

Generic Concepts of Refinancing Schemes for Energy Efficiency Services

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REFINE GLOSSARY

Taking into account the fact that some of the terms that are important in the context of the REFINE-project are not used in a uniform way throughout Europe, we present the following list of definitions:

Energy efficiency (EE): The ratio of output of performance, service, goods or energy, to input of energy.

Energy efficiency improvement (EEI): An increase in energy efficiency as a result of technological, behavioural and/or economic changes.

Energy efficiency improvement action or measure: An action normally leading to a verifiable, measurable or estimable energy efficiency improvement.

Energy efficiency improvement investment: An EEI measure that requires the use of upfront investments, usually through the involvement of a financial institution (FI), and regardless whether these investments are related to hardware installations or to services.

Energy efficiency service (EES): Agreed task or tasks designed to lead to an energy efficiency improvement and other agreed performance criteria. The EES shall include energy audits as well as identification, selection and implementation of actions and verification. A documented description of the proposed or agreed framework for the actions and the follow-up procedure shall be provided. The improvement of energy efficiency shall be measured and verified over a contractually defined period of time through contractually agreed methods [EN 15900:2010]. If the EES includes EEI investments, it may or may not include financing of these investments.

Partial services connected to EES: Services that just include parts (“components”) of the EES value chain like design and implementation (excluding verification, for example), but are designed to directly or indirectly lead to an energy efficiency improvement. If the partial EES includes EEI investments, it may or may not include financing of these investments.

Energy efficiency service provider: A company that offers EES to its clients. Another term frequently used in this context is ESCO (Energy Service Company), but this term is mostly connected to the provision of energy performance contracting (EPC) or energy supply contracting (ESC), which are specific forms of EES.

Energy Performance Contracting (EPC): A comprehensive energy service package aiming at the guaranteed improvement of energy and cost efficiency of buildings or production processes. An external ESCO carries out an individually selectable cluster of services (planning, building, operation & maintenance, (pre-) financing, user motivation ...) and takes over technical and economic performance risks and guarantees. Most projects include third party financing. The services are predominantly paid out of future saved energy costs (Graz Energy Agency Ltd, 2008).

Financing Models for Market Growth: Financing models that enable EES providers to clean up their balance sheet, thus gaining financial leeway for new projects. In many cases, these models contain a refinancing scheme.

Refinancing: A model, where an EES provider sells and a refinancing institution acquires receivables to be paid by an EES client, thus leading a restructuring of the initial financing set-up which may have been ensured through the EES provider's cash flow, credit financing, leasing financing or other financial means.

Sale of receivables or sale of claims: Umbrella term for any kind of receivables purchase agreements that allow a company (in our case an EES provider) to sell off the as-yet-unpaid bills or expected receivables from its customers.

Cession: In the REFINE-project, we understand cession as the legal term for the assignment of receivables.

Factoring: A specific form of receivables purchase agreements, where short-termed receivables are sold. The non-payment risk remains with the seller.

Forfeiting: The sale of longer-term account receivables usually without right of recourse. (widely used in export business).

Definitions of on-balance sheet types of financing

Debt financing: Situation in which investors lend a certain amount of money on credit in exchange for repayment plus interest. The most common EE financial product is a loan directly to the client (owner of the premises) or to the ESCO - this is known as third-party financing (TPF).

Equity financing: Situation in which investors lend a given amount of money in exchange for a stake in a project. The most common example of equity financing is private equity. With respect to energy efficiency businesses, equity investment can take the form of an ESCO issuing additional shares in the company's common ownership.

Mezzanine financing: Mezzanine financing is a hybrid form of financing that combines debt and equity financing. In most cases, debt will be ranked as a preferred equity share. Mezzanine debt financing is thus riskier than traditional debt financing but also more rewarding; it is associated with a higher yield. Mezzanine financing also allows a lender to convert debt capital into ownership or equity interest in the company if the loan is not paid back on time and in full.

Definitions of off-balance sheet types of financing and entities

Project financing: Project financing, by contrast to on-balance sheet financing (loans, debt and equity), bases its collateral on a project's cash flow expectations, not on individuals or institutions' creditworthiness. It is off-balance sheet financing. A typical project financing is divided between debt and equity financing.

Leasing: Leasing is the energy market's common way of dealing with initial cost barriers. It is a way of obtaining the right to use an asset. Finance leasing can be used for EE equipment, even when the equipment lacks collateral value. Leasing

companies, often bank subsidiaries, have experience with vendor finance programs and other forms of equipment finance that are analogous to EE. Leasing is the most common form of equipment manufacturers' vendor financing, which is often applied in the case of combined heat and power (CHP) equipment. Leasing is often done as part of a Special Purpose Vehicle.

Special Purpose Vehicle (SPV) / Special Purpose Entity (SPE): A firm or other legal entity established to perform some narrowly-defined or temporary purpose, which facilitates off-balance sheet financing of projects. A standard approach is to form a SPV / SPE and place assets and liabilities on its balance sheet. The investors accomplish the purpose for which an SPV / SPE has been set up - for example implementing a large EE project - without having to carry any of the associated assets or liabilities on their own balance sheet.

1 INTRODUCTION

1.1 Background and starting points

There exists a general consensus among experts that **large potentials of cost-efficient energy efficiency (EE) investment** are currently untapped due to a bundle of barriers, such as lack of trust in savings forecast, high cost for project preparation and procurement, split incentives, lacking awareness for non-core activities such as energy efficiency, perceived low energy prices, etc. Within this set of interlinked barriers, the **access to attractive financing represents a serious restriction** for the expansion of energy efficiency (EE) investments.

Energy efficiency service (EES) providers address the clients' reluctance to commit financial resources by including financing into their service packages. In this case the EES provider (frequently called ESCO) prefinances the investment and gets repaid through yearly remunerations which are dependent on the actual savings achieved. This means not only that the EES provider has the investments in his balance sheets but also leads to a situation where the EES provider sooner or later reaches his own credit limits and has to reject further EES projects. Therefore, if remarkable market growth is intended, one major question is how the balance sheets of EES providers could be cleaned up in order to gain financial leeway to expand the EE business.

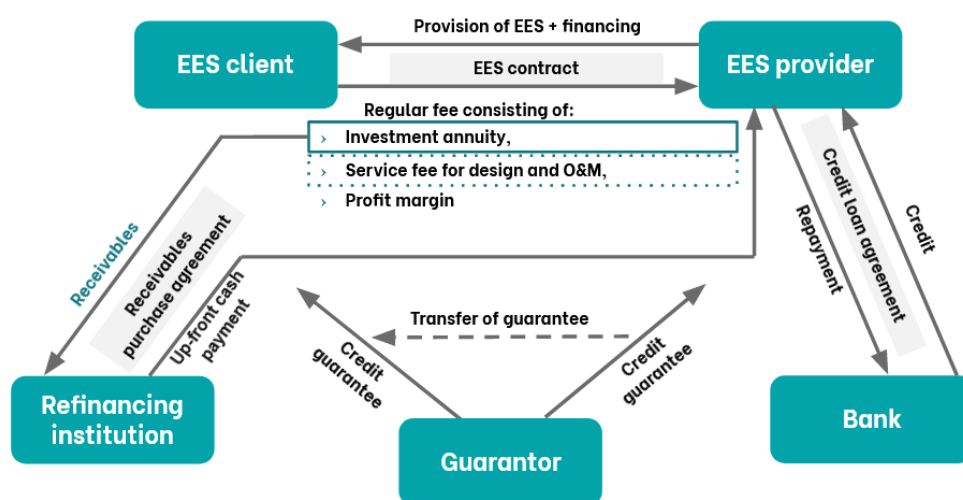


Figure 1 Overview refinancing of EES projects

Refinancing schemes - as schematically shown in Figure 1 - could **overcome the above-described financing barriers** in the EES business. In general, a refinancing scheme can be defined as an approach whereby an EES provider sells and a refinancing institution acquires receivables to be paid by an EES client. In a refinancing scheme, the EE project is financed initially through a corporate loan (e.g. overdraft) provided by a bank to an EES provider who is implementing the EE investment in the frame of an EES project. The client immediately profits from this

approach, as he is generally not forced to burden his balance sheet while he takes advantage of the broad scale of benefits of the EE investment. A certain period after the investment has been implemented and performance of the investment has been demonstrated, the EES provider sells off the expected receivables to a refinancing institution and gets cash upfront for the receivables, while the buyer gets the right to collect the receivables. By this way, the EES provider clears his balance sheets and gains leeway for the financing of new projects which it could not realise otherwise. Therefore, the possibility of applying refinancing schemes is a major element supporting the growth of the EES provider.

1.2 Main results of EU market assessment on refinancing models

A survey conducted as part of the QualitEE project (QualitEE, 2017) shows that borrowed debt predominates as financing instruments for EES projects commonly used in European countries. This analysis was updated in the frame of the REFINE-project with a focus on the use of refinancing schemes across Europe (Villoslada, Cañameres and Morell, 2021). In summary, this market analysis shows that the use of refinancing schemes is not very widespread. Only in the Czech Republic and Latvia refinancing is considered to be a usual practice. However, through the conduction of expert interviews in 12 countries (Austria, Belgium, Croatia, the Czech Republic, Greece, Slovenia, Spain, Ukraine, Italy, Germany, Slovakia and Poland) it became evident that also in other European countries refinancing models are being applied in some cases. For example, in Belgium, Austria and Germany refinancing schemes are used, however, not to the same extent as in the Czech Republic. Also, some FIs in Slovenia and Slovakia are offering a kind of refinancing scheme. In Spain and Italy, a limited number FIs or investment funds (such as the SUSI Energy Efficiency Fund) finance EE projects via refinancing.

1.3 Case studies of existing refinancing schemes in Europe

In addition to the market analysis, the REFINE project assesses a number of case studies on the existing refinancing schemes in Europe with different approaches which were classified in two categories (Szomolányiová and Maroušek, 2020):

- The sale of receivables scheme which is applied similarly in Austria, Belgium and the Czech Republic.
- The refinancing scheme which is operated by the Building Energy Efficiency Facility (BEEF) in Latvia and focuses on financing comprehensive building renovation as a service.

1.4 Objectives of this report

Against the background described above, the ultimate goal of the REFINE-project is to contribute to the provision of sufficient and attractive financing sources to EEI investments by enhancing refinancing schemes which are seen as an important amplifier of market growth.

This report aims to contribute to the reduction of transaction costs for the preparation and implementation of refinancing schemes by developing **generic concepts** which address specific requirements of different application fields.

2 OVERVIEW ON DISTINGUISHING FEATURES OF REFINANCING SCHEMES

As described above, one of the main conclusion of the preceding REFINE-reports¹ is that there is no one-fits-all approach, but rather a range of refinancing schemes with specific features that reflect the needs of the application fields.

Therefore, in order to develop generic concepts of refinancing schemes, in a first work step it will be necessary to identify distinguishing features and to understand the reasons for these distinctions.

At this point, we have identified the following distinguishing features of refinancing schemes, which we will assess in further in the following sections:

- Client Sectors
- Type and amount of investments
- Possible collateralisation of receivables
- Approaches that are chosen to handle the performance risks
- Responsibility in collecting payments from the clients
- Ensuring off-balance financing from client's perspective
- Ensuring non-public-debt financing for public clients
- Organisational set-up

2.1 Client Sectors

Each client may have different interests why he may be particularly interested in a refinancing scheme or why he may or may not accept a specific form of refinancing model:

- Owners of public buildings or other public facilities (such as public lighting) will pursue the interest that the investment does not increase public debt. Therefore, all refinancing schemes applied in this client sector should be EUROSTAT-compliant.
- Corporate clients: For most corporate clients, off-balance sheet financing will be very attractive, as it allows them to reserve financial leeway for investments into their core businesses.
- Private real estate owners, however, could be an exception, since investments into their building stock are actually their core business. Therefore, off-balance-sheet financing may not be necessary for them.
- For owners of residential buildings (e.g., condominium ownership) the issues of affordability and regulatory frameworks are most important.

¹ Villoslada, A., Cañamares, A. and Morell, R., 2021. Refinancing Market Assessment Report. REFINE Project, Available at: <https://refineproject.eu/>

Szomolányiová, J. and Maroušek, J., 2020. Case Studies on existing refinancing instruments for energy efficiency services. REFINE Project, Available at: <https://refineproject.eu/>

2.2 Type of investment

The type of investment is another important distinguishing factor of refinancing models. Closely interlinked with this aspect is the duration of the EES contract and the refinancing arrangement, because shorter or longer contract duration will be necessary depending on the investment volume compared to revenues.

At this point, we can distinguish the following investment types:

- Energy Performance Contracting (EPC) with focus on EEI measures in the field of building technologies, equipment etc. This kind of “ideal-typical” EPC has a usual contract duration of up to 10 years, in exceptional cases a few years longer.
- EES aiming at comprehensive building refurbishment, where the contract duration has to be extended to 20-25 years. Shorter contract durations are only possible if the building owner(s) contribute with an individual investment amount - either through equity or through a separate loan - at the beginning of the contract.
- Energy Supply Contracting (ESC) where heat and/or electricity is delivered to the client - including feed-in to the power grid in case of electricity. The typical contract durations depend on the type of technology applied (biogas, CHP, PV, heat pumps or similar) and on the contractual split between the repayment of the investment and the payment for operational costs of energy delivery. Furthermore, there exist also models where ESC is combined with energy savings at the client’s site (Integrated Energy Contracting²).

2.3 Collateralisation of investments

In its broadest sense, collateralisation is an arrangement of security against default risks. In the case of EES, collateralisation may be used to protect the regular payment of the EES client to the EES provider. If the EES project is refinanced, the collateral can be passed on to the refinancing institution, so that the refinancing institution is protected against non-payment of the client.

Of course, the need for collateral depends on the creditworthiness of the client and is usually lower if the EES client is a public authority.

Generally, if a receivable is purchased from an EES provider, the FI has a contract only with the EES provider and not with the EES client, so it cannot bind the EES client in any way or demand collateral from it. Therefore, in some refinancing models, the payment from the client to the refinancing institution is not collateralised. In this case, which is the usual approach in the Czech Republic, the FI must know the borrower very well and trust its risk and reputation throughout the project repayment period. (Szomolányiová and Čada 2020).

² Integrated energy contracting (IEC) means a combination of energy efficiency measures with energy supply contracting typically with short term ‘operational verification’ rather than ongoing measurement and verification.

On the other hand, there exist several cases where the EES contract includes a collateral which originally safeguards the EES provider against the client and which is then transferred to the refinancing institution, as described in more detail in the following chapters.

2.3.1 Holding a title to the assets

If the refinancing institution holds a title, we can call this approach an asset-based collateralisation of receivables. In this case, at first the EES provider invests into the facility of the client and holds a title to the invested assets. When he transfers the receivables, the title on the assets is transferred to the refinancing institution.

In the case studies which have been evaluated for Austria the title to the assets is constituted in the following way (Szomolaniyova, Marousek, 2021):

- The ESS provider installs EEI equipment at the site of the client.
- After the installation of the equipment, an acceptance procedure is implemented, which confirms the delivery of the equipment as agreed and the price for the equipment installation, taking into account potential deviations from the offered price because of changes in the delivery scope.
- The confirmed price of the equipment installation (consisting of design costs, equipment costs and installation costs) and the financing costs are invoiced immediately after installation. The client, however, does not have to pay the invoice at once, but in equal - quarterly, half-yearly or annual - instalments distributed over the whole contract period.

In this way, justified receivables of the EES provider against the client are constituted, which can be forfeited without recourse to a refinancing institution, because the client already confirmed the due payments.

In case of insolvency of the client, however, it may be quite difficult to make use of the title to the assets, because either the exploitation of some parts of the assets may be impossible due to the regulatory framework, or even if exploitable, the assets may have lost their value.

For the financing institution it may be useful to hold the title nonetheless, because collateralised credit risks require a lower equity ratio than non-collateralised ones.

In the case studies which have been evaluated for the Czech Republic (Szomolaniyova, Marousek, 2021), the procedure is quite similar to the one described above for Austria. However, instead of a formal invoice after acceptance of the installations, the client provides only a confirmation of a payment schedule that covers the full cost of installations. In this way, the repayment is not formally collateralised, but still sufficiently secure, if the client is a public authority or a private company with good creditworthiness.

Another alternative to collateralisation through retainment of a formal ownership title would be the agreement of a pledge, which would give the holder of the pledge - i.e., at first the EES provider and then the refinancing institutions - the right to use or sell the service of the asset. During our market assessment, however, we did not find a case yet, where this alternative has been used in practice.

2.3.2 Collateralisation through third party

With respect to third parties that may cover parts of the credit risks related to EES projects, three possible options are identified:

- Public credit guarantee, which in most cases can (only) be called when the debtor gets insolvent.
- Credit insurance provided by private insurance companies, which in terms of duration, however, is usually limited to 3-4 years.
- Bank guarantee, which may serve in a first place as unconditional payment guarantee and which can be structured using a public guarantee instrument as a credit risk backstop.

These options - as well as their possible interlinkages - are analysed in detail in a separate REFINE report (Braumann, et al. 2021).

2.3.3 Other forms of collateralisation

On the Czech market, in rare cases, real estate collateral is required from an EES provider with low creditworthiness, or from an EES provider that has entered the EPC market only recently and has not implemented enough EES projects to prove competence to the refinancing institution. Currently, there is no standard procedure for such cases and it would depend on negotiations between EES providers and banks. However, an EES provider is unlikely to offer real estate collateral for the entire duration of the EPC contract (8-12 years), rather negotiating for the bank to accept a third-party guarantor who is liable for payments in the event of client insolvency.

2.4 Handling of performance risks

In addition to the credit risk (the client does not pay because of economic difficulties up to insolvency), refinancing schemes have to deal with the performance risk (the client does not pay because the supplier did not deliver energy savings or energy supplies as contractually agreed).

Generally, it is very unlikely that a refinancing institution is willing to take over any kind of performance risk from the EES provider. For the refinancing institution it is important to be able to rely on a certain agreed payment, independently from the performance of the EES provider. On the other hand, the client wants to be sure that the refinancing agreement does not oblige him to pay more than he has to pay according to his agreement with the EES provider.

In other words, it has to be ensured that the full performance risk remains with the EES provider. Performance in this context means, in particular:

- Achievement of guaranteed savings
- Compliance with agreed comfort conditions
- Other service level agreements, e.g., related to maintenance and operation

A **first element** that protects the refinancing institution from taking over performance risks of the EES provider is the fact that the refinancing arrangement is concluded only after the performance has been demonstrated by the EES provider over the first 1 to 2 years of the project duration.

Secondly, the refinancing institution may not buy the full amount of receivables, but only a certain share (50-80%), so that a security margin against usual performance fluctuations remains.

And **thirdly**, one common way to ensure that the full performance risk remains with the EES provider, is a non-recourse clause in the refinancing contract. The non-recourse clause implies that the EES client has to pay the instalments to the refinancing institution, no matter what. This means for example that the EES client cannot reduce its payments to the refinancing institution justifying it by insufficient performance of the EES provider, nor by any other external or internal circumstance.

Therefore, a non-recourse clause in the refinancing contract has to be accepted by the EES client beforehand, i.e., it has to be complemented by related provisions in the EES contract, in detail as follows:

- Stipulations allowing for a non-recourse clause in the refinancing contract:
 - Option A: The EES contract includes an adequately formulated contractual stipulation according to which the EES client explicitly accepts a non-recourse clause in a possible refinancing contract.
 - Option B: The client implicitly agrees to a non-recourse clause in the refinancing contract through his acceptance of a formal invoice for delivering the assets. In this case, the EES provider holds title vis-à-vis the client which is generally enforceable and which he can transfer to the refinancing institution (cf. 2.3.1)³.

For both options the EES contract will include a stipulation that the assignment of claims does not relieve the EES provider from any of its obligations.

- Stipulations ensuring that the EES provider compensates the client if due remuneration to the EES provider is lower than the payment due to the refinancing institution. In particular, if an EES project fails to achieve the performance as specified in the contract, the EES provider is obligated by the contract with the client to compensate savings shortfalls that occur over the life of the contract. This means that the EES provider has to repay to the client the gap between the forfeiting instalment which the client has been obliged to pay to the refinancing institution and the amount which he would have obliged to pay to the EES provider, if no refinancing arrangement had been made.

³ As described in chapter 2.3.1 in the refinancing arrangements in the Czech Republic the acceptance of a formal invoice is substituted by the confirmation of a payment schedule by the client, so that the repayment is not formally collateralised.

- Bank guarantee provided by the EES provider to the client with the aim to guarantee the promised compensation as described above.

Furthermore, the scheme may include arrangements that provide an additional “safety net” for the refinancing institution, such as:

- Step-in rights of refinancing institution if the service quality of the EES provider is below a certain level over a longer period of time. However, step-in rights may contradict with public procurement rules, therefore, they may not be feasible for public clients.
- Bank guarantee to be provided by the EES provider to the refinancing institution covering delayed/reduced payments from the client due to performance shortcomings of the EES provider.

The handling of performance risks is crucial in order to distribute the various elements of project risks to the most suitable partner. However, it should be noted in conclusion that during the market assessment conducted in the REFINE project (Villoslada, A., et al., 2021; Szomolányiová, J., Maroušek, J., 2020.) no cases have been reported, where the repayment to the refinancing institution suffered from performance gaps.

2.5 Responsibility in collecting payments from the clients

2.5.1 Invoicing by the EES provider

In most refinancing schemes, the invoicing does not change compared to the situation before refinancing. This means that the EES provider issues invoices to the client and is responsible for collecting the payments.

As indicated already in chapter 2.3.1 the refinancing arrangement can build on an agreed payment schedule which usually includes regular “advance” payments over the course of the contractual year (monthly, quarterly or half-yearly payments covering a certain share of the envisaged due payments, frequently connected to the repayment of the assets). If these receivables are sold to a refinancing institution, the EES client provides regular payment to the refinancing institution over the contract duration according to the payment schedule previously confirmed by the client.

If an EES project fails to achieve the performance specified in the contract, the EES provider is obligated by the contract with the client to compensate savings shortfalls that occurred over the life of the contract. If the annual M&V report shows that savings shortfalls have occurred, they are either deducted from the client’s energy management payment or the client will issue an invoice for the amount of the shortfall to the EPC provider. The shortfall cannot be deducted from the fixed payments by the client, as the value of the shortfall is determined only the following year (usually in February - March) by the M&V annual report when all fixed payments for the relevant period have already been paid. Therefore, the refinancing institution that bought the receivables is not concerned with these payments at all.

2.5.2 Other forms of invoicing

In the BEEF financing mechanism, a kind of on-bill repayment mechanism is used where the renovation fee is added to the utility bill for heating and hot water. If there is a facility/building maintenance/property manager in place, then this manager acts as a conduit between residents and the financing institution in managing the payment process both for individual units and the common parts. In cases where there is no manager in place, the EES provider issues a bill directly to the owners. The bill also contains a maintenance component for the measures throughout the period of the contract.

2.6 Ensuring off-balance sheet financing from client's perspective

Corporate clients are sometimes reluctant to invest in EE-measures because they do not want to burden their credit ratios by non-core-business investments. For them, EES are generally more attractive, if they represent a way to benefit from energy savings without taking the investments into the books.

A frequent refinancing scheme, however, nullifies this advantage: If the refinancing institution requires the client's formal acceptance of an invoice for the installation of EE equipment to get the repayment collateralised (as described for the Austrian case study; cf. chapter 2.3.1), the client must activate the full investment amount in his balance sheet.

Although it has to be underlined that each individual case must be considered separately, since national rules and applicable accounting principles may differ, there exist a few general rules that are important for off-balance sheet (re)financing from the client's perspective:

- No transfer of *economic* ownership of the assets to the client, e.g., through the client's formal acceptance of an invoice related to the investments implemented by the EES provider; the economic ownership of the investment has to remain with the EES provider.
- No separation between repayments for equipment installations and operational services of the EES provider.

Consequently, this also means that neither the EES provider nor the refinancing institution will be able to hold a title vis-à-vis the client. Therefore, other forms of collateralisation (public guarantee instruments, bank guarantees etc.) would be very attractive specifically for projects for corporate clients (cf. chapter 2.3.2).

It has to be underlined, however, that not all corporate clients require off-balance sheet (re)financing. For example, we assume that real estate companies have no major problem in showing EE investments in their balance sheets, because the handling of large assets is part of their core business.

2.7 Ensuring non-public-debt financing for public clients

Whereas off-balance-sheet financing is attractive for many corporate clients, public clients ask themselves, if the EES model and the refinancing scheme is compliant with the requirements of the EUROSTAT notice.

Generally, there is rather little practical experience with the application of the EUROSTAT rules related to EES projects in general, and in the context of refinancing schemes in particular. The main problem lies in the contradiction between **EUROSTAT's requirement for flexible, variable payments** and the requirement of refinancing institutions for fixed payments:

- EUROSTAT requires flexible repayments, the amount of which must be reduced if achieved savings are lower than guaranteed savings. Failure to comply with this requirement automatically results in the exclusion of the "off-balance sheet" accounting option.
- On the other hand, the main objective of refinancing institution is to purchase fixed, predetermined receivables throughout the contract period. It seems that EUROSTAT does not consider full payment less the penalty in case of non-achievement of the guaranteed savings as "flexible payment". The major buyer of receivables in the Czech Republic (CSOB) stressed in the interview, that fixed payments are an essential requirement for buying the receivables. In many countries currently it is very difficult or impossible to get any FI to buy fixed receivables and to make them buy variable receivables seems to be even harder.
- Slovakia made use of the possibility given by EUROSTAT to split the total repayments into a fixed part (80%) which is later sold to FI and a flexible part (20%), which remains with an EES provider. While the burden on the EES provider will be reduced, this is not an acceptable solution in the long run as the EES provider's debt will accumulate over time. The EES provider will supply 20% of financing during the contract length for each project and thus after about four typical EPC projects it will not be able to finance new projects.

Furthermore, EUROSTAT prescribes several **other requirements** that are contrary to current practice:

- For example, saving of energy costs must not be combined with other cost savings, which adds additional burden to an EES project;
- Meeting the criterion of providing a technology guarantee over the whole contract period is very costly. Generally, a three-years' guarantee is the maximum offered to clients, and a ten-years' guarantee would significantly increase costs for the client.

Therefore, currently we have to conclude that entirely fulfilling the EUROSTAT criteria would make EES projects expensive for clients or even impossible to implement them. In principle, public organisations do not have to follow EUROSTAT rules. It is just a matter of how the whole project is treated in statistics when reporting an investment, i.e., the rules for reporting an EPC agreement on or off the balance sheet of the relevant government under ESA 2010.

2.8 Organisational set-up

The organisational set-up refers to the way how pre-contractual collaboration and/or contractual relationships are structured between the main stakeholders of the refinancing, i.e.; the EES provider, the EES client and the refinancing institution. Based on the results of preceding REFINE reports, we differentiate the following three approaches:

- **Ad-hoc set-up:** In this case the EES provider selects the refinancing institution only after project implementation. Depending on the maturity of the market the EES provider may select between different refinancing institutions that actively provide their services, or has to search intensively to find an FI that is willing to purchase the receivables.
- **Long-term collaboration** between an EES provider and a refinancing institution: In this case, the EES provider has established or aims for a long-term collaboration with a predefined refinancing institution. All relevant contractual arrangements for the EES contract as well as the refinancing agreement are defined up-front, i.e., before the EES project is implemented. Frequently, there exists a framework agreement, according to which a refinancing institution declares its willingness to purchase receivables from those projects that fulfil clearly specified terms and conditions. E.g., in the Czech Republic an agreement on the future sale of receivables between the EPC provider and the FI is usually signed before the procurement phase. In this phase, it is important that the FI offers the EPC provider a fixed interest rate, at which the FI will purchase the receivable after the completion of the EPC project, provided that the specified time parameters are met. The provider can therefore work with this fixed rate from the very beginning and incorporate it into the conditions for the project offer (Szomolanyiova, J., Čada, R., 2020).
- **Institutional set-up:** The refinancing institution that is operating in the BEEF model is set up in the form of a Special Purpose Vehicle or specialised real estate investment trust. This ensures an arm's length relationship with the EES provider on the one hand, and the housing management institution (as representative of the clients) on the other hand. All relationships are fully transparent to all stakeholders from the very beginning of project development. In this way, this organisational set-up provides transparency in the management of investments facilitating the access to financial resources from the capital market.

3 GENERIC REFINANCING SCHEMES

Although refinancing schemes are not yet very widely used across Europe, the market review and the analysis of case studies have shown that there exist different application fields of these schemes which are reflected in their design features.

On this basis and starting from the distinguishing features of refinancing schemes as depicted in the preceding chapter, in this chapter we will try to identify “logical combinations” of these features. In this way, we derive “generic” refinancing schemes that are designed to be successful in a specific application field.

The **first level of categorisation** is presented in the matrix below. The matrix is defined by two dimensions:

- Client sector
- Type of investment

Each intersection point in the matrix defines a specific application field which requires a suitable design of the refinancing scheme.

At the **next level - i.e., “inside” each intersection point - further differentiations** depend on the specific starting points and needs of the client, the EES provider and the refinancing institution:

- Means of collateralization
- Balance sheet treatment
- Collection of payments
- Etc. (all other issues addressed in the previous chapter)

Table 1: Basic categorisation matrix for refinancing schemes

| Type of investment Client sector | Comprehensive refurbishment | EEI measures | ESC |
|-------------------------------------|-----------------------------|--------------|-----|
| Residential buildings (MFH) | A1 | (B1) | C1 |
| Public buildings / facilities | A2 | B2 | C2 |
| Commercial buildings | A3 | B3 | C3 |
| SMEs/industry | (A4) | B4 | C4 |

[The schemes in brackets refer to boxes in the matrix which have comparably little relevance for EES business]

In the following chapters we will describe in more detail a few selected generic refinancing schemes. In our opinion, these schemes cover some of the most relevant application fields in the EES business.

3.1 Scheme A1: Comprehensive residential building refurbishment (MFH)

This refinancing scheme is analogous to the Private finance Building Energy Efficiency Facility (“BEEF” Model), which in Latvia has become an important source of financing for advanced deep renovation of multifamily/social housing. It provides refinancing for comprehensive building refurbishment through EPC contracts with a duration between 20 and 30 years. This private sector initiative started in Latvia (“LABEEF”) and is now being implemented in Austria, Bulgaria, Poland, and Slovakia. The following table summarise the specific elements of this generic refinancing scheme:

| Element | Description |
|-------------------------------|---|
| Application field | Comprehensive refurbishment of multi-family residential buildings |
| Market opportunities | Generally, comprehensive refurbishment of residential buildings suffers from limiting regulations in housing laws, from the investor-user-dilemma and from lacking affordability at the side of home-owners. At the same time, comprehensive refurbishment in particular offers many non-energy benefits. Against this background, EES will be most attractive in those segments where there is no pronounced investor-user dilemma (condominium houses), where there are some affordability barriers and where the regulatory framework facilitates decision processes as much as possible (co-decision rights, obligation to tolerate investments etc.). At the same time, we assume that there is a need for public support (investment grants) to push forward these kind of investments. |
| Collateralisation | Currently, the BEEF model (as applied in Latvia) does not require collateralisation. The refinancing institution relies fully on the payment history of the home owners and on the ability of the housing management to collect payments. Depending on the regulatory framework, however, it may be possible to collateralise the investment of the EES provider, and consequently the refinancing arrangement. |
| Handling of performance risks | <ul style="list-style-type: none"> ▪ Long-term collaboration with EES provider ▪ Refinancing only after 1-2 years of verified performance ▪ Only up to 80% of the total receivables are purchased ▪ Step-in rights of refinancing institution |
| Collection of payments | Through the EES provider or through the housing management company as part of the operating costs statement |
| Off-balance sheet financing | Not relevant |

| | |
|---------------------------|--|
| Non-public debt financing | Not relevant |
| Organisational set-up | Institutional set-up with predefined roles, responsibilities and work processes is recommended (as defined in chapter 2.8) |

3.2 Scheme A2: Comprehensive public building refurbishment

This generic refinancing scheme is similar to A1 but adapted to the needs of public building owners, as shown in the following table:

| Element | Description |
|-------------------------------|--|
| Application field | Comprehensive refurbishment of public buildings |
| Market opportunities | Generally, we observe that public building owners tend to implement comprehensive refurbishment projects in a conventional way by “self-implementation” as long as they can afford. Therefore, we assume that an EES targeting at this application field is attractive mainly to smaller public authorities (municipalities) and for other authorities that lack professional real estate management. For larger portfolios, an EES may lead to a pull-forward effect, i.e. the number of comprehensive investment projects per year may increase. |
| Collateralisation | The need for collateralisation may be low, depending on the creditworthiness of the public authority. A public guarantee to cover credit risks would be the easiest and probably most cost-efficient way to safeguard payments to the refinancing institution. |
| Handling of performance risks | May be designed similarly as in A1 (cf. 3.1), however, the step-in rights of the refinancing institution may contradict with public procurement rules. |
| Collection of payments | The EES provider will be responsible for invoicing - a certain part of the invoiced amount is payable directly to the refinancing institution. |
| Off-balance sheet financing | Not relevant |
| Non-public debt financing | It would be an attractive driver for public authorities to get offers that fulfil the EUROSTAT requirements without causing high extra-costs, but according to our understanding this seems to be difficult given the current framework conditions (cf. 2.7) |
| Organisational set-up | Institutional set-up with predefined roles, responsibilities and work processes (as defined in chapter 2.8) is recommended because of high capital investments. |

3.3 Scheme A3: Comprehensive refurbishment of commercial buildings

Once again, this generic refinancing scheme is similar to A1 but adapted to the needs of non-residential, private building owners, as shown in the following table:

| Element | Description |
|-------------------------------|--|
| Application field | Comprehensive refurbishment of commercial buildings |
| Market opportunities | <p>Similarly to public building owners, also private owners of commercial buildings tend to implement comprehensive refurbishment projects in a conventional way by “self-implementation”. This is mainly true for buildings owned by professional real estate companies that have sufficient internal expertise and capacities to organise refurbishment projects. Furthermore, for commercial buildings that are prevalingly rented out to tenants (e.g. office buildings), the investor-user dilemma represents an important barrier for EES.</p> <p>Therefore, we assume that an EES targeting to this application field is attractive mainly for owner-occupied buildings as well as for specific branches like the hotel industry.</p> |
| Collateralisation | The need for collateralisation will depend on the creditworthiness of the client. For some branches - such as hotel industry - the need for collateralisation may be very high. A public guarantee to cover credit risks would be the easiest and probaly most cost-efficient way to safeguard payments to the refinancing institution. |
| Handling of performance risks | May be designed similarly as in A1 (cf. 3.1) |
| Collection of payments | The EES provider will be responsible for invoicing - a certain part of the invoiced amount is payable directly to the refinancing institution. |
| Off-balance sheet financing | Off-balance sheet financing may be very relevant for some clients (e.g. SMEs with owner-occupied buildings) and not relevant for other clients, such as larger real estate companies. Although each individual case must be considered separately, since national rules and applicable accounting principles may differ, the wish of the refinancing institution to hold a title would complicate off-balance sheet financing. The availability of a public guarantee would be very useful in this context. |
| Non-public debt financing | Not relevant |
| Organisational set-up | Institutional set-up with predefined roles, responsibilities and work processes (as defined in chapter 2.8) is recommended because of high capital investments. |

3.4 Scheme B2: EEI investments in the public sector

Currently, this generic refinancing scheme is the most widely used scheme since it is analogous to the case studies evaluated in the Czech Republic, in Austria and in Belgium. The most important features are summarised in the table below:

| Element | Description |
|-------------------------------|--|
| Application field | EEI investments with a focus on building technologies in public buildings |
| Market opportunities | The most important EES segment in many EU countries |
| Collateralisation | <p>Generally, need for collateralisation may be low, depending on the creditworthiness of the public authority. There exist several cases in practice where the refinancing arrangement is not formally collateralised.</p> <p>However, <i>if</i> collateralisation is required from the refinancing institution, one option is that the EES provider holds a title on the assets which he invested, and transfers this title to the refinancing institution. However, a public guarantee to cover credit risks would be an easier and cheaper way to safeguard payments to the refinancing institution.</p> |
| Handling of performance risks | <ul style="list-style-type: none"> ▪ Refinancing only after 1-2 years of verified performance ▪ Frequently, only the receivables related to capex are purchased by the refinancing institution ▪ Non-recourse clause in the refinancing agreement, complemented by stipulations in the EES contract making sure that the full performance risk remains with the EES provider |
| Collection of payments | The EES provider will be responsible for invoicing - a certain part of the invoiced amount is payable directly to the refinancing institution. |
| Off-balance sheet financing | Not relevant |
| Non-public debt financing | It is unclear whether the formal acceptance of capital investments by the client (which enables the EES provider to hold a title on the assets) contradicts with EUROSTAT requirements. Generally, it seems to be difficult to design an approach that fulfils all EUROSTAT requirements without causing high extra-costs (cf. 2.7) |
| Organisational set-up | Either ad-hoc set-up, or longer-term collaboration between EES provider and refinancing institution, possibly based on a framework contract. |

3.5 Scheme B3: EEI investment in commercial buildings

This refinancing scheme addresses EEI measures in privately owned non-residential buildings (offices, shopping malls, hotels etc.). It is designed similarly to B2, but adapted to the needs of the private building owner.

| Element | Description |
|-------------------------------|--|
| Application field | EEI investments with a focus on building technologies in privately owned non-residential buildings |
| Market opportunities | Currently a difficult EES market segment in most EU countries, but nonetheless a segment with huge potential |
| Collateralisation | The need for collateralisation depends on the creditworthiness of the client. |
| | The availability of a public guarantee will be an important driver for EES providers to address this market segment. Also, refinancing institutions will have an easier business if a public guarantee is available. |
| Handling of performance risks | <ul style="list-style-type: none"> ▪ Refinancing only after 1-2 years of verified performance ▪ Sale of a share of 50-80% of the total amount of receivables possibly only related to capex ▪ Non-recourse clause in the refinancing agreement, complemented by stipulations in the EES contract making sure that the full performance risk remains with the EES provider |
| Collection of payments | Usually, the EES provider will be responsible for invoicing - a certain part of the invoiced amount is payable directly to the refinancing institution. If the building is rented out to tenants, on-bill financing may be feasible, if the rental agreement allows for a transfer of (parts of the) investment costs to the tenants. |
| Off-balance sheet financing | May be very relevant, depending on the preference of the client. Possible ways to facilitate off-balance sheet refinancing are described in chapter 2.6. |
| Non-public debt financing | Not relevant |
| Organisational set-up | Either ad-hoc set-up, or longer-term collaboration between EES provider and refinancing institution, possibly based on a framework contract. |

3.6 Scheme B4: EEI investments in industrial companies

This refinancing scheme refers to the sector of manufacturing industrial companies, with a focus on SMEs. This sector requires several adjustments to the refinancing approach as compared to the ones described under B2 and B3.

| Element | Description |
|-------------------------------|---|
| Application field | EEI investments, usually with a focus on cross-sectoral auxiliary technologies, which are not directly connected to the core production processes. |
| Market opportunities | EES projects in the industrial sector are often limited to specific appliances or technologies (e.g., lighting, compressed air, motors and pumps). Furthermore, for SMEs, financing as part of the service package may be an important driver, since SMEs may have a wish to focus their financial resources to the core business. |
| Collateralisation | <p>The need for collateralisation will depend on the creditworthiness of the client. For SMEs it may be considerable, whereas for larger and well-positioned companies it may be low.</p> <p>Refinancing institutions may wish that the EES provider holds a title on the invested assets which can be transferred to the refinancing institution. However, a public guarantee to cover credit risks would be an easier and cheaper way to safeguard payments to the refinancing institution.</p> |
| Handling of performance risks | <ul style="list-style-type: none"> ▪ Refinancing only after 1-2 years of verified performance ▪ Usually, only the receivables related to capex are purchased by the refinancing institution ▪ Non-recourse clause in the refinancing agreement, complemented by stipulations in the EES contract making sure that the full performance risk remains with the EES provider |
| Collection of payments | The EES provider will be responsible for invoicing. A certain part of the invoiced amount is payable directly to the refinancing institution. |
| Off-balance sheet financing | For many clients off-balance sheet financing will be very relevant, because they may wish to reserve their financial resources for investments related to the core business. Although each individual case must be considered separately, since national rules and applicable accounting principles may differ, we have to expect that the wish of a refinancing institution to hold a title conflicts with the wish of the client to keep the asset off the balance sheet. The availability of a public guarantee would help to resolve this conflict. |
| Non-public debt financing | Not relevant |
| Organisational set-up | Either ad-hoc set-up, or longer-term collaboration between EES provider and refinancing institution, possibly based on a framework contract. |

3.7 Scheme C1: ESC for multi-family residential buildings

Decarbonisation of residential buildings which are currently supplied by decentralised gas-boilers is a major and much discussed challenge of energy transition in many EU countries. The conversion to renewables usually requires central supply of heat and hot water, which is a typical case for Energy Supply Contracting (ESC).

| Element | Description |
|-------------------------------|--|
| Application field | Installation of central heat supply system based on RES for MFH |
| Market opportunities | <p>ESC is already offered for new construction of buildings and larger neighborhoods. In addition, decarbonisation of existing building stock represents a huge market potential, but suffers from a number of barriers: legal framework, investor-user-dilemma, affordability limits at the side of home-owners.</p> <p>We assume that the most attractive market segments for ESC - as compared to self-implementation by the owners - will be condominium houses, where there are some affordability limits and where the regulatory framework facilitates decision processes as much as possible (co-decision rights, obligation to tolerate investments etc.). At the same time, we assume that there is a need for public support (investment grants) to push forward these kind of investments.</p> |
| Collateralisation | <p>Usually, pricing in ESC models differentiates between the investment part and the operational part (heat delivery). Therefore, refinancing can be connected with the assets, where the refinancing institutions get transferred the title on the assets from the EES provider.</p> |
| Handling of performance risks | <ul style="list-style-type: none"> ▪ Long-term collaboration with EES provider ▪ Refinancing only after 1-2 years of verified performance ▪ Only the receivables connected with the assets are purchased ▪ Step-in rights of refinancing institution in case of serious under-performance of the EES provider |
| Collection of payments | Through the EES provider or through the housing management company as part of the operating costs statement |
| Off-balance sheet financing | Not relevant |
| Non-public debt financing | Not relevant |
| Organisational set-up | Institutional set-up with predefined roles, responsibilities and work processes (cf. chapter 2.8). |

3.8 Scheme C2: ESC for public buildings

Taking into account the increasingly challenging climate protection goals, this kind of energy service plays an important role in decarbonising the public building sector.

| Element | Description |
|-------------------------------|--|
| Application field | Installation of a central heat supply system based on RES for public buildings |
| Market opportunities | Decarbonisation of existing public buildings represents an attractive market for EES providers. Since public buildings are usually equipped with central heating systems, ESC projects can have an easy interface with the client's system. In some cases, however, there may be a necessity to rebuild the heat distribution system to lower temperature as well. Furthermore, there exist the possibility to combine ESC with the reduction of energy demand through the implementation of energy efficiency measures - an approach which is frequently called Integrated Energy Contracting (IEC). |
| Collateralisation | Generally, the need for collateralisation may be low, depending on the creditworthiness of the public authority. However, if collateralisation is required from the refinancing institution, refinancing can be connected with the assets, where the refinancing institutions get transferred the title on the assets from the EES provider. |
| Handling of performance risks | <ul style="list-style-type: none"> ▪ Long-term collaboration with EES provider ▪ Refinancing only after 1-2 years of verified performance ▪ Only the receivables connected with the assets are purchased ▪ Step-in rights of refinancing institution in case of serious under-performance of the EES provider - however, step-in rights may be contradictory with public procurement rules. |
| Collection of payments | The EES provider will be responsible for invoicing. A certain part of the invoiced amount is payable directly to the refinancing institution. |
| Off-balance sheet financing | Not relevant |
| Non-public debt financing | It is an attractive driver for public authorities to get offers that fulfil the EUROSTAT requirements - for ESC this may be easier than for EPC, because there is a clear(er) interface between the assets of the ESC-project and the client's systems. Therefore, economic ownership can be easier retained by the EES provider (cf. 2.7). There may emerge, however, a contradiction between the wish of the refinancing institution to hold a title and the wish of the public client to fulfil the EUROSTAT requirements. The availability of a public guarantee would help to resolve this conflict of interests. |
| Organisational set-up | Either ad-hoc set-up, or longer-term collaboration between EES provider and refinancing institution, possibly based on a framework contract. |

3.9 Scheme C3: ESC for commercial buildings

In the context of the roll-out of the EU-Taxonomy, the real estate industry is increasingly confronted with requests to decarbonise energy supply for buildings. Therefore, ESC models for commercial buildings come into play.

| Element | Description |
|-------------------------------|--|
| Application field | Installation of central heat supply system based on RES for private commercial buildings |
| Market opportunities | <p>ESC projects related to the decarbonisation of existing commercial buildings become an increasingly attractive market for EES providers, mainly for cases of owner-occupied buildings as well as for specific branches like the hotel industry. However, also rented commercial buildings (e.g. office buildings, shopping malls) may become interesting market segments, because anchor tenants may require decarbonised energy supply due to their ESG objectives.</p> <p>Under certain conditions ESC can be combined with the reduction of energy demand through the implementation of energy efficiency measures - an approach which is frequently called Integrated Energy Contracting (IEC).</p> |
| Collateralisation | The need for collateralisation will depend on the creditworthiness of the client. For some branches - such as the hotel industry - the need for collateralisation may be very high. A public guarantee to cover credit risks would be the easiest and probably most cost-efficient way to safeguard payments to the refinancing institution. |
| Handling of performance risks | May be designed similarly as in C2 (cf. 3.8) |
| Collection of payments | The EES provider will be responsible for invoicing. A certain part of the invoiced amount is payable directly to the refinancing institution. |
| Off-balance sheet financing | Off-balance sheet financing may be very relevant for some clients (e.g. SMEs with owner-occupied buildings) and not relevant for other clients, such as larger real estate companies. Although each individual case must be considered separately, since national rules and applicable accounting principles may differ, the wish of the refinancing institution to hold a title would complicate off-balance sheet financing. The availability of a public guarantee would be very useful in this context. |
| Non-public debt financing | Not relevant |
| Organisational set-up | Either ad-hoc set-up, or longer-term collaboration between EES provider and refinancing institution, possibly based on a framework contract. |

3.10 Scheme C4: ESC for industrial companies

This scheme refers to refinancing of ECS projects for manufacturing industrial companies. Generally, the approach is quite similar to the one presented in C3, since in both cases the client is a private company.

| Element | Description |
|-------------------------------|--|
| Application field | Energy supply (heat, steam, electricity), mainly based on RES, for manufacturing industrial companies |
| Market opportunities | Also industry is pushed to move towards climate neutrality by changing energy supply patterns. In this context, ESC projects based in RES may become an increasingly attractive market for EES providers. Furthermore, for SMEs, financing as part of the service package may be an important driver, since SMEs may have a wish to focus their financial resources to the core business. |
| Collateralisation | <p>The need for collateralisation will depend on the creditworthiness of the client. For SMEs it may be considerable, whereas for larger and well-positioned companies it may be low.</p> <p>A public guarantee to cover credit risks would be the easiest and probably most cost-efficient way to safeguard payments to the refinancing institution.</p> |
| Handling of performance risks | May be designed similarly as in C2 (cf. 3.8) |
| Collection of payments | The provider will be responsible for invoicing. A certain part of the invoiced amount is payable directly to the refinancing institution. |
| Off-balance sheet financing | <p>Off-balance sheet financing will be very relevant for some clients. Generally, for ESC this may be easier than for EPC, because there is a clear(er) interface between the assets of the ESC-project and the client's systems.</p> <p>Although each individual case must be considered separately, since national rules and applicable accounting principles may differ, the possible wish of refinancing institutions to hold a title conflicts with the wish of clients to keep the asset off the balance sheet. The availability of a public guarantee would be very useful in this context.</p> |
| Non-public debt financing | Not relevant |
| Organisational set-up | Either ad-hoc set-up, or longer-term collaboration between EES provider and refinancing institution, possibly based on a framework contract. |

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