D2.4 Refinancing Market Assessment Report

3 February 2021

REFINE



REFINE has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 894603

DOCUMENT SUMMARY INFORMATION

Grant Agreement No	894603	Acronym	REFINE			
Full Title	Mainstreaming of r	Mainstreaming of refinancing schemes as enhancer for				
		In or energy erriclend				
Start Date	01/06/2020	Duration	36 months			
Project URL	https://refineproje	ect.eu/				
Deliverable	D2.4 - Refinancin	02.4 - Refinancing Market Assessment Report				
Work Package	2					
Nature	Report	Dissemination Lev	el Public			
Lead Beneficiary	Creara					
Authors	Adriana Villoslada (Creara), Adrián Cañamares (Creara), Rodrigo Morell (Creara)					
Co-authors	Klemens Leutgöb (e7), Iñaki Martín (Bankia), Iva Tustanovski (REGGEA), Jana Szomolanyiova (SEVEn), Jaroslav Maroušek (SEVEN) Aristotelis Botzios (CRES), Damir Stanicic (JSI), Patrick Maurelli (FEDERESCO), Asen Charliyski (FCubed), Vladimir Shimkin (HMRSC), Braumann Winfried (REENAG)					

DISCLAIMER

The REFINE Project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 894603. The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission is responsible for any use that may be made of the information contained herein.

CONTENTS

GL	LOSSARY	3
1		5
2	EXECUTIVE SUMMARY	6
3	MARKET ASSESSMENT 8	B
	3.1 MARKET ASSESSMENT OVERVIEW 8 3.2 Financial Assessment 9 3.3 Key barriers, main risks, and drivers for refinancing 10 3.4 Related EU projects 1	8 9 0 1
4	PRODUCT ASSESSMENT 14	4
	4.1 SALE OF RECEIVABLES 14 4.1.1 Refinancing process 14 4.1.2 Risk management, accounting, and tax issues 14 4.2 BUILDING ENERGY EFFICIENCY FACILITY (BEEF) 16 4.2.1 Refinancing process 16 4.2.2 Risk management, accounting, and tax issues 17 4.2.2 Risk management, accounting, and tax issues 17 4.3 COMPARISON BETWEEN CASE STUDIES 17 4.3.1 Instalment purchase model in Austria 17 4.3.2 Sale of receivables for EPC projects in the Czech Republic 19 4.3.3 Sale of receivables developed by Belfius bank and Wattson in Belgium 22 4.3.4 Private finance Building Energy Efficiency Facility ("BEEF") 24	44566777924
5	EXPERT INTERVIEWS	7
6	CONCLUSIONS	2
	6.1 SWOT ANALYSIS	2 4
7	APPENDIX 1. ASSESSMENT OF INTERLINKAGES WITH OTHER EU PROJECTS	7
8	REFERENCES	9
	Austria	9 9 0 1

GLOSSARY

Some of the terms that are important in the context of the REFINE project and specifically in this document are not used in a uniform way throughout Europe. Therefore, below is a list of definitions:

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

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

Energy efficiency improvement (EEI) investment: An EEI measure that requires the use of upfront investments, usually through the involvement of a financial institution, and regardless of 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 audit 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 lead to an energy efficiency improvement directly or indirectly. If the partial EES includes EEI investments, it may or may not include financing of these investments.

EES 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 Energy Service Company (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).

Energy Supply Contract (ESC): A contractual arrangement for the efficient supply of energy. ESC is contracted and measured in Megawatt hours (MWh) delivered (this definition is a simplified version of IEA DSM Task force 16 definition).

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: 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.

Forfaiting: The sale of longer-term account receivables usually without right of recourse.

EPC+/++: An EPC where the technical solutions as well as the contractual issues of energy services are according to additional standardized set of structural & aesthetic measures.

1 INTRODUCTION

This report has been developed as part of the REFINE project (Mainstreaming of refinancing schemes as enhancer for the implementation of energy efficiency service projects). The project, supported by the European Horizon 2020 programme, aims to contribute to the supply of sufficient and attractive financing sources to EEI (Energy Efficiency Improvement) investments through the enhancement of refinancing schemes which are important amplifiers of the market growth.

A refinancing scheme is understood as an approach whereby an EES (Energy Efficiency Service) provider sells to a refinancing institution the receivables to be paid by an EES client. This kind of scheme can help to overcome certain financing barriers that frequently emerge in the EES business in general, but represent a barrier for EES markets most of South and Eastern European countries, in particular.

EES providers, as companies that design and manage EPC (Energy Performance Contracting) projects, are not usually prepared to face credit risk, nor are they interested in having the assets of an energy saving project on their own balance sheets, this is especially the case if they are an SME.

The client, on its side, can benefit from this financial instrument by accessing easier financing for performance-based EE investments. Finally, refinancing represents a business opportunity with limited risk for financial institutions, since they only bear the credit risk on the client side (technical risks generally remains with the EES provider).

This report analyses the status of the national refinancing service markets in nine Austria, Spain, Italy, Slovenia, Croatia, Greece, Czech Republic, Latvia and Ukraine. Legal and organisational framework conditions for admissibility of refinancing instruments for EES in each country have been researched through different methods (literature review, analysis of case studies and stakeholder interviews). The main results are summarised in this document applying a transdisciplinary and cross-country perspective.

2 EXECUTIVE SUMMARY

This report integrates the key findings derived from the research on EES (Energy Efficiency Service) markets and refinancing schemes applied for EES across eight EU countries (Austria, Spain, Italy, Slovenia, Croatia, Greece, Czech Republic, Latvia) and Ukraine, obtained through literature review, case study analysis and expert interviews among relevant stakeholders.

The report has been structured in four sections as explained below.

The **Market Assessment** section provides an updated overview on the European EES market, with emphasis on the financial supply. The analysis depicts a quite diverse picture among the targeted countries. Only four markets (Austria, Spain, Italy, and the Czech Republic) have achieved some degree of maturity. The rest are still at developing stage. The trend analysis shows that the EES market size is increasing in most of the analysed countries. The growth path is steeper in Spain and Croatia than in Slovenia, Greece, Latvia, Italy and Ukraine. The Austrian and Czech markets have been declining or stagnating over the last years.

Regarding **access to financing** for good quality EES projects, it is considered easy only in the Czech Republic. Furthermore, **refinancing** is not very extended; only in four countries refinancing operations have been reported, out of which refinancing is considered a usual practice in two countries (Czech Republic and Latvia). On the other hand, state-backed guarantee instruments have only been found in Latvia.

Some common patterns can be identified among these **refinancing instruments**. Public clients are usually preferred to private ones. The allocation of risks among the agents involved is similar; the financial institution bears only the credit risk while the technical risk remains with the EES provider. The main guiding interest beyond all the refinancing examples studied was to focus on models that support EES market growth thus leading to a noticeable increase of EE investments. As a precondition, it seems to be important that the models are enabled to clear the balance sheets of the EES providers.

To complete this research, a broad overview of the related European projects has been conducted. Four Horizon 2020-funded projects have been highlighted due to their deeper connection to refinancing schemes (QualitEE, TrustEE, SUNShINE, and FinEERGO).

The **Product Assessment** chapter delves into the different approaches to refinancing applied in the surveyed countries, classified in two groups. The **Sale of receivables** group gathers the examples from Austria, Belgium and Czechia which are quite homogeneous. The sale of receivables is originated through the implementation of technology EEI measures as typical for standard EPC contracts. With a range of contract durations between 8 and 14 years, it is usually oriented to public clients or very reputed private clients. Under these general features, the approaches carried out in Austria, the Czech Republic and Belgium have their unique characteristics based on the national markets where they belong. Real examples of refinancing projects from the Czech Republic - a deep building renovation of a hospital - and Belgium - retrofitting measures in a schoolhave been included to further illustrate these schemes.

The other refinancing approach is operated by the **Building Energy Efficiency Facility** (BEEF). The BEEF model is centred on financing building renovation as a service (EPC+ or

EPC++ contracts), through an SPV (Special Purpose investment Vehicle) for each new project to deliver "Guaranteed Safety, Health, and Comfort". BEEF acts as a gatekeeper for all the project parameters to be met. The contract duration is between 20 and 30 years. This scheme started in Latvia and is now being implemented in Austria, Bulgaria, Poland, and Slovakia.

The Expert Interviews chapter includes an assessment on the perceptions of relevant stakeholders from 12 countries (Austria, Belgium, Croatia, Czech Republic, Greece, Slovenia, Spain, Ukraine, Italy, Germany, Slovakia and Poland). They were selected from different target groups like EES providers, financing institutions, EES clients, EES facilitators, EE experts as well as other similar stakeholders.

The main outcomes from these interviews endorse the conclusions from the literature review and the case study analysis. The Czech Republic is considered the most advanced in refinancing EES projects among the surveyed countries. The experts across the countries in the survey also cited some barriers to refinancing: the market still being not big enough, the sluggishness of the public administration and the lack of European or national guarantee funds, among others. In most of the countries the interview partners agreed that if a European or national guarantee fund for EE projects would be available, refinancing could be applied much more easily.

The respondents were also queried about the cost of refinancing schemes, the necessity to standardise the contract stipulations, and the impact of refinancing in the balance sheet of the EES provider and the client. Their answers complete the research by adding perspectives from professionals that work day-to-day in the energy efficiency sector.

The **Conclusions** chapter wraps up the report. Using the SWOT analysis technique, the different approaches to refinancing are compared to extract the mains highlights and downsides. Overall, the advantage of refinancing for the EES providers is twofold: the assets disappear from the balance sheet of the EES provider and the FI is now assuming the credit risk. Therefore, the EES provider gains financial leeway for new projects.

A common weakness among refinancing schemes is the high transaction costs which they sometimes entail. This weakness is exacerbated for private clients, who often pay a higher price for accessing refinancing. An exception is represented by the BEEF scheme and Czech scheme for public clients that appear to maintain relatively competitive prices thanks to the standardisation of contracts and processes.

Therefore, standardisation is key to reduce the transaction costs and to expand the scheme to other market segments. The establishment of state-backed guarantees can also help to the success of refinancing schemes.

Lessons learnt split into thematic areas conclude the document. Overall, the long-term availability of funding potentially accessible for refinancing schemes supports a high potential for replication across Europe. However, these schemes are hampered by different kinds of obstacles, such as the uncertainty regarding the admissibility of refinancing public procurement or regarding the possibility of removing the assets from the balance sheet. Furthermore, refinancing instruments are often perceived to be too costly compared to other financing alternatives. Finally, EES providers may find it difficult to make long-term commitments related to performance. Agreeing on all contractual obligations in advance can provide clarity to all stakeholders making the process smoother and shortening the negotiations.

3 MARKET ASSESSMENT

This section describes the status quo of the EES (Energy Efficiency Services) market across Europe, making a special focus on the financing aspects. The data has been obtained through literature review among national and transnational sources including policy papers and regulatory instruments, conditions of existing funds and mechanisms and international projects and institutions among others.

Finally, to understand the latest developments in the refinancing landscape, broad research among other EU projects has been conducted. The last chapter collects the Horizon 2020 projects related to refinancing schemes and their connections to refinancing.

3.1 Market Assessment overview

Assuming that population may impact on the size and maturity of the EES markets, countries have been classified in three categories according to quantitative criteria¹: Big, Medium and Small.

Controlling by that factor, two aspects have been studied: The **Market Maturity** and the **Market Growth**. Evidence showed that country size has only slight correlation with the market maturity; it is not a defining factor, but mature markets bloom mainly in medium/big countries.

In the majority of the analysed countries, the EES market is still in a developing stage (specifically, in Embryonic or Growth stage). Only four countries (Austria, Spain, Italy, and the Czech Republic) have achieved some degree of maturity. In parallel, the analysis of the data shows that in most countries, the EES market features a growing trend, however the pace is different among countries (stronger in Spain and Croatia and weaker in the rest).

A traffic-light style code has been used to illustrate the situation of each country in the table below²:

¹ Classification criteria: **Country Size**: (Small: <5 M, Medium: 5-20 M Big: >20 M). **Market Maturity**: (Embryonic: <5 ESCOS; or <30 EPC projects; or <30 M EUR/year, Growth: 5-15 ESCOS; or 30-80 EPC projects; or 30-100 M EUR/year, Mature: >15 ESCOS; or >80 EPC projects; or >100 M EUR/year). **Market Growth**: Detected trend for EPC project and ESCOS (Decrease, Stagnant, Slight Growth, Strong Growth).

Countries		Population	Market Maturity		Market Growth	
AT	Austria	Medium	Mature		Stagnant	
ES	Spain	Big	Mature		Strong growth	
IT	Italy	Big	Mature		Slight growth	•
SI	Slovenia	Small	Growth	•	Slight growth	
HR	Croatia	Small	Embryonic		Strong growth	
GR	Greece	Medium	Embryonic		Slight growth	
CZ	Czech Republic	Medium	Mature		Decrease	
LV	Latvia	Small	Embryonic		Slight growth	
UA	Ukraine	Big	Growth	0	Slight growth	

Table 1: EES Market Size and Maturity

The analysis continues with the study of the **key actors** commonly involved in the energy efficiency projects. The **EES providers** are a heterogeneous group including ESCOs, utilities, technology providers, consulting/engineering firms and others. Among these categories, ESCOs and utilities are the most abundant. The majority are SMEs, except in Slovenia and in the Czech Republic where non-SMEs are the dominant category.

Commercial, or Public banks are the main financers for energy efficiency projects in most of the countries, while independent specialised funds are less present. In Italy, Austria, and Spain, commercial banks are more active in financing these projects, in contrast to the Southeast countries where public institutions prevail.

Other agents in the financing (and refinancing) schemes are the facilitators, that can be split in two categories: consultants and public bodies (energy agencies and development banks). The first category prevails in Austria, Spain, Italy, and the Czech Republic. Public bodies are the current facilitators in the rest of the countries surveyed.

3.2 Financial Assessment

Regarding the **financing instruments** commonly used in each country, the borrowed debt predominates. There are some peculiarities for each country. In Spain or Slovenia, the **internal resources of the EES providers** are the main source of funding, while **equity** prevails in Greece. The introduction of Ecobonus³ had a large impact in the Italian market. Finally, the **sale of receivables** is commonly used only in the Czech Republic, and, although less frequent, is also present in other countries like Austria and Latvia (for further information see chapter 4.1).

When asked about the **feasibility of finance**, respondents only considered it easy in the Czech Republic, being moderately or even very difficult in the rest of the countries.

Some forms of refinancing have been found in five countries, with different levels of penetration. In Spain and Italy, operations have been identified, yet the evidence is not sufficient to consider refinancing a common practice. In Austria, even though the number

³ The Ecobonus/Superbonus are Italian national tax incentives that enables private individuals and companies to deduct a part of the costs (or all of the costs in case of Superbonus) incurred for carrying out energy efficiency upgrade projects on the residential buildings from their IRPEF (income tax) or IRES (corporation tax) payments.

of EPC projects have decreased in the last years, refinancing instruments can be found in the market.

The case of the Czech Republic is notably different; **sale of receivables** has been quite widespread. In Latvia, the successful implementation of the **BEEF model** has become an important source of financing for EES in that country (for further information on BEEF, consult chapter 4.2).

State backed guarantee instruments were only documented in Latvia, where since 2020 a state-owned development financing institution named Altum, offers guarantees for financing EE projects.

In Austria, Greece, and the Czech Republic, public initiatives oriented to provide statebacked guarantees are under preparation. In Spain, one region (Extremadura) has recently set up a guarantee fund for energy efficiency and renewable energy improvement projects in residential buildings. The rest of the surveyed countries do not have any plan or project on this behalf.

In the table below, these findings regarding the feasibility of financing, the availability of refinancing instruments, and the availability of state-backed guarantees are presented using the traffic-light style code:

Countries Feasibility of financing		Availability of refinancing Instruments		Availability of state-backed guarantees			
AT	Austria	Moderately difficult		Available		In preparation/foreseen	\mathbf{O}
ES	Spain	Moderately difficult	\bigcirc	In development	\bigcirc	In preparation/foreseen	\bigcirc
IT	Italy	Moderately difficult	0	In development	\bigcirc	Not available	
SI	Slovenia	Moderately difficult	\bigcirc	Not available		Not available	
HR	Croatia	Moderately difficult	0	Not available		Not available	
GR	Greece	Very difficult		Not available		In preparation/foreseen	•
CZ	Czech Republic	Easy		Available		In preparation/foreseen	\bigcirc
LV	Latvia	Moderately difficult	\bigcirc	Available		Currently in place	
UA	Ukraine	Moderately difficult		Not available		In preparation/foreseen	

Table 2: Financial aspects among countries

3.3 Key barriers, main risks, and drivers for refinancing

From the EES provider's perspective, the most prominent barriers for EES projects are financial, generally because of very demanding requirements to access to credit or the lack of specialized financial instruments (the latter applies to Croatia and Spain). Institutional barriers such as absence of support from the government are a common observation from EES providers. Technical and administrative barriers have been also reported: the rigidity of the governmental organizations or the lack of standardization procedures tend to jeopardise the refinancing.

The main barriers for refinancing from a EES provider's perspective are shown in the table below:

	Countries	1) Financial	2) Institutional & legislative	3) Technical & administrative	4) Information & awareness	5) Market & external
AT	Austria	~	×	~	v	~
ES	Spain	<	<	<	<	<
IT	Italy	<	<	<	<	
SI	Slovenia	<	<	<		
HR	Croatia	<				
GR	Greece	<				
CZ	Czech Republic	~	<			
LV	Latvia	<	<	<	<	
UA	Ukraine	~				

Table 3: Barriers to refinancing from the EES provider's perspective

From the financer's perspective the uncertainty on the legal, tax and accounting rules applicable to EES projects generates a perception of high-cost transaction. Also, the complexity of the approval process and the ambiguity of some legal aspects complicate the refinancing process. The most prominent barriers to refinancing from the financer's perspective are shown in this table:

	Countries	1) Financial	2) Institutional & legislative	3) Market & external	4) Information & awareness	5) Technical & administrative	6) Behavioural
AT	Austria	<	✓				
ES	Spain	\checkmark					
IT	Italy	\checkmark	✓	✓	✓		<
SI	Slovenia	\checkmark	✓				
HR	Croatia			✓	✓		
GR	Greece						
CZ	Czech Republic				✓		
LV	Latvia	\checkmark	✓	\checkmark	✓	\checkmark	
UA	Ukraine			✓			

Table 4: Barriers to refinancing from the financer's perspective

It is a common perception that the **main risks** remain on the client's side and refers to its financial situation; on the contrary a few have indicated the technical risk as a major issue.

Regarding the **drivers for refinancing**, the attractiveness of the off-balance sheet offered by the refinancing schemes, the development of public support schemes, the increase in the quality of the EES provider among other factors are expected to improve the opportunities for refinancing.

3.4 Related EU projects

This subchapter summarises the main outcomes of the research among other Horizon 2020 projects. These projects are relevant for two reasons: on the one hand, they are often at the forefront of financial innovation for energy renovation projects; on the other, they provide a multi-country perspective of the financial schemes which is at the cornerstone of this document's goals.

It turned out that there are several EU projects oriented to improve the offer of financing schemes using innovative approaches and some of them are directly connected to refinancing:

- The **QualitEE** project aims at standardising the quality criteria and the quality assurance process for EES projects. Standardisation increases the trust of the clients and the financial agents whereas institutionalising the quality assurance process improves service quality and reduces the complexity. QualitEE has a specific module focused on EE Finance which reviews current finance methods and how easy it is to secure external funding streams. To further develop and test feasible refinancing cycles it would be possible to build upon these results.
- The **TrustEE project** is focused in setting up a tailored financial solution for industrial "Process Heat Efficiency and Sustainability investments (PHES)". This project presents a scheme for refinancing this kind of industrial efficiency measures.
- The **SUNShINE** project develops an innovative private finance mechanism for deep building renovation in Latvia, based on Building Energy Efficiency Methodology (BEEF). A major objective is to demonstrate the financial viability of deep renovation of buildings, via suitable financial engineering of public funds and private capital. This financial scheme is based on forfaiting and aims to crowd in both private and public capital, as well as multilateral bank financing in building renovation.
- The **FinEERGO-Dom** project aims to refine and implement guaranteed financing schemes for energy efficiency and renewable energy in deep renovations of buildings. For this purpose, it uses the private finance scheme for building renovation in Latvia mentioned above.

The table below lists these and other related EU projects, explaining their connection with refinancing schemes. The section 7 (Appendix) contains a detailed version of this table.

EU Project and objective	Connection with refinancing	Website
QualitEE: standardising quality criteria and the quality assurance process for EES projects	Yes, QualitEE has a specific module focused on Energy efficiency Finance which reviews current finance methods including refinancing	www.qualitee.eu
TrustEE: building financial solutions for EE projects in industry	Yes, TrustEE is indeed a refinancing scheme for the industrial sector.	www.trustee-project.eu
SUNShINE: create a private finance mechanism for deep building renovation in Latvia	Yes, it proposes an instrument for refinancing buildings' refurbishments.	https://sharex.lv/news/
FinEERGO-Dom: refine and implement guaranteed financing schemes for EE and renewable energy in deep renovations of buildings	Yes, it is focused on attracting private finance for deep building renovation	https://fineergodom.eu/
GuarantEE: fosters the use of EPC's in the public and private sector across Europe.	Not directly, it addresses the barriers to all Energy Performance Contracting	https://guarantee- project.eu/
TransparENSE: increase the transparency and credibility of European markets with EPC.	Yes, the survey conducted within this project addressed different types of EPC financing.	www.transparense.eu
LAUNCH: development of sustainable energy assets (SEA) as tradable securities	No, it is not directly related to refinancing.	www.launch2020.eu
DEEP: provide detailed analysis and evidence on the performance of energy efficiency investments	Not directly, but it contains relevant knowledge regarding the assessment of EPC projects	https://deep.eefig.eu/
ICPEU and I3CP: standardise EE projects for buildings, industry, and infrastructure following Investor Ready Energy Efficiency™ (IREE)	Not directly, but financial institutions were involved to incorporate IREE in their schemes.	https://europe.eeperfor mance.org/
EENVEST: connect building owners and investors through a structured framework	Not directly, but it contains relevant knowledge regarding risk evaluation	www.eenvest.eu/
SEAF: lower the entry barriers to finance for small to medium projects through standardisation and combining existing protocols and tools	Not directly, but it can lower the gap between investors and financing opportunities.	https://cordis.europa.eu /project/id/696023
FPI: promote the development of private investment in EE investments	Not directly, but standardisation could be useful for private investors.	www.fpih2020.eu

Table 5: EU related projects

4 PRODUCT ASSESSMENT

In parallel to the literature review, specific refinancing approaches were studied in-depth to expand available knowledge on this matter.

These case studies will serve as model examples for further development of the refinancing instrument concepts suitable for other EU countries. The structured description contained in this section of each case study provides uniformity and comparability of the refinancing schemes. In addition, when available, real-case examples of refinancing projects have been included.

To streamline the analysis, cases can be classified as follows:

- The **Sale of receivables** group gathers the examples from Austria, Belgium and Czechia. The refinancing is set for the implementation of technology EEI (Energy Efficiency Improvement) measures in the field of building technologies, equipment etc. typically, under EPC contracts. With a range of contract duration between 8 and 14 years, it is usually oriented to public clients or private clients with a very good reputation.
- The remaining scheme is operated by **Building Energy Efficiency Facility (BEEF)**. As the previous group is focused on financing EEI measures in the public sector, the BEEF model is centred on financing building renovation as a service. It provides refinancing for comprehensive building refurbishment with EPC+ or EPC++ contracts with a duration between 20 and 30 years. This initiative, that belongs to the private sector, started in Latvia and is now being implemented in Austria, Bulgaria, Poland, and Slovakia.

4.1 Sale of receivables

4.1.1 Refinancing process

The Austrian, Belgian and Czech cases follow very similar refinancing process and are further grouped under the term "sale of receivables". At the cornerstone are the **EES** (Energy Efficiency Services) providers, privately owned companies that enjoy a good reputation or hold long-term collaboration relationships with the financial institutions. Refinancing institutions are normally banks or financial companies. EES clients are generally public administrations, but they can also be private clients with high creditworthiness.

The **refinancing process** begins with a negotiation between the client and the EES provider concerning the implemented technology and the service component on the one hand; and the approval of sale of receivables (this last part is not legally required in the Czech Republic) on the other. Another agreement must be closed between the EES provider and the FI (Financial Institution), concerning the future sale of receivables.

Once the technology measures have been implemented and the quality tested, the EES client signs a **handover protocol** confirming the correct implementation of such measures. Then, the EES provider acquires the receivables issuing an invoice, charging the client with the cost of the measures' implementation, hence the client confirms its liability to pay the invoiced amount in stipulated payments over the whole contract period.

The receivables related to the financing of the measures are then assigned to the refinancing institution based on the **receivables purchase agreement** and the invoice with the **repayment schedule** signed by the client.

Finally, the refinancing institution sends a **lump-sum payment** for the total value of the receivables and the client keeps sending the regular repayment for the total contract duration. The figure below illustrates this process:



Figure 1: Process of sale of receivables in Austria, Belgium, and Czechia

4.1.2 Risk management, accounting, and tax issues

The **risk management** varies among refinancing institutions, but some shared features can be drawn.

The risk management mechanisms largely depend on the creditworthiness of the EES provider and the client. Once the operation is underway the risk associated to the project is divided into technical and financial risk.

• The **technical risk** remains with the EES provider, this means that if the contractually agreed savings are not achieved, the EPC provider must compensate for the savings shortfalls. The EES providers can avoid a large proportion of this risk using techniques to estimate the savings and, consequently the eventual deviations from the plan.

Some sort of guarantee may be required if the EES provider is new to the market or does not provide a high number of successful projects.

• The **financial risk** is carried by the refinancing institution and assessed depending on the client's creditworthiness. If the client's creditworthiness is high, the perceived risk to FI is very low. However, if the client's is not considered very trustworthy, the FI may require a mitigation mechanism.

Regarding the **accountability**, the EES provider invests in the EEI measures and it is reflected on its own balance sheet until the sale of receivables is performed. Usually, the process of the sale of receivables does not affect the EES client's balance sheet.

The VAT taxation applies only to the technical equipment, its installation and the energy management services provided by the EES, not to the sale of receivables. Also, the VAT related to EEI technology measures installation is due at the moment of invoicing to the EES client.

4.2 Building Energy Efficiency Facility (BEEF)

The Buildings Energy Efficiency Facility ("BEEF") model is a private sector initiative focused on advanced **deep renovation of multifamily/social housing** and public buildings to deliver a safe, healthy and well-being environment guaranteed by energy savings.

This scheme already exists in Latvia ("LABEEF") and Bulgaria ("BULBEEF") and currently is in the process of being set up in other countries including Austria, Poland, Slovakia and potentially Croatia. It addresses a significant market gap in terms of **long-term financing for building renovation (20-30 years)**. The main bottlenecks identified are the fragmented ownership in the multifamily sector.

BEEF is a special purpose investment vehicle (SPV) managed by specialised fund managers, set up to purchase long term EPC contracts for buildings. Depending on the required minimum energy efficiency improvements, safety and additional measures, there are two kinds of investment packages: EPC+ and EPC++. The focus of the scheme is to deliver "Guaranteed Safety, Health, and Comfort".

The **EES provider** can be any company with the professional capacities to take over the required services. The **clients** come from the multifamily housing, social housing, and public sector.

4.2.1 Refinancing process

BEEF ensures that all the project parameters are met, even before the design stage. Another peculiarity is that the refinancing only takes place after an independent auditor verifies the achieved energy savings of the first heating season. This **difference in the timing** for the refinancing is illustrated below:



Figure 2: Timing of refinancing

4.2.2 Risk management, accounting, and tax issues

The particularities of the residential sector to which this scheme is applied impose certain conditions. The installation of measures is financed by the EES provider; after the first heating season and the verification of its savings, the refinancing institution can purchase up to 80% of the receivables. Subject to the performance of the installation, it can reach 100% on the following years. Despite **collateral** is not required, the complete technical performance and the guaranteed savings are required to the EES provider.

Within this scheme, the concept of reverse **VAT** is introduced, whereby the EES provider becomes liable for VAT only upon issue of monthly invoices to the final beneficiary.

4.3 Comparison between Case Studies

Once the main characteristics of each refinancing scheme has been presented, a thorough analysis on the applications of these approaches in each country has been performed. The purpose of that is to shed light on the main differences and the adjustments that each scheme has adopted to fit with the national framework conditions.

4.3.1 Instalment purchase model in Austria

General Overview

The instalment purchase model is characterized by having a significant share of the equipment cost in the overall cost structure (at least 40-60% of the up-front cost) related to equipment installation. The contract lifetime ranges between 7 and 10 years.

It has been observed that there must be a trust relationship between the EES provider and the FI. The clients are normally public institutions and less commonly private clients with high creditworthiness.

So far, this scheme is mainly applied by one large EES provider. Therefore, this kind of scheme cannot be considered a standard for financing approaches for EES projects in Austria.

Refinancing scheme

The refinancing scheme begins when an EES provider signs with a client an EES contract consisting of hardware installations and a service component. The costs of equipment installation and the financing costs are invoiced immediately after installation. The customer, however, does not have to pay the invoice at once, but in equal instalments distributed over the whole contract period.

After installing the equipment, an acceptance procedure is implemented, which confirms the delivery as agreed and the final price of equipment, thus constituting justified receivables of the EES provider against the client.

At this point, the EES provider sells the receivables related to equipment delivery to the FI. As the client already confirmed the delivery including its price, the FI can be generally sure to receive the regular payments. The agreement between EES provider and the client

stipulates a retention of the title which is transferred to the refinancing institution as a guarantee.

The service component of the contract is invoiced to the client on a yearly basis. The amount of yearly payments is dependent on the adherence to the savings guarantee. This part of the receivables is not forfeited. How this scheme works is illustrated in the figure below:



Figure 3: Process of sale of receivables

Risk management

As usual in most refinancing schemes, the FI takes over the risk of client's bankruptcy (default risk). The only collateral is the retention of the title on equipment that may be enforced by the refinancing institution in case of non-payment of the client. Technical and operative risks (e.g., related to non-fulfilment of the savings guarantee in case of EPC) remain with the EES provider.

Contractual stipulations and taxation

There are some contractual stipulations that are required as a precondition, like the differentiation between the cost for the equipment installation and the service, the stipulation on the instalment payments for the equipment delivery and on the acceptance procedure.

There is also a "Safeguarding" article, for cases where the promised energy savings guaranteed were completely missed. In these cases, the EES provider has to refund the possible negative balance to the client. Finally, a retention of title on the equipment installed and a general permission of the EES client to the EES provider allowing the sale of receivables are signed.

VAT is invoiced immediately after the completion of installations, since the installation of equipment constitutes most of the project cost. Therefore, VAT is due at the beginning of the contract. For clients eligible for VAT deduction, this has no importance, but it can be a disadvantage for public clients, who are not entitled to deduct VAT.

4.3.2 Sale of receivables for EPC projects in the Czech Republic

General Overview

This "sale of receivables" kind of scheme is the most common practice for financing EPC projects in the Czech Republic. Since 2015, CZK 2,785 million (more than EUR 100 million) have been invested in EPC projects, out of which at least 60%, were financed by sale of receivables. According to the results of the QualitEE project survey, the vast majority of Czech EPC providers and facilitators were involved in EPC projects financed by sale of receivables⁴.

The financial institutions are normally banks holding a Czech National Bank banking license⁵ The EES provider, a private company, typically has a close relationship with the FI.

The clients are public institutions such as municipalities and healthcare and education institutions. Bigger governmental organisations, like ministries are not legally allowed to accept any supplier's credit and that is why financing provided by EES provider with sale of receivables has been usually rejected.

The introduction of private clients for this kind of scheme has proved to be difficult due to the high interest offered for assigning receivables for private EES clients. Private clients prefer to pay the agreed price to the provider from their own resources or from a regular loan.

Refinancing process

The first step of the refinancing process is the agreement on the future sale of receivables between the EES provider and an FI; this document is usually signed before the start of the procurement procedure. It is important that the FI offers the EES provider a fixed discount rate already at this stage, at which the FI will purchase the receivable after the completion of the EES project, provided that the time parameters set in the agreement (such as repayment duration) are met. The provider can therefore work with this fixed rate from the very beginning and incorporate it into the conditions of its project.

All details of the financing agreement are arranged exclusively between the EES provider and the FI. Nevertheless, the approval of sale of receivables is usually negotiated with the client in advance and incorporated to the EPC contract. In some cases, the client specifies the type of company which is allowed to buy the receivables or even the name of the specific FI to be included in the EPC contract. However, the sale of receivables is legally possible even if not mentioned in the EPC contract.

Once the EPC contract (including the installation and the service fragments) has been signed between the EES client and the EES provider, the installation of measures begins. After functionality of the installed equipment is tested, the EES client signs a handover protocol stating that the work was handed over without defects, and if there are any defects, then how they will be removed.

⁴ QualitEE survey results in the Czech Republic reflect 75% of EPC projects financed by sale of receivables in 2017 and 67% in 2019.

⁵ Other important financial institutions are Export and commercial financing department of the Československá obchodní banka, a. s. (ČSOB), and the Department of Energy financing and Department of Factoring of Komerční banka (KB).

Then, the EES provider issues an invoice billing the client for the installation of the equipment, consisting of the costs of design, equipment, installation and financing. The EES client signs the invoice confirming his liability to repay the invoiced amount in stipulated repayments over the whole contract period. This invoiced amount may vary from the initial one because of the changes in the scope of measures.

Receivables related to the financing of the EEI measures are assigned to the refinancing institution based on the receivables purchase agreement with the EES provider and the invoice with a repayment schedule signed by the EES client. The EPC contract remains in force for the entire maturity period of the receivables and thus, the EES provider remains responsible for the technical part of the project. The assignment of the receivable does not change the obligation of the EPC client, as it remains a trade obligation and does not change into a bank loan.

The refinancing institution sends a lump-sum payment to the EES provider corresponding to the total value of the receivables.

Finally, the EES client sends regular repayments to the refinancing institution over the contract duration according to the repayment schedule confirmed previously by the client.



Figure 4: Process of sale of receivables

Risk Management

The FI only takes over the risk of client's bankruptcy, all the other risks stay with the EES provider. The sale of receivables is carried out without recourse on the EES provider, when, upon sale, the liability is eliminated from the EPC provider's accounting. If a receivable is purchased from an EES provider, the FI has a contract only with the provider and not with the EES client, so it cannot bind the borrower in any way or demand collateral from it.

If an EPC project fails to achieve the performance specified in the contract, the EPC

provider is obligated by the contract to compensate savings shortfalls that occurred over the life of the contract. Contractually agreed savings as well as achieved savings are determined by Measurement and Verification (M&V) Protocols. If the shortfall is lower than the payments for energy management for the previous year, the shortfall is deducted from the client's payment for the energy management. Exceptionally, if the shortfall is more than the energy management payments, the client issues an invoice for the amount of the shortfall to the EPC provider.

Most public institutions are trustworthy clients for FI, due to the low risk of bankruptcy. In contrast, in case of private clients, FIs are much more careful and require detailed due diligences in advance.

Contractual stipulation and taxation

According to the Czech legislation, sale of receivables is allowed in any project if not banned in the contract. In the Czech EPC model contract, the client approves sale of receivables in advance.

In the unlikely event of the EES client going bankrupt, the FI will usually not get any compensation and the unpaid part of receivables will be a loss of the FI. In case of other reasons for contract termination the client is still obliged to pay the whole amount of the receivables to the FI.

VAT has to be paid by the client just after the invoice is delivered to the client. In some cases, the loan for VAT payment becomes a part of the services provided by the EES provider.

The EES provider's costs for selling receivables consist mainly of paying a discount. In addition to the discount, the EPC provider also pays a fee for the assignment of receivables.

The discount rate is generally lower for public EES clients than for private sector EES clients due to its creditworthiness ⁶.

Example case: the EPC project in the Břeclav Hospital

After having explained how the sale of receivables works in the Czech Republic, a real case of sales of receivables to refinance the implementation of energy measures in a hospital is presented below:

 $^{^{6}}$ In case CSOB purchases receivables from EPC project where the EES client is a municipality, the margin included in the discount rate for the repayment over a period of 10 years will be between 1% p.a. and 1.5% For a private EES client this margin will be higher.

Client and Location	Břeclav Hospital, Břeclav, Czech Republic
Financing Institution	Komerční banka
EES Provider	Amper Savings
Project facilitator	SEVEn
Sale of receivables volume	2.4 mil. EUR (85% of the whole contract price)
Annual guaranteed savings	0.4mil. EUR/ 8.6 GWh
Contract length	10 years
Improvement measures	 Reconstruction of the local energy network and boiler house and switch from steam boilers to hot water boilers. Energy management monitoring and control system were installed. In addition, a set of energy saving measures were implemented (heat exchangers removal, heat stations instalment or reconstructions, thermostatic valves, etc.).

Table 6: Břeclav Hospital project overview

For the refinancing scheme, Amper Savings (the EES provider) used a short-term loan from Komerční banka (the FI). When the energy measures were installed and taken over by the Břeclav Hospital (the client), the provider issued a complete invoice and submitted it to the client for review. After the client's approval, the receivables were assigned to the bank and the debt was released from Amper Savings' (the EES provider) accounting book. Finally, the client redirected the repayments of the investment costs from the provider's bank account to the bank itself. The payments related to energy management are still directed to the EPC provider.

The EPC contract with the Břeclav Hospital in the City of Břeclav was signed in June 2017; the installation of energy-saving measures began in July 2017 and it was completed in December 2017. Energy and costs savings are guaranteed from January 2018 to December 2027 when the contract terminates.

4.3.3 Sale of receivables developed by Belfius bank and Wattson in Belgium

General Overview

This particular kind of arrangement consists of a sale/cession of receivables without recourse, created by an EES provider called Wattson and Belfius Bank.

The EES provider (Wattson) invests in EEI measures on its own balance sheet, and as soon as commissioned, the assets are sold to the client via the so-called instalment sale. At the same time, the EES provider initiates a sale of receivables with a FI.

As in other cases, the advantage of the approach for the EES is twofold: the assets disappear from the balance sheet of the EES provider and the FI is now assuming the credit risk. Because of the sale of receivables, a direct link is established between the client and the FI, whereas the EES provider still has a financial relationship with the client via the service fee. This service fee covers the maintenance and monitoring cost of the installations.

This kind of sale of receivables scheme is designed in a way that, the total cost of repayment of an annuity to the bank, together with the service fee to the EES provider, should be smaller than or equal to the expected energy savings from the business case. This means that in a situation where the energy savings are smaller than expected, the service fee will be adjusted downwards. In the opposite case, when the savings were higher than expected, the difference will be divided between the EES provider and the client (typically 50/50-basis).

This scheme is mainly oriented to public sector clients, for private sector clients, the perceived risk is higher, and some kind of guarantee may be required.

However, the scheme has not been very successful in Belgium. Public clients may find more attractive a direct loan from a bank, that normally is less expensive. The "non-recourse" clause can also be an obstacle, it implies that the EES clients have 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 no matter the circumstances.

About the cost structure, it is lightly more expensive (0.2-0.4%) than a direct loan, due to the administrative work conducted by de FI.

Refinancing process

At the time of drafting the EPC contract between EES client and EES provider, a clause is included that states that the EES provider is entitled to transfer the receivables which are related to the execution of the EPC project (in particular those receivables that are related to the investments in EEI hardware, hence the CAPEX part), to the FI.

When the implementation of the EPC contract starts, an agreement is signed between the EES provider and the FI on future sale of receivables.

At the time of the provisional commissioning of the installed equipment, the sale of receivables becomes effective.

Risk management

As usual, the refinancing institution only assumes the risk of a client's bankruptcy. All other risks remain with the EES provider. On the client side the 'non-recourse' stipulation forces the client to pay to the refinancing institution in any case.

The Belgian ESCO association, BELESCO, has been advocating in the last several years the establishment of some sort of guarantee mechanism.

Contractual stipulation and taxation

The contractual stipulations must set the distinction between hardware to be installed and services to be provided and clarify the risk allocation (credit and performance).

About the taxes, the VAT on the equipment, a large segment, is due at the commissioning, the VAT on the services is synchronized with the invoicing of the EPC services. There is no VAT is applicable on the sale of receivables from EES provider to FI.

Example case: EPC project at School Sint-Jozef Institute in Bokrijk

Here is presented a real case of refinancing energy efficiency measures in a school under the above explained scheme:

Client and Location	Sint-Jozef Institute in Bokrijk, Belgium
Financing Institution	Belfius Bank
EES Provider	Wattson
Project facilitator	None
Total investment	900,000 EUR
Annual guaranteed savings	Energy consumption reduction of 35%
Contract length	14 years
Improvement measures	The EEI measures consisted of lighting replacement,
	new boiler rooms, smarter HVAC control and
	monitoring, insulation and a small PV-system.

Table 7: Sint-Jozef Institute project overview

Initially, the EES provider (Wattson) invested in EEI measures at the EES client's premises with a loan from Belfius bank. As soon as these assets were commissioned it were sold to the client via a so-called instalment sale. At that same moment, the EES provider initiated a sale of receivables to a FI.

4.3.4 Private finance Building Energy Efficiency Facility ("BEEF")

General overview

The last approach to be studied in detail is the "BEEF" model. Its general features have been explained in chapter 4.2.

Refinancing process

The first step in the refinancing process is the completion of an energy audit and a technical inspection of the building. The renovation project is designed so that it meets BEEF's Investment Guidelines. Therefore, all project parameters, including implementation, forfaiting, maintenance, rights and obligations of all parties are agreed as inputs to the design stage.

Before the approval/commitment for purchase of long-term cash flows from BEEF, the EES provider must arrange the financing for the implementation phase. In this way, BEEF acts as a 'gate-keeper' for owners by ensuring standard and guidelines are met. This commitment also allows the EES provider to approach the bank for securing bridge financing.

At this point the EES provider can start the implementation of the project, the energy saving will be commissioned after one heating season. Once the savings are verified, BEEF provides the financing by purchasing minimum 80% of the receivables from the EES provider.

Repayment of the investment cost is done through an on-bill repayment mechanism and is usually administered by the house maintenance company in conjunction with BEEF. A maintenance agreement is also signed with the same or a third-party maintenance company, the related fee is not forfeited.



Figure 5: BEEF scheme's refinancing process

Risk Management

Throughout the implementation process the risk remains with the EES provider. Once the project has been implemented and the facility purchases up to 80% of receivables, the repayment risk is transferred to the facility. The remaining 20% provides financial resources/incentives for contractors to remain committed to deliver savings.

Subject to project performance in subsequent years, up to 100% can be purchased by facility. In terms of payment flows, 100% is paid to the facility and then 20% transferred to the EES provider.

The performance risk after implementation remains with the EES provider or can be transferred to a third party, subject to approval by the facility. The EES provider guarantees performance for the works that has been undertaken. Standardised building insurance and project performance guarantee are put in place.

Contractual and tax stipulations

This scheme is governed through the **Investment Guidelines**, these are agreed in advance of the works. It includes the eligibility of the EES provider and final beneficiary, contracts, and agreements (Forfaiting Agreement, Maintenance Agreement), and is verified by independent consultants.

In Latvia, the concept of reverse VAT has been introduced, where the EES provider is liable for VAT only upon the issue of invoices to the final beneficiary.

The cost of financing is dependent on whether it is a public building or a residential building and the extent of guarantees provided. However, the standardised procedures and the online platform from where it is managed, minimize the cost.

Example case: Multifamily residential building in City of Riga

Client and Location	Multifamily residential building in Riga, Latvia
Financing Institution	Latvian Building Energy Efficiency Facility (LABEEF)
EES Provider	RenEsco
Project facilitator	Ekiburijs (NGO)
Total investment	671,881 EUR
Annual guaranteed savings	309.3 MW/h year
Contract length	16 years
Improvement measures	Structural improvements: Balcony reinforcement,
	roof cover.
	Energy Efficiency measures: thermal insulation
	Lifergy Liferency measures. thermat insulation,
	replacement of windows and doors, new heating and
	hot water system and reparation of ventilation
	evetor
	system.

An example of the application of this scheme in Latvia is displayed below:

Table 8: Multifamily residential building in City of Riga project overview

The first step of this project was taken in September 2017 and was finally completed in February 2020. The main phases of the project were the energy audit, identification of measures, homeowner's decision, procurement of construction company, Altum approval, EPC+ and other supporting documents, negotiations and construction. The actual implementation of the measures took between 6 and 9 months.

5 EXPERT INTERVIEWS

In addition to the complete assessment that has been carried out regarding the EES market, and the different refinancing approaches that are being implemented across Europe, a comprehensive investigation about the opinions and perceptions of relevant stakeholders through semi-structured expert interviews has been conducted. The following chapter summarizes the results of these interviews by means of a cross-country analysis.

The stakeholders were selected from different target groups like EES providers, financing institutions, EES clients, EES facilitators, EE experts as well as other similar stakeholders. Resulting on 65 expert interviews, that were conducted mainly through web meetings with interview partners from 12 countries: Austria, Belgium, Croatia, Czech Republic, Greece, Slovenia, Spain, Ukraine, Italy, Germany, Slovakia and Poland.

In order to structure the interviews, a set of guiding questions was used covering among others the following topics:

- General perception of EE and EES financing, including possible barriers and drivers
- Current use of refinancing schemes for the implementation of EES projects;
- Role of financing institutions, including reasons for reluctance to engage into refinancing of EES projects;
- Risk assessment of EES, including assessment of different approaches to coverage the risks (such as the credit risks of EES clients);
- Costs of refinancing schemes, including transaction cost;
- Other important issues (accounting, taxation etc.).

The interviews were conducted from August 2020 till January 2021.

Current use of refinancing schemes

The analysis of the interviews shows that for good reasons the **Czech Republic** can be designated as front-runner when it comes to refinancing of EES projects. The results confirm what was stated in previous chapters of this document: The sale of receivables is the most common practice for financing of EPC projects in the Czech Republic. This method was used to finance the majority of EPC projects completed since 2005 in the public sector.

As already became evident in the case studies, the interviews found that also in **Belgium** and in **Austria** refinancing schemes are used, however, not to the same extent as in the Czech Republic (for more information please go to chapter 4.3). Also, **Germany** has a well-developed EES financing and forfaiting market. Refinancing in the public sector is more common. In the private sector, there have been a few cases in the commercial state sector and none in the residential sector (to the knowledge of the interviewees).

Interestingly, also some interviewed **Slovenian** financing institutions are using a kind of refinancing scheme (repurchase of long-term receivables or acquisition of SPV company from the EES providers).

In **Spain**, a limited number of investment funds (such as the SUSI Energy Efficiency Fund) finance efficiency energy projects via refinancing. In this case, the investment fund sometimes collets payments from the clients, paying afterwards to the ESCO based on energy savings performance. The final clients may be both public and private.

Also, **Italian** interview partners reported that selected EES providers benefit from refinancing arrangements with a few financing institutions, including once again SUSI Energy Efficiency Fund.

The financing market for EES projects in **Slovakia** is more advanced compared to some of the other European countries (apart from Czech Republic) but is still in development phase. More recently two Slovakian banks have provided refinancing as an option, although projects are limited.

According to the interview partners in **Croatia**, **Ukraine and Greece** no longer-term refinancing schemes for EES projects are applied in these countries so far. In **Ukraine**, however, there exists some experience with short-term factoring arrangements for the EES business.

Existing barriers to EES financing and refinancing

Most of the interview partners agreed that refinancing models can be an instrument to support the growth of the EPC market. However, there exist various barriers to the application or increase of the volume of EES refinancing schemes.

For example, the interview partners in Belgium stated that the Belgium market for the time being has not yet reached sufficient volume, to accommodate dedicated services such as refinancing EPC contracts. More **critical mass** would be needed.

In Croatia where currently no refinancing models are applied, the parties interviewed reported that they are highly interested in such models, but they also listed several reasons due to which this market is not yet developed. Commercial banks outlined that in the cases they have considered refinancing, the investor **risk profile was not adequate** (in the case of a private investor). On the other hand, ESCO companies pinpointed **a lack of interest from commercial banks** to refinance EES projects as one of the major reasons why the refinancing market has not been developed yet. When comparing these answers, it is evident that the expectations on both sides will be hard to reconcile in current conditions, indicating the need for a standardised risk evaluation, prepared by consulting both sides. Potential EES facilitator stated that one further reason why the market is not yet developed could be the **traditional sluggishness and lack of motivation of the public administration as main clients**, as there were obstacles in grasping even the simplest models of procurement and financing in EES agreement, let alone "innovations" required for enabling refinancing schemes.

In Greece, one financial institution stated that they would not be willing to refinance projects longer than 2-3 years. This however can become a barrier for the refinancing market given that from the experience from the Czech Republic were refinancing schemes are applied regularly, a **longer refinancing time** span is necessary.

According to some interview partners in Spain and Italy one of the main barriers to refinancing are the **complexity of the operations** and the **lack of specialized funds who can find interesting market niches in EE projects** (too small for commercial banks but may be safe and profitable enough for smaller funds). Also, **difficulties to assess the**

technical risks and the **atomized market** (small projects) hamper access to suitable projects.

In some countries (e.g., Poland, Slovakia), interviewees reported that there is practically **no demand for refinancing schemes**, because projects have been to a large degree financed by subsidies.

From the point of view of financial institutions, in Ukraine the **requirements for non-collateral lending** are stricter, which has been reported as an important barrier to offer refinancing schemes.

Coverage of risks

Most of the interview partners in the different countries stated that **performance/technical and credit risks** where the most important ones. It is often stated that it is important that there is a **clear separation between these two risk elements**. For example, the Belfius scheme on 'sale of receivables' in Belgium achieves separation by introducing the non-recourse clause. This means that the EES client agrees to pay the instalments of the loan, whatever may happen to the energy retrofit project. This implies that there is a 100% separation between the credit risk and the performance risk, at the same time this shifts some of the performance risk back to the client, who would request a related hedge from the EES provider in the EES agreement. It remains to be assessed in the future which type of EES client will be able to accept this clause in a way that is sufficiently reassuring for the bank. Based on current insight, this is likely to be only applicable to public sector customers, who - almost by definition - do not have a creditworthiness issue.

The role of public guarantee funds

In most of the countries the interview partners agreed that if a European or national **guarantee funds** for EE projects would be available, refinancing could be applied much more easily (Spain, Austria, Greece, Slovenia). Especially, the interview partners in Greece were convinced that a public guarantee fund would be a game changer because it would enable access to the initial loan at first, and then, also cover the financial risks of the refinancing institutions. In Greece, banks require either very costly letters of guarantee or collateral of similar budget. The banks in Greece that were interviewed claimed that they could be interested in providing refinancing if such a guarantee fund were available.

However, there was also feedback from other countries (Belgium and Czech Republic) that a public guarantee fund is not necessary. For example, when interview partners were asked in Belgium whether a public guarantee fund must be set up in order to enable the ESCOs to receive in the first place the initial loan to implement their projects, most interviewees disagreed. They stated that these two support mechanisms should not necessarily be coupled but should rather be considered in parallel. Of course, both systems are likely to reinforce each other, but linking them would be a bridge too far, as it might complicate things. Also, some respondents in the Czech Republic did not find the idea of a guarantee fund necessary to refinance EES projects, as the current process of sale of receivables is working well, at least for the case of public clients.

Whereas most interview partners agree that public guarantee funds should cover first of all the credit risk of the client, there exist also opinions - e.g., in Greece and Croatia -

suggesting that the guarantee fund should also cover some of the technical risks (mainly achievement of forecasted savings) at least in the initial phase of an EES project.

Cost of refinancing schemes

Another important topic is the cost of refinancing schemes. It is important to state that evaluating the costs of refinancing schemes is rather difficult given that during the expert interviews most financial institutions did not disclose their rates and fees but gave just information about the principles of pricing.

In Greece where all the financial institutions expressed their willingness to participate as refinancing institutions in the forfaiting model proposed by the REFINE project, all the EES providers expressed their concern regarding the cost of this refinancing service. The common practice for factoring institutions is to set the fee at a discount rate, and this may be quite high. All EES providers claimed that anything above 8% would probably be prohibitive.

For Croatia an assumption of the cost of refinancing projects based on the interviewees previous experiences with risky projects can be made. They are determined by:

- The risk profile of the borrower;
- Deadline for required financing / set of possible insurance of the bank's claim;
- Fee depends on a number of parameters, such as continuity of the project, number of invoices, etc. and it is usually calculated as the % of the nominal claim value.

It is necessary to highlight that in some countries the interest rates for investment projects tend to be low, between 1,5% to 3% and in the case of ESIF⁷ loans even lower, which could hamper the introduction of refinancing instruments.

Necessity to standardise contract stipulations

Most of the interview partners stated that standardisation of processes and contracts is considered important to trigger refinancing. Especially in Croatia, where there is no refinancing market yet, all the interviewed parties agreed that standardised documentation is vital for the kick-off of the refinancing market but also for developing a healthy relationship between parties and ensuring transparency.

Influence of refinancing on the balance sheet of the EES provider

It was confirmed in several interviews that the sale of receivables affects the balance sheet of the EES provider in a way that it increases liquid assets, and on the profit and loss account in a way that reduces profit. Regarding the FI, it has a neutral effect because the funds collected through the sale of receivables, liabilities to the institution are settled on time and in an agreed manner. Basel III⁸ could, although not necessarily, increase banks' reluctance to apply project financing to PPPs, concessions or the EPC model due to the need to increased reserves.

⁷ ESIF: European Structural and Investment Funds

⁸ Basel III is an internationally agreed set of measures developed by the Basel Committee on Banking Supervision. The measures aim to strengthen the regulation, supervision and risk management of banks.

Whether a company uses national accounting rules or the IFRS, does not change the impact of refinancing schemes on the balance sheet. This opinion was for example confirmed by expert interviews in Slovenia, where the largest EES providers are using IFRS accounting rules.

Influence of refinancing on the balance sheet of the EES client

The interviews revealed quite some uncertainty on the way how EPC in general and refinancing in particular, influence the balance sheet of clients.

In an interview with a Belgian stakeholder the case was assessed for public clients, for whom the Eurostat Guidance Note for the Statistical Treatment of EPC ('Guidance Note') defines that the balance sheet of the EES client is not impacted if the EES Provider remains the 'economic owner'. If the refinancing arrangement includes a 'no recourse clause' (as this will be the usual case), in principle this separates the performance risk from the credit risk and makes sure that the performance risk remains with the EES Provider. This does not, however, mean that the EES client is no longer the economic owner. Hence, factoring/forfeiting does impact the EES client's balance sheet, unless very specific modalities are respected. This seems to be confirmed by Article 14.9 of the Guidance Note, which specifically deals with factoring/forfeiting. In any case, quite some uncertainty has been discovered in those interviews that touched this very specific issue.

In Slovakia, however, off-balance sheet Eurostat Guidelines project template has been approved by the Ministry of Finance in Q3 2020, which allows for refinancing. Although no projects have been completed using the contract template, this should act as an incentive for municipalities to undertake more EES projects.

6 CONCLUSIONS

6.1 SWOT Analysis

The outcomes from the market and product assessment as described in the previous sections of this report constitute the basis for a comprehensive comparative analysis, which is presented in this chapter.

The SWOT analysis technique has been chosen to structure the main conclusions on the different approaches to refinancing. Strengths, weaknesses, opportunities, and threats related to each refinancing approach have been identified considering the different perspectives of the main actors involved in a refinancing scheme (the EES provider, the EES client and the FI).

The possibility to clean up the balance sheet of the EES provider is a key driver for refinancing in all the approaches considered.

On the other hand, the fact that **the credit risk of the project is transferred to a financial institution**, who presumably is better prepared to assess it, represents a major strength of the refinancing from the EES provider standpoint. The reflection of this on the financial institution side features another advantage: the FI does not bear the technical risk which remains with the provider.

A common weakness among the refinancing approaches is the **additional transaction costs** that they may carry. This weakness can lead to higher overall financing cost for the project.

Standardisation has been proved to successfully streamline the refinancing process and diminish the costs (BEEF is an example of the benefits of standardisation). Other opportunities for refinancing are derived from the expansion of the scheme to other market segments and the establishment of state-backed guarantees.

Results from Austria and Belgium were identical, and therefore, both share a column in the table below that presents the SWOT analysis.

SWOT Analysis	EES Provider	Sale of receivables CZ	Instalment Purchase AT, BE	Forfaiting (BEEF) LT
	Off-sheet balance	✓	✓	√
Strengths	Transference of the credit risk to a FI (which is better prepared to assess it)	✓	1	✓
	Acceptance (even without collateral)	1		
	Difficult access/ higher cost for private clients	✓		
Weaknesses	Not applicable to buildings in ownership of governmental organisations (ministries) due to legal barriers	*		
	Lack of scale and regulatory framework			✓
	(Very) long-term obligations regarding the performance difficult to accomplish			✓
Opportunition	EES providers can grow without debt burdens	✓	~	
Opportunities	Significant market opportunity in the multifamily and social housing sector			✓
Threats	Potential bottlenecks for municipalities when the accountability rules dictate to consider it public debt	✓		
	Complexity, difficult to explain to clients		✓	

Table 9: SWOT Analysis from the EES provider's perspective

SWOT Analysis	nalysis EES Client		Instalment Purchase AT, BE	Forfaiting (BEEF) LT
	Public clients get financing at a slightly higher price but with much less bureaucracy.	✓		
Strengths	Standardization of the contracts and/or scheme ensures costs are kept to a minimum	✓		✓
	Financing structure ensures quality performance-based implementation of projects with long term (20-30 years) and the delivery of results is guaranteed.			~
Weaknesses	Private clients perceive refinancing as too costly.	✓	1	
	Requires an elaborated explanation to transmit a long-term vision			1
	Public clients may find more attractive a direct loan from a bank, normally less expensive.		✓	
	Possible to target other segments of the market	✓	✓	
Opportunities	More people can access to performance- based renovations that delivers health and comfort			*
	Complexity of the EPC model	1		
	Lack of trust in EPC Providers	✓		
Threats	EPC, possible increase of the public debt for public clients		✓	

Table 10: SWOT Analysis from the EES client's perspective

SWOT Analysis	Financial Institution	Sale of receivables CZ	Instalment Purchase AT, BE	Forfaiting (BEEF) LT
Strengths	Low cost for FI (thanks to standardisation)	✓	✓	✓
	FI only bears the credit risk on the client side (technical risk remains with the EPC provider)	✓	✓	✓
	New market opportunity			✓
	Provides financing under both financial and social returns			✓
Weaknesses	High transactional costs (i.e.: due diligences for credit risk assessment)		✓	
	Sufficient creditworthiness of the client is required which makes it inaccessible for risky industries	✓	✓	
Opportunities	High profits can be achieved through standardisation and increasing number of projects	✓		
	Possible combination with guarantees (securitisation)		✓	
	Suitable for private investment		✓	✓
Threats	Insolvency risk at the client side	✓		✓
	Client's preference for grants			✓
	Limited potential for standardisation across client groups		✓	

Table 11: SWOT Analysis from the Financial Institution perspective

6.2 Lessons Learned

Finally, the main lessons learned related to the refinancing approaches applied in each studied country have been divided into Legal, Financial and Managerial and Balance Sheet, and listed below.

From the Austrian and Belgian Case Study

- From a legal standpoint, the sale of receivables is allowed as long as the client does not explicitly forbid it. Only if the refinancing contract includes a non-recourse clause, this condition has to be stated in the contract between the client and the EES provider. Nonetheless, **EES providers normally prefer to openly communicate the refinancing option to the client.**
- In relation to financial topics, once all procedures and documents are standardised, the transaction costs of the scheme can be considered low. However, the development of a new scheme can be quite costly for financial institutions. It has been observed in the studied case that it was the EES provider who initiated the scheme. The advantages for the EES provider are clear: the assets disappear from the balance sheet of the EES provider and the FI is now assuming the credit risk.

The identified factors that can influence the interest rate in the scheme are the acceptance of the non-recourse payment by the client, the existence of a retention of title, the creditworthiness of the client and the availability of credit guarantee or insurance, among others.

• The study of managerial barriers revealed that high level of trust and good collaboration between the client, the EES provider and the refinancing FI is critical for the widespread use of this scheme. If the client is a private, he has to declare the investment in his balance sheet as a consequence of accepting the invoice for the installation.

With respect to **public clients**, the crucial factor is the non-recourse element in the refinancing contract which might lead to consider it public debt. That, however, could be counter-balanced by the duty of the EES provider to compensate any payment to the refinancing institution that exceed the achieved savings.

From the Czech Case Study

- According to the Czech legislation, sale of receivables is allowed in any project if not banned in the contract. However, it is better to explain the future sale of receivables to the client so it can be approved in advance, preventing potential problems. That is why the Czech EPC model contract includes a stipulation stating that sale of receivables is possible.
- Regarding the financial aspects, the EES provider's costs for selling receivables consist mainly of paying a discount. In addition to the discount, the EPC provider also pays a relatively small fee for the assignment of receivables or processing of relevant contracts. The **discount rate is generally lower for public EES clients than for the private sector** as the risk for municipalities or state-funded organisations is generally lower than corporate risk.
- Regarding the managerial concerns, the transaction costs for public clients are quite low. Standardisation, separation of technical and financial risks and the low risk of insolvency in the case of public clients have contributed to keep these costs low.

When the sale of receivables is done, liabilities are removed from the provider's balance sheet, which is a key benefit of refinancing for EES providers. The sale of receivables does not affect the EES client's balance sheet.

From the Latvian Case Study

- The greatest advantage of this mechanism is to provide long-term financing for renovations that enable a larger set of benefits (such as health and comfort) aside from reduced energy.
- In reviewing regulatory framework in the EU generally and specifically in 8 EU countries, the business environment should be propitious to the BEEF methodology. However, slow transposition of the EU directives, divergent incentives from the legislator, policy makers, the agents in government finance, and enforcement of regulations creates a serious obstacle for the scaling up of such initiatives.

- Related to the legal issues, in some countries the treatment of forfaiting as a nonfinancial transaction implies that is subject to VAT. In this case, a specialised financial placement instrument is drawn up (private placement bond), which ensures no VAT is paid and the transaction is free from VAT.
- With reference to the financial considerations, FIs are reluctant to take long-term risks (20-30 years) and so specialised funds like LABEEF are currently unique. Nevertheless, EBRD⁹ and long-term private investors have already invested in the scheme, seeking long-term sustainable returns.
- Service providers welcome the long-term availability of funding, yet they find it difficult to make long-term commitments to performance. Agreement of all contractual obligations in advance provide clarity to all stakeholders making the process smoother and shortening the negotiations. The role of maintenance company/ property/facility manager is crucial in smoothing the operation of the scheme acting as a focal point among all the stakeholders involved.
- Due diligences to assess client's credit risk is limited to an analysis of the building's owner outstanding liabilities and a general review of the building's state.

However, the achieving the decision quorum among homeowners has been proved to be a challenge. Under the facility there is set of measures comprised in EPC+ oriented to minimize transaction costs contributing to make the scheme economically viable and scalable.

⁹ EBRD: European Bank for Reconstruction and Development

7 APPENDIX 1. Assessment of interlinkages with other EU Projects

The table below summarises the related EU projects, specifying its relation to REFINE project.

EU Project and objective	Connection with refinancing (Yes/No and why)	Connection with REFINE (Yes/ No and why)	Level of importance for REFINE (1-less important to 3 very important	Website
QualitEE: standardising quality criteria and the quality assurance process for EES projects.	Yes, QualitEE has a specific module focused on Energy efficiency Finance which reviews current finance methods including refinancing	Yes, the obtained information about Energy efficiency finance was useful in the Market Assessment	3	www.qualitee.eu
TrustEE: build financial solutions for EE projects in industry	Yes, TrustEE is indeed a refinancing scheme for the industrial sector	Yes, although it is related to the industrial sector, the financing solution is similar to REFINE's.	3	www.trustee- project.eu
SUNShINE: create a private finance mechanism for deep building renovation in Latvia.	Yes, it proposes an instrument for refinancing buildings refurbishments	Yes, it proposes the BEEF scheme	3	https://sharex.lv/ne ws/
FinEERGO-Dom: refine and implement guaranteed financing schemes for EE and renewable energy in deep renovations of buildings.	Yes, it is focused on attracting private finance for deep building renovation	Yes, it can help in the replication scope under REFINE	2	<u>https://fineergodom</u> .eu/
GuarantEE: fosters the use of EPC's in the public and private sector across Europe.	Not directly, it addresses the barriers to all Energy Performance Contracting	Yes, in the assistance to ESCOs and FI to develop their services	2	<u>https://guarantee-</u> project.eu/
TransparENSE: increase the transparency and credibility of European markets with EPC.	Yes, the survey conducted within this project addressed different types of EPC financing	Yes, useful information from its market surveys	2	www.transparense.e u

EU Project and objective	Connection with refinancing (Yes/No and why)	Connection with REFINE (Yes/ No and why)	Level of importance for REFINE (1-less important to 3 very important	Website
LAUNCH: development of the sustainable energy assets (SEA) as tradable securities.	No, it is not directly related to refinancing	Yes, it aims to standardize contracts for ESCO market offerings	1	www.launch2020.eu
DEEP: provide detailed analysis and evidence on the performance of energy efficiency investments	Not directly, but it contains relevant knowledge regarding the assessment of EPC projects	No, it is not directly related with REFINE except for the EPC part	1	https://deep.eefig.e u/
ICPEU and I3CP: standarise EE projects for buildings, industry, and infrastructure following Investor Ready Energy Efficiency™ (IREE).	Not directly, but financial institutions were involved to incorporate IREE in their schemes	Yes, standardisation procedures can lower the risk perceived by financial institutions	2	https://europe.eepe rformance.org/
EENVEST: connect building owners and investors through a structured framework	Not directly, but it contains relevant knowledge regarding risk evaluation	Yes, it is interesting for the refinanciability rating system (T3.3)	2	www.eenvest.eu/
SEAF: lower the entry barriers to finance for small to medium projects through standardisation and combining existing protocols and tools	Not directly, but it can lower the gap between investors and financing opportunities	Yes, the single source valuation and risk assessment framework can be of help	1	https://cordis.europ a.eu/project/id/696 023
FPI: promote the development of private investment in EE investments	Not directly, but standardisation could be useful for private investors	Not directly, but it can promote the entry of private investors in EE projects	1	www.fpih2020.eu

8 REFERENCES

For the literature review carried out by the partner countries the following sources were consulted:

Austria

European Commission, Joint Research Center (2017): Practices and opportunities for Energy Performance Contracting in the public sector in EU Member States, Luxembourg: Publications Office of the European Union, 2017

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106625/kjna28602enn.pdf

QualitEE Project (2018): Country report on the energy efficiency services market and quality-AUSTRIA

https://qualitee.eu/country-reports-on-the-energy-efficiency-services-market-and-quality/

Spain

QualitEE Project (2018): Country report on the energy efficiency services market and quality-SPAIN

https://qualitee.eu/wp-content/uploads/QualitEE_2-04_CountryReport_ES_2018.pdf

El Economista (22/03/2018): Elecnor cierra un acuerdo de financiación para proyectos de eficiencia energética por 14 millones

https://www.eleconomista.es/economia/noticias/9023055/03/18/Economia-Empresas-Elecnor-cierra-un-acuerdo-de-financiacion-para-proyectos-de-eficiencia-energetica-por-14-millones.html

Eurostat and European Investment Bank (2018): A Guide to the Statistical Treatment of Energy Performance Contracts;

https://ec.europa.eu/eurostat/documents/1015035/2041337/ESTAT-decision- Treatmentof-Energy-Performance-Contracts.docx/132b6098-ed8b-cee1-a9c7-ff08c6bd6734

Fi-compass (May 2020): European Structural and Investment Funds (ESIF) and Energy Performance Contracting (EPC);

https://www.fi-compass.eu/publication/factsheets/european-structural-and-investmentfunds-esif-and-energy-performance Extremadura Avante (18/12/2020): La Junta habilita un fondo de garantía para avalar proyectos integrales de mejora de Eficiencia Energética y Energías Renovables en Edificios.

La Junta habilita un fondo de garantía para avalar proyectos integrales de mejora de eficiencia energética y energías renovables en edificios (extremaduraavante.es)

Public Procurement Portal of Catalonia (2019): Serveis de millora de l'eficiència energètica, subministrament de calor amb biomassa i manteniment integral dels edificis de l'Institut de Seguretat Pública de Catalunya

<u>Adjudicaciones | Perfiles de contratante | Plataforma electrónica de contratación pública</u> (gencat.cat)

Italy

Agenzia Nazionale Efficienza Energetica-ENEA (2019): Analisi e risultati delle policy di efficienza energética del nostro paese

https://www.enea.it/it/seguici/pubblicazioni/pdf-volumi/2019/raee-2019.pdf

Agenzia Nazionale Efficienza Energetica-ENEA (2020): Analisi e risultati delle policy di efficienza energética del nostro paese

https://www.enea.it/it/seguici/pubblicazioni/pdf-volumi/2020/raee-2020.pdf

Fondo Nazionale Efficienza Energetica-FNEE (2020)

https://www.invitalia.it/cosa-facciamo/rafforziamo-le-imprese/fnee

Politecnico di Milano, Energy & Stratey Group (2018): Energy Efficiency Report

https://www.federesco.org/images/EER_2018.pdf

Politecnico di Milano, Energy & Stratey Group (2020): Digital energy efficiency report https://www.energystrategy.it/report/eff.-energetica.html

Ministero dello Sviluppo Economico, Direzione generale per l'approvvigionamento, l'efficienza e la competitività energetica (April 2020): Relazione annuale sull'efficienza energetica Risultati conseguiti e obiettivi al 2020

https://ec.europa.eu/energy/sites/ener/files/documents/itrelazioneannualeee2020.pdf

Ministero dello Sviluppo Economico, Direzione generale per le infrastrutture e la sicurezza dei sistemi energetici e geominerari (2020): La situazione energetica nazionale nel 2019

https://dgsaie.mise.gov.it/pub/sen/relazioni/relazione_annuale_situazione_energetica_n azionale_dati_2019.pdf

Enel X (December 2018): New energy solutions platform from Enel X and Infracapital

https://www.enelx.com/it/en/news-media/notizie/2018/12/energy-efficiency-newpartnership

Slovenia

Ministry of Infrastructure (July 2020): Long Term Strategy for Energy Renovation of Buildings Till 2050

<u>https://www.energetika-</u> portal.si/fileadmin/dokumenti/publikacije/dseps/dseps_jo_jul2020.pdf

Ministry of Infrastructure, Portal Energetika: Register of energy services providers

https://www.energetika-portal.si/podrocja/energetika/energetska-prenova-javnihstavb/esco-ponudniki/

SID Bank Fund (November 2017): Fund of Funds financing entrepreneurship and development

https://www.sid.si/sites/www.sid.si/files/documents/mediji/oblikovanje_prvega_sklada_ skladov_za_financiranje_razvoja_in_podjetnistva.pdf

Eco Fund (February 2019): Annual Report

https://ekosklad.si/informacije/o-skladu/letna-porocila/letno-porocilo-2018

Croatia

HEP ESCO: publications (2020)

https://www.hep.hr/esco/esco-projects/esco-concept/market/1773

European Commission, Joint Research Center (2017): Energy Service Market in the EU https://publications.jrc.ec.europa.eu/repository/bitstream/JRC118815/jrc118815.pdf

Ministry of Energy (2020): Energy strategy https://mzoe.gov.hr/UserDocsImages/UPRAVA%20ZA%20ENERGETIKU/Strategije,%20planov i%20i%20programi/Strategija%20energetskog%20razvoja%20RH%202030%20s%20pogledom%2 0na%202050.pdf Government of Croatia (2020): Energy Efficiency National Portal

https://www.enu.hr/ee-u-hrvatskoj/tko-je-tko-ee-rh/pruzatelji-energetske-usluge/

HBRO (2020): Bank website

https://www.hbor.hr/en/

ZABA (2020): Bank website on PF4EF (EIB loan)

https://www.zaba.hr/home/en/small-business/eib-pf4ee

Environmental Protection and Energy Efficiency Fund (2020)

https://www.fzoeu.hr/en/home/

EIB (2015): Assessing the potential future use of financial instruments in Croatia

https://strukturnifondovi.hr/wp-content/uploads/2019/02/Assessing-the-potential-future-use-of-FI-in-Croatia.pdf

Joint Research Center (2017): Practices and opportunities for EPC in the public sector in EU Member States, https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106625/kjna28602enn.pdf

APN publication on EPC in public buildings (2020)

http://apn.hr/pos-obnova/program-2014-2015/izvedeni-projekti

EIB (ELENA project Factsheet - Energy Efficient Reconstruction of Public Lighting (RePublEEc)

https://www.eib.org/attachments/documents/republeec-factsheet-en.pdf

Ministry of Energy and Environment from Croatia (December 2019): NECP, Integrated National Energy and Climate Plan for the Republic of Croatia

https://ec.europa.eu/energy/sites/ener/files/documents/hr_final_necp_main_en.pdf

Greece

QualitEE Project (2018): Country report on the energy efficiency services market and quality-GREECE

https://qualitee.eu/el/wp-content/uploads/sites/7/QualitEE_2-04_CountryReport_EL_2018.pdf QualitEE Project (2018): Implementation of QualitEE business model-GREECE

https://qualitee.eu/el/wp-content/uploads/sites/7/D5.4_National-Business-Case_GR.pdf

Ministry of the Environment and Energy (December 2019): Hellenic National Energy and Climate Plan 2030

https://ec.europa.eu/energy/sites/ener/files/el_final_necp_main_en.pdf

Czech Republic

Chance for Buildings (2018): Český trh v oblasti energeticky úsporného stavebnictví se stabilizoval [The Czech market in energy-saving construction has stabilized]

QualitEE Project (2018): Country report on the energy efficiency services market and quality-CZECH REPUBLIC

https://qualitee.eu/cz/wp-content/uploads/sites/13/QualitEE_2-04_CountryReport_CZ_2018.pdf

QualitEE Project (2018): Report on European energy efficiency services markets and quality

https://qualitee.eu/wp-content/uploads/QualitEE_2-05_EuropeanReport-2018.pdf

Szomolanyiova J. (2020): 2019 Energy Efficiency Services Market Trends in Europe

https://qualitee.eu/market-research/

Szomolányiová J., Čada R. (2020): The sale of receivables provides financing for most EPC projects in the Czech Republic, eu.bac Insight Magazine 3/2020; https://www.eubac.org/cms/upload/eubac-insight_2003_EN_DE.pdf

Szomolányiová J., Keegan N. (2018): Report on European Energy Efficiency Services Markets ad Quality.

https://qualitee.eu/wp-content/uploads/QualitEE_2- 05_EuropeanReport-2018.pdf

Latvia

European Commission, Joint Research Center (2019): Energy Service Market in the EU, Status review and recommendations 2019

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC118815/jrc118815.pdf

QualitEE Project (2018): Country report on the energy efficiency services market and quality-LATVIA

https://qualitee.eu/wp-content/uploads/QualitEE_2-04_CountryReport_LV_2018.pdf

Transparense Project (2020): EPC providers in Latvia

http://www.transparense.eu/lv/epc-tirgus/energoservisa-kompnijas

Freedom and Solidarity foundation (2014): Energy Efficiency

http://bsf-latvija.lv/wp-content/uploads/2014/12/EnergyEfficiency.pdf

Cabinet of Ministers (2017): Regulations Regarding the Energy Efficiency Obligation Scheme

https://likumi.lv/ta/en/en/id/290809

Ukraine

State Agency for Energy Efficiency and Energy Conservation of Ukraine- SAEE (2020) https://saee.gov.ua/uk/content/energoservis_1