willing to invest in extra energy efficiency measures. This can e.g. be realized by asking a compensation to the third party for the use of the real estate of the social housing companies.

From the insight above, the option with the demand side management is the most promising, but possibilities must be checked with providers of demand side management services and an agreement on the ambition of the project must be possible.

The Partner Board of 14th of December 2018 decided to put this breakthrough project on hold until the summer of 2019, when more information will be available on the business case of Thermovault (offering demand side solutions) and possible financing barriers Thermovault (as a SME) is facing. Lessons learnt from this breakthrough project will be disseminated to the social housing companies involved during the breakthrough project. The Partner Board decided also to explore, instead of social housing (incl. apartments), private apartments (see further under paragraph 1.2.3, breakthrough project SMEs.).