ALLIES

Activating and Learning from
Local Investments in Energy Savings

PRACTICAL GUIDANCE FOR

Building Local and Regional Institutions for Energy Efficiency

Supported by:

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

European
Climate Initiative
EUKI

based on a decision of the German Bundestag

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ADB	Advisory and Dissemination Board
AÜW	Allgäuer Überlandwerk GmbH / Energy Supplier
BMUB	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BMWi	Federal Ministry for Economic Affairs and Energy
CAP	Clean Air Programme
CEC	Citizen Energy Community
CEE	Central and Eastern Europe
CHP	Combined Heat and Power
CCHP	Combined Heating and Cooling System
D&O	Directors and Officers
DE	Germany
EE	Energy Efficiency
EEA2016	Energy Efficiency Act of 2016
EED	Energy Efficiency Directive
EIB	European Investment Bank
ELENA	European Local ENergy Assistance
EMAS	Environmental Management and Audit Scheme
EMD	Electricity Market Directive
EPBD	Energy Performance of Buildings Directive
EPC	Energy Performance Contracting
ESCO	Energy Service Company
ETS	Emissions Trading System
EUKI	European Climate Initiative
EZA	Energie und Umwelt Zentrum Allgäu / Center for Energy and Enviroment in Allgäu Region
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GHG	Greenhouse gas
GPN	Gminny Programme Niskoemisyjny
GZM	Górnośląsko-Zagłębiowska Metropolia
HGB	Handelsgesetzbuch / German Commercial Code
HU	Hungary
IFRS	International Financial Reporting Standards

KPEiK	(Polish) National Energy and Climate Plan
LAC	Local ALLIES Committee
LFEEE	Locally-rooted Financing Entity for Energy Efficiency
LLC	Limited Liability Company
LPT	Home Savings and Loan Associations
MFB	Hungarian Development Bank
MoU	Memorandum of Understanding
NAPE	(German) National Action Plan on Energy Efficiency
NAPE	Polish National energy agency
NECP	National Energy and Climate Plan
NFEPWM	National Fund for Environment Protection and Water Management
NGO	Non-Governmental Organization
NKI	(German) National Climate Initiative
NZEB	Near Zero-Energy Buildings
PFEPWM	Provincial Funds for Environment Protection and Water Management
PL	Poland
PONE	(Polish) Low Emission Mitigation Plan
PPP	Public Private Partnerships
PSzÁF	Hungarian Financial Supervisory Authority
PURE	President of the Energy Regulatory Office (PL)
RE	Renewable Energy
REEG	Regional Energy Efficiency Grouping
REC	Renewable Energy Community
RES	Renewable Energy Source
RFE	Regionalny Fundusz Ekorozwoju S.A. (Regional Fund for Sustainable Development)
ROP	Regional Operation Funds
SAPE	(Polish) Association of Energy Agencies
SFEPWM	Silesian Provincial Fund for Environment Protection and Water Management
SME	Small and Medium-Sized Enterprise
SMIK	Chamber of Commerce, Somogy County, HU
UNFCCC	United Nations Framework Convention on Climate Change
USP	Unique Selling Proposition
WFOŚiGW	Wojewódzki Fundusz Ochrony Środowiska, Katowice / Katowice Provincial Fund for Environment Protection and Water Management
ZAK	Zweckverband für Abfallwirtschaft Kempten / Association of Regional Waste Management
ZBP	Polish Bank Association
ZMVA	Zala County Foundation for the Development of Enterprises

1. Executive Summary

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Energy efficiency is key for energy transition. Selecting the right projects, the right technologies and the right way to implement them lays the groundwork for economic success of such measures in business enterprises and public premises. Often progress suffers from not available or inappropriate financial means.

This is where the project ALLIES (Activating and Learning from Local Investments in Energy Savings) set out in Hungary, Poland and Germany to create best practice and derive guidance for responsible parties in many municipalities and companies in Europe and beyond. With the support of the European Climate Initiative financed by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety the project started January 2018 and closed June 2020.

Above all, the ALLIES approach aims to trigger action and activate investments in cost-effective energy efficiency projects. To that end, local or regional entities such as limited companies or cooperatives were founded to take projects from a first idea to the planning stage, assessing economic feasibility up to technical, financial and organisational implementation. ALLIES calls them "Locally-rooted Financing Entities for Energy Efficiency" (LFEEE). Building on the REEG concept of "Regional Energy Efficiency Groupings".

In ALLIES, with the support of B.A.U.M., partners FEWE and KÖVET sought to setup LFEEEs in the region of Silesia in Poland, Southwest Hungary and in the Allgäu region, Southwest Germany. First energy efficiency projects have been implemented.

This Whitebook is a centrepiece of the ALLIES project. It is conceptualized as guidance for successful implementation of LFEEE in many other countries, regions and legal frameworks.

Chapter 2 describes main challenges one faces when establishing an LFEEE to foster energy efficiency – irrespective of country, region or legal context. It entails policy recommendations formulated for Poland and Hungary which are in most cases valid for other countries, as well.

Chapter 3 describes, in detail, the political and legal contexts for the establishment of LFEEE and energy efficiency measures in Germany, Hungary and Poland. Knowing this framework may allow to better assess the steps that have been taken to establish real LFEEE (see chapter 4).

Chapter 4 describes typical financial frameworks for implementing energy efficiency projects. As will be outlined in chapter 5, in many cases, LFEEE need and use co-financing from other financial sources – whether it be from institutional investors, banks or other private sources. Chapter 4.3 contains a comprehensive overview on organisational models for financing energy efficiency.

Chapter 5 describes, in detail, the ALLIES LFEEE model and its implementations in the Polish, Hungarian and German pilot cases. It describes the step-by-step implementation as well as various options and explains why they were selected in the pilots. Every case study ends with hands on guidance summarized in "Dos and Don'ts" for followers in similar frameworks.

Chapter 6 is a practical checklist to structure the establishment of LFEEE.

1.1. Introduction

In this guidance the ALLIES project shares with potential followers the experiences made in setting up local investment structures and new types of cooperation in energy savings measures. The on-site experiences made in the partner countries Hungary, Poland and Germany were discussed with advisory board members and other experts in the field both on a local/regional as well as national/international scale. All insights are compiled in this guidance.

It is based on the learnings of ALLIES - Activating and Learning from Local Investments in Energy Savings, funded by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) in Germany and implemented as part of the European Climate Initiative (EUKI) from January 1, 2018 to June 30, 2020. Wherever feasible, the practical knowledge gained from the REEG project was taken into account (implemented in Germany as part of the National Climate Initiative (NKI), October 1, 2013 to March 31, 2016.

So far, the potential of energy efficiency measures has not yet been fully exploited. This is mainly due to a lack of awareness of opportunities, opaque transaction costs and poorly defined terms of financial payback compared to other more tangible fields of energy supply measures.

To unleash necessary investment in energy efficiency, new paths need to be struck. In wide parts of Europe, SMEs face severe challenges when pursuing funding for energy efficiency projects. Others face restrictions due to their high balance sheet exposure. ALLIES taps money from regional or local investors and offers off-balance sheet solutions to motivate and enable companies – particularly SMEs - to pick up on opportunities of energy savings. Landlords and infrastructure owners, in general, (private or public) also benefit from this financing mechanism. ALLIES assists regional and municipal authorities to operate as a partner in PPP, to kick-off novel institutions and to reap the benefits of energy efficiency measures – otherwise not possible due to spending and debt ceilings.

The ALLIES project aims to activate investments in cost-effective energy efficiency projects resulting from local approaches by citizens and local businesses as investors, facilitators and/or beneficiaries. Hence, benefits are more tangible. Investments generate steady returns for reinvestment and not least, enable citizens to actively contribute to local economic and environmental sustainability.

ALLIES builds on field experience with Regional Energy Efficiency Cooperatives (REEG), founded by B.A.U.M. e.V. and funded by BMUB. The concept was originally implemented in three German cities and districts. Its main features are the continuous learning process, on the one hand, and the exchange of knowledge and dissemination of results, on the other hand. The idea was to foster long-lasting energy efficiency business models and, thus, provide local benefits.

The innovative and driving force of ALLIES is based on the actual access to technology and financing models by means of establishing Locally-rooted Financing Entities for Energy Efficiency (LFEEE). A cooperative, such as the REEG in Germany, would be one example, amongst others.

ALLIES found a home base within the European Climate Initiative (EUKI), funded by the German Ministry for the Environment, Nature Conservation and Nuclear Safety which is financing climate-related projects. In this context, ALLIES tested the suitability of its concept in other European countries. Our partners KÖVET Association in Hungary and FEWE in Poland adopted the concept and aligned it with their regional requirements.

The international ALLIES final conference underscored the viability of the approach for planning and implementing more energy efficiency projects in several European countries. The key benefit of ALLIES: it allows committing local civil society and getting their financial support. In this sense, LFEEE can be considered a special type of Citizen or Renewable Energy Communities as outlined by recent Directives of the European Commission.

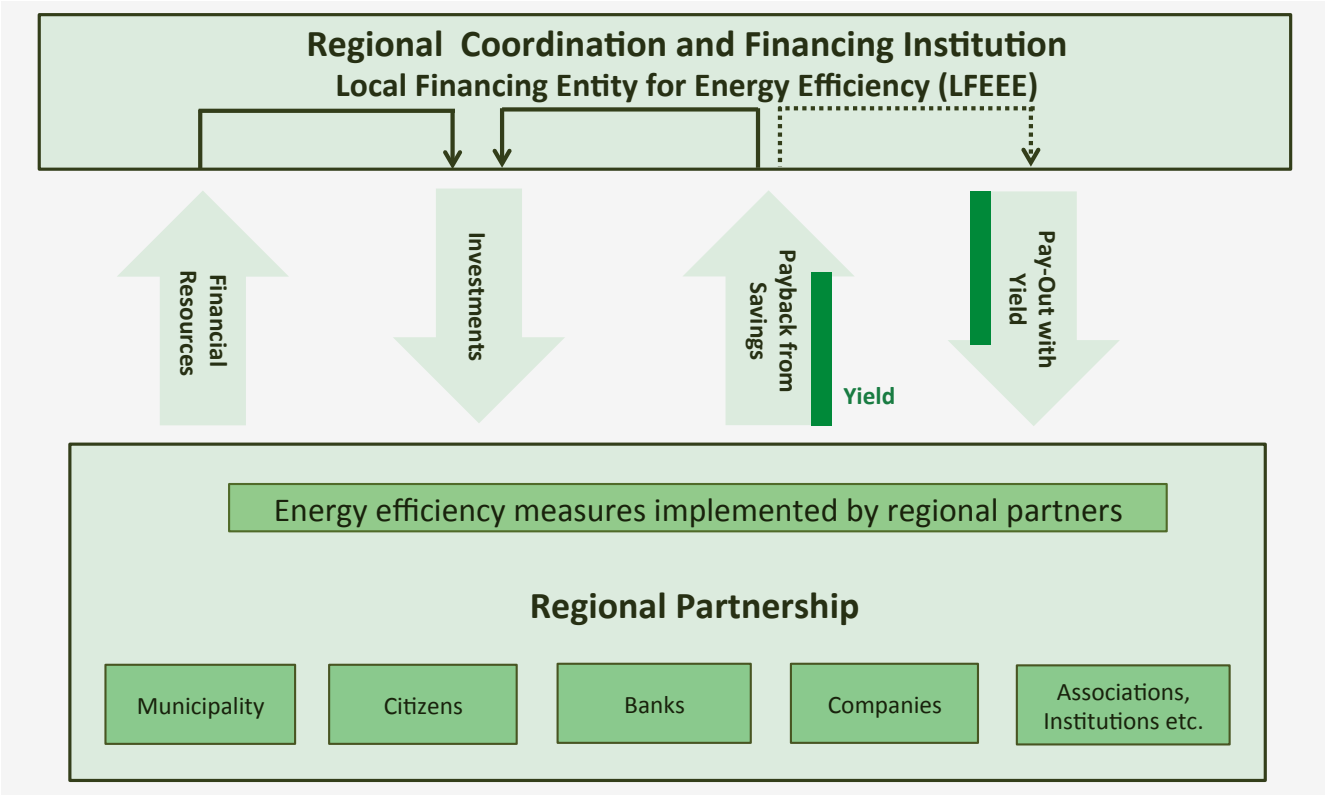

Figure 1: The model of a regional coordination and financing institution (LFEEE)

Regional partners invest money in the LFEEE and, thus, energy efficiency measures are implemented. The main part of the costs saved is directed to the LFEEE itself as revenue. The remaining costs-savings are credited as interest to investors.

1.2. Direct Effects of the ALLIES Project

All countries participating in the ALLIES project created conditions to stimulate local investments in energy efficiency measures. The project partners selected pilot regions and municipalities and set up a network of advisors and stakeholders. Stakeholder meetings took place to prepare the founding of an LFEEE and/or to initiate projects. These processes are described in detail in chapter 5.3 as the experience in Southwest Hungary and in chapter 5.4 as a case study in Silesia, Poland.

Our partners promoted the ALLIES concept through multiple channels, such as events, press conferences, media publications, networking with both regional and national players, as well as on the European level within the EUKI community.

KÖVET, ALLIES partner in Hungary, was the first to succeed in formally establishing a "Locally-rooted Financing Entity for Energy Efficiency" (LFEEE) in November 2019. With the involvement of municipalities and citizens, KÖVET introduced a new form of energy efficiency project generation in the municipality of Zalaszentgrót. The project owners initiated the building of solar parks owned by the community – a result completely reflecting the spirit of ALLIES.

One of the outcomes of the Hungarian LFEEE called HETES includes the refurbishment of a thermal bath owned by the local government in the town of Zala. In order to finance the build-up of a cost-effective solar panel system, 100 local community members with a connection to the facility contributed each EUR 1,430.00. This secured the bank loan till the end of the project. However, the covid-19 crisis had considerable negative effects on the tourism in the region, consequently, delaying the launch of the project. It is planned to continue the project plans once the crisis is over. Project implementation can start within a few months.

In the operational phase of the HETES LFEEE, the scope of action was extended. The Hungarian LFEEE approved partner requests outside the framework of the project. Additionally, KÖVET prepared solar projects for hotels, a car dealer and a dental practice with a total investment volume of EUR 221.000,00.

The Polish partner FEWE prepared and implemented five energy efficiency projects reaching an investment volume of EUR 670,000.00 in total. FEWE is in the final stage of establishing its LFEEE, still in negotiations about the specific organisational form to choose.

FEWE made preparations to use the financial support from the EU/EIB in the framework of the ELENA programme in the field of thermo-modernization of housing cooperatives in the region of Silesia, (including Opole and lesser Poland). Overall objective is to trigger investments of EUR 30 million for energy efficiency projects. FEWE aims to establish a consulting initiative for energy efficiency linked with financial support and, thus, to build up a new type of energy service based on a one-stop-shop concept in the region of Silesia.

In Germany, a strong network of partners active in the energy and value chain of the region of Allgäu was brought together. Based on an analysis of stakeholder needs in energy efficiency projects, financing measures are not the key issue in the region. Although there is considerable need for consultancy (in the field of energy efficiency), there is no significant demand from customers. Currently, the LFEEE has not yet been formally set up. Partners are applying the concept of one-stop-shopping in two specific projects with a total investment volume of EUR 185.500,00. In a second step, it will be evaluated whether a third-party financing option and a subsequent formal co-operation in the legal entity of an LFEEE is necessary.

At the end of ALLIES a new path opened for the LFEEE ambitions in Allgäu. The idea arose to incorporate the concept in a combined regional and global CO_2 compensation scheme. By doing so energy efficiency projects could be financed that otherwise would not have been realized.

Different approaches and solutions for the setup of an LFEEE and local implementation of energy efficiency projects have been chosen. This depends a lot on the legal conditions and financial framework in the country and the different challenges respectively.

Our project partners' respective activities and the involvement of regional stakeholders contributed considerably to the rising awareness of the transformation of the local energy system. Joint activities such as the final conference and workshops with more than 100 participants from 19 countries to discuss project results, made sure that the issue of energy efficiency topped the agenda.

As a result, a growing need for investments among municipal and private institutions is expected.

1.3. Integration of ALLIES in the Energy Transition Strategies of Target Countries

This chapter shows how the ALLIES concept, in general, fits into the existing policies related to the energy transition of Poland, Hungary and Germany. Is the goal of ALLIES basically helpful for the target country; does it fill a gap; does it generate new, effective potentials and give new impetus to national efforts for energy saving and energy efficiency?

1.3.1 Germany

Germany is targeting a reduction of its primary energy consumption by 50 % until 2050 compared to 2008 (Germany’s Energy Efficiency Strategy 2050 from 18 December 2019 (BMWi 2014)). To achieve the objectives, the focus is on three central pillars:

1. To move forward energy efficiency in the building sector
2. To establish energy efficiency as a return on investment and a business model
3. To increase personal responsibility for energy efficiency

Against this background, the concept of ALLIES fits seamlessly into the national goals and programmes on climate protection and energy demand, such as Action Programme for Climate Protection 2050 and the National Action Plan on Energy Efficiency (NAPE).

Energy efficiency potentials in companies or municipal facilities often remain unused due to a lack of time to gather information about suitable and efficient technologies, a lack of means to supervise measures being implemented and, finally, a lack of money needed to finance the investments.

ALLIES can overcome these hurdles, which often prevent energy efficiency investments. Its key approach is involving citizens, local businesses at the regional level as investors and facilitators for energy efficiency projects in enterprises and municipal premises offering a full-service package for customers. That's why the concept of ALLIES is perfectly suited to support supranational measures and goals.

1.3.2 Hungary

In Hungary, the Ministry of National Development passed the National Energy and Climate Plan. It is specifically the Ministry of Innovation and Technology that is dedicated to climate issues. Its strategic goals include creating strategies, proposing legislation and supporting the energy (efficiency) transition.

The starting point on the challenging mission to reduce CO2- emissions is quite positive as, like in Germany, 1990 is the base year. Accordingly, the rate in 2017 was 32% lower, the average CO2- emissions per persona 75% of EU average. However, this situation is only partly a result of economic change and rather a structural consequence of the breakdown of heavy industry after the fall of the Soviet Union.

Among Hungarian climate politics' priorities in reducing CO2- emissions are focusing on consumers, strengthening secure energy supply, a climate-friendly energy transformation and, finally, energy innovation and economic development. Legislation stressed that goals of climate protection were not ruling out any economic targets.

The ALLIES project can help to boost these developments in Hungary. Additionally, Hungary is currently implementing flagship programmes on CO2- emission decrease and climate adaptivity by 2030.

The overall objective to improve energy efficiency in both the private and the public sector is precisely in the scope of the ALLIES project, which can serve as a resourceful niche.

1.3.3 Poland

Poland is actively participating in creating a community energy policy. Yet, relevant legislation passes with substantial delay. It is taking into account the national context, protection of consumer interests, its energy resources and technological conditions of energy production and transmission. Poland is the last of the EU countries ready to adopt the neutrality agreement of 2050 related to the transition concept.

Poland´s national targets in terms of RES or EE are declared as only a modest contribution to the collective achievement of the EU climate-energy goal. The target is conditional, i.e. its implementation at the level of 23% will be possible if additional EU funds are granted, including those funds directed towards a Just Transition. For the Polish government, it is important to improve the living standard of the Polish people, especially to protect their health and living conditions, including environmental protection.

The results of ALLIES could be adopted to those plans as well as to other more specialized strategies, such as low-carbon economy action plans and low-emission mitigation plans which have often become a must for municipal communities in the South of Poland. Some regional governments (Silesia, Lesser Poland) have issued laws to stop burning low-quality solid fuels and using inefficient boilers. These developments result in a need to set up effective mechanisms which help citizens to adapt to the new law and to turn to energy efficient investments.

1.4. Content of the Whitebook

The Whitebook opens with a self-evaluation of the pilots in Hungary, Poland and Germany (chapter 2). Based on the experiences in the project, the partners formulate recommendations to policy-makers here.

While all countries pursue energy savings as a goal of their climate engagement, the opportunities and strategies for achieving this goal differ significantly. Chapter 3, therefore, deals with the political and legal framework conditions of the EU, Germany, Hungary and Poland, which must be taken into account when implementing energy efficiency measures in the respective countries.

Chapter 4 presents different financial options to implement energy efficiency investments and highlights their advantages and disadvantages. The chapter also discusses which organizational models exist for financing energy efficiency measures.

Chapter 5 is the centrepiece of the guidance as it describes, in detail, the steps the partners KÖVET and FEWE took in order to achieve the setup of their financing entity for energy savings. Here, FEWE and KÖVET evaluate challenges and barriers they encountered and highlight the most feasible way for reaching the targeted outcome in their region. The chapter includes country-specific roadmaps outlining the process; experiments on finding the perfect fit in organizational form; developing respective financing models; stakeholder, investor and customer engagement campaigns; business model outlines and practical energy efficiency projects, where applicable.

Last but not least, in chapter 6, the ALLIES guide offers a practical checklist for setting up an LFEEE.

2. Self-Evaluation and Recommendations to Policy Makers

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2.1. Self-Evaluation

Generally, all partners - be it in Hungary, Poland or Germany faced the following challenges. They are explained in more detail in the respective country chapters.

1. Clients, such as companies and municipalities are not aware that qualified advice on energy savings projects (including planning investments) is available and, therefore, do not express a need.
2. Energy efficiency projects demand expertise for technical, organisational and financial solutions. Project implementers, however, do not want to deal with a variety of consultants but rather prefer a one-stop-shopping.
3. There is a lack of private capital; the political/legal framework conditions undermine willingness to invest in energy efficiency (not DE).
4. Financial resources are sufficiently available from various sources (in Germany, mainly from banks, in CEE mainly from EU funding). However, awareness is lacking on how to tap them and inexperienced clients need consultancy on which financing option is the most suitable for their energy savings project.
5. Private lending and receiving of money is difficult due to bureaucratic financial and legal obstacles.
6. Slow decision-making and weary consultative processes cause serious time delays when trying to establish an LFEEE.
7. Cooperatives would be a good choice to organize an LFEEE but history and legal frameworks in New EU Member states are still a hurdle.
8. Planning and implementing projects are more difficult than setting up an LFEEE

2.1.1 ALLIES in Hungary

Step by step, KÖVET first identified important stakeholders/multipliers for the LFEEE. Among them was the MagNet Bank, the only community bank in Hungary and also a member in the KÖVET association. In this case, their OWN STAKEHOLDER NETWORK proved extremely helpful in finding the key partner in setting up an LFEEE. Beside the MagNet Bank, KÖVET Association for Sustainable Economies, Commercial and Industrial Chamber of Somogy County, Commercial and Industrial Chamber of Zala County and Enterprise Development Foundations in Somogy and Zala Counties were won as key partners.

KÖVET's experience showed that, generally, building an LFEEE is a weary and slow process. It demands many talks, coordination and marketing activities, promotion, road shows, workshops, conferences etc. While KÖVET is highly experienced in sustainability projects, implementing ALLIES turned out to be novel and demanded additional legal and technical skills.

In addition, there were other fundamental hurdles that KÖVET had to tackle first before entering the phase of practical implementation:

KÖVET had to study the Hungarian legal framework to find the suitable market niche to fit the ALLIES idea. It also had to study the financial conditions. This showed that private lending and debt collection is difficult due to bureaucratic financial and legal obstacles and lack of confidence in a new system. Financial resources from various sources (mainly banks) are sufficiently available, but there is a lack of awareness of how to tap into these. Therefore, the most feasible way at the time was to cooperate with MagNet, a community bank. As such it has authorisations and IT and expert knowledge.

Firstly, founding an LFEEE requires discovering the needs of possible actors. Secondly, the Hungarian subsidy system based on EU and national funds is widespread and offers a high subsidy intensity. Therefore, before developing a new financial programme, it was crucial to find a niche in order to stand out among the manifold subsidy options already available on the market.

KÖVET examined the option of choosing a cooperative as the organisational form for the LFEEE similar to the German case. But the history and the legal framework in Hungary posed an enormous hurdle. Thus, finally, it was decided to choose the legal form of a Limited Liability Company (LLC).

The potential project partners did not want to deal with a large number of consultants. They preferred to have one contact person (one-stop-shopping). Therefore, the range of services offered by the LFEEE (like offering financial and technical solutions, examination of technology providers, feasibility checks, preparation of contracts etc.) were aligned to meet this demand.

As a bottom line, it must be noted that the whole decision-making process was very slow, causing serious delays in setting up an LFEEE. The corona pandemic caused further setbacks.

But after several delays and many efforts, KÖVET managed to found the LFEEE in November 2019.

Figure 2: The KÖVET team signs the contract with the managing director of LFEEE Lokalizáció Kft.
From left to right: Dr. Tamás Trenyik (KÖVET), Prof. Gergely Toth (KÖVET), Katalin Herner (KÖVET), Ludwig Karg (INEM Chairman; CEO B.A.U.M. Consult Munich) and László JÓNÁS (CEO; Lokalizáció Kft.)

The choice fell on extending an already existing entity, namely Lokalizáció Ltd. This company operates on the free market at its own risk and benefit. Its financial background is given by the MagNet Bank and Lokalizáció operates as the bank's dependent agent. Key activities are money collection, administrative help for partners, preassessment for loan applications and preparation of loan applications.

Even before the signing of the founding agreement of the LFEEE, the managing director attracted citizens as donors and companies for project implementation. KÖVET also concluded negotiations with the technology owners to enable Lokalizáció to offer special technologies to the partners.The following table gives an overview of the projects prepared by the LFEEE Lokalizáció. Based on the Hungarian accounting law, investors assume a payback period of 10 years for the use of technology in buildings:

Table 1: Project overview in Hungary

Project 1	
Type of energy efficiency measure	Renewable energy production; solar panel
Category	Paper production
Sector	Industry
Optimization measures	Reduce energy cost
Percentage energy savings per year	50%
Reduction of energy consumption per year	20160 kWh
CO2 reduction per year	8,0925 t
Investment costs	16450 EUR (for 3x6 kW)
Cost savings per year	2371 EUR
Amortisation period via ALLIES	10 y [1]

Project 2	
Type of energy efficiency measure	Renewable energy production; solar panel
Category	Restaurant
Sector	Service
Optimization measures	Reduce energy cost
Percentage energy savings per year	100%
Reduction of energy consumption per year	44920 kWh
CO2 reduction per year	17,98 t
Investment costs	34285 EUR (for 40 kW)
Cost savings per year	5300 EUR
Amortisation period via ALLIES	10 y [2]

Project 3	
Type of energy efficiency measure	Renewable energy production; solar panel
Category	Thermal spa
Sector	Service
Optimization measures	Reduce energy cost
Percentage energy savings per year	40%
Reduction of energy consumption per year	56150 kWh
CO2 reduction per year	24,7 t
Investment costs	46142 EUR (for 50 kW)
Cost savings per year	6600 EUR
Amortisation period via ALLIES	10 y [3]

Project 4	
Type of energy efficiency measure	Renewable energy production; solar panel
Category	Educational and cultural buildings
Sector	Municipality
Optimization measures	Reduce energy cost
Percentage energy savings per year	70%
Reduction of energy consumption per year	56150 kWh
CO2 reduction per year	24,7 t
Investment costs	46142 EUR (for 50 KW)
Cost savings per year	6600 EUR

1 Hungarian law of accounting demands for investors to work with a 10-year amortization period for buildings and facilities
2, 3 See FN 1

One project of the LFEEE is refurbishing a thermal bath in the town Zala. The spa is owned by the local government. The plan is to install a solar panel system to cut costs. To this end 100 local community members which are somehow connected to the facility each contribute EUR 1,430.00 - to ensure the bank loan till the end of the project.

While the project preparation, implementation and financing of the above mentioned four projects will be carried out by LFEEE Lokalizáció, three other solar projects were initiated and implemented without any financing support of LFEEE Lokalizáció.

The Hotel Panoráma serves as an example for the approach:

The Panoráma Hotel is located in Noszvaj, Northern Hungary and is part of the Eger Invest hotel chain. Eger Invest operates eight hotels in Hungary. The project was initiated under the ALLIES umbrella, but was not financed through the project. It was financed to 45% by EU funds for the implementation of energy efficiency projects. 55% was financed by the owner himself.

The solar installation achieves annual energy savings of 50% with a reduction in annual energy consumption of 73,150 KWh. The investment of EUR 54,500.00 reduces the CO2 consumption by 37,8 t and saves EUR 9,300.00 of annual costs.

Even though the project was financed by EU funds and the owner himself, the project would not have been realised without the initiation and implementation by the Hungarian LFEEE Lokalizáció, which organized the processing and accounting of tender documents, project management and the actual implementation.

Figure 3: Hotel Panoráma: One of the solar projects prepared and implemented by Lokalizáció in Noszvaj, Northern Hungary

2.1.2 ALLIES in Poland

When explaining the process of setting up an LFEEE in Poland, like Hungary, FEWE realized straight away that cooperatives - which have proven successful in Germany - cannot work in Poland. Like in most Eastern Europe former socialist countries the notion has negative historical connotations.

Generally, in Poland, Energy efficiency (EE) is never first priority. It ranks after improving air quality, living comfort in buildings and the like. This is why it is more difficult to justify applying for money for EE compared to other priorities.

The analysis of donors on the Polish market showed that there is a lack of private capital or a lack of readiness to place investments in energy efficiency. There are several (public) support mechanisms on the market rendering privately financed projects not attractive. People expect EE projects to be publicly subsidized and are not willing to invest private equity in them.

A further barrier for energy savings is the low-price energy policy in Poland which undermines incentives for investing in EE. The Polish government pursues the objective to maintain low-price energy to ensure consumers' access to affordable energy. This, again, is counter-productive to the concept of ALLIES which saves costs by means of energy savings.

Additionally, the legislative framework for EE projects is unclear, as the case of White Certificates shows. These were conceptually developed for EE projects to enable their implementation in line with commercial financing and, thus, to make investments in EE more profitable. However, this supportive mechanism is flawed.

Consequently, EE policies are suboptimal in Poland, in turn making the one-stop-shop idea very attractive. FEWE pursued to set up a new company working on a one-stop-shop basis offering services such as feasibility studies of an investment project, selecting contractors to support in the project verification. However, this concept is especially costly and difficult to sell on a market which is used to selecting the cheapest offer.

Thus, FEWE turned to a new opportunity: The EC ELENA mechanism through the European Investment Bank (EIB). In recent years, institutional funding through ELENA has been highly promoted in Eastern Europe to increase its popularity. This is because, hitherto, the funds had been only poorly tapped in Poland and other Central Eastern European Countries. In turn, this increased the chances of successfully applying for financial support in ELENA. The programme also finances preparatory works leading to EE projects and is, therefore, very attractive for FEWE as the programme provides financial support also in the fledgling stages of establishing the one-stop-shop.

FEWE's proposal for thermo-modernization of residential, multifamily (cooperative) buildings in Silesia was approved by EIB in advance. However, as FEWE is a private entity it was required to put forward guarantees of financial security. FEWE was not able to do that so it approached the joint stock company RFE and proposed that RFE take on the project with FEWE's consultancy as RFE has no problem in putting forward the requested guarantees. RFE is owned to 100% by the Silesian government. Together, FEWE and RFE prepared a concept to adapt the structure of RFE to become a one-stop-shop as conceptualized in ALLIES.

The process of trying to build an LFEEE in Poland allowed FEWE to gain considerable experience and interesting insights. While at the time of publishing this guideline, the Polish LFEEE had not been formally established, the project enabled FEWE and its partners to generate several projects as shown in Table 2.

Table 2: Project overview in Poland

Project 1	
Type of energy efficiency measure	Energy efficiency measures in the housing industry
Category	Housing industry
Sector	Multi-family house
Optimization measures	Liquidation of furnace heating and connecting buildings to the highly efficient district heating
Percentage energy savings per year	39%
Reduction of energy consumption per year	1431711 kWh/a
CO2 reduction per year	870,06 t
Investment costs	354519 EUR
Cost savings per year	44749 EUR
Amortisation period via ALLIES	7.9 years

Project 2	
Type of energy efficiency measure	Energy management
Category	Mini Cogeneration
Sector	Sport centre /Services
Optimization measures	Preparation of a micro-cogeneration project
Percentage energy savings per year	0% (final energy) 3% (primary energy)
Reduction of energy consumption per year	103851 kWh/a
CO2 reduction per year	230,4 t
Investment costs	55000 EUR
Cost savings per year	5970 EUR
Amortisation period via ALLIES	9.2 years

In the process, FEWE learned a lot about the specific challenges of the Polish energy market when it comes to boosting investments in energy efficiency measures. These made convincing stakeholders of the ALLIES concept a very difficult and time-consuming endeavour. This applied especially to the key stakeholders in ALLIES, namely local authorities or publicly owned private organisations, like RFE.

One central finding of the ALLIES project was that the final decision on setting up an LFEEE in Poland ultimately depends on market needs. Furthermore, it is advisable to not commit to a fix model or offer before the final model is chosen and decided upon. In the case of FEWE, the offer has evolved from a pure financing model of an energy efficiency project to a one-stop-shop solution, which was finally chosen. FEWE is responsible for assuring that companies and citizens receive subsidies, carries out energy audits, negotiates between citizens and local suppliers and offers energy consulting. This model turned out to best meet the needs of the market.

2.1.3 ALLIES in Allgäu, Germany

In Germany, (energy) cooperatives have a long tradition. Unlike Eastern European Countries, there are no negative connotations or traumatic historical experiences attached to the concept. Cooperatives are rather positively perceived as an expression of citizen engagement and self-empowerment. Moreover, the political, legal and, not least, financial framework in Germany provide utmost favourable conditions for implementing projects within the organizational form of a cooperative.

Currently, there are about 1,000 energy cooperatives in Germany. Most of them have been established to organize and finance the establishment of renewable energy generation plants. Some of them now strive to implement electricity sharing and self-supply and some want to support energy efficiency measures. When transposed to national law, the recent EC recasts of the Renewable Energy Directive and the Electricity Directive in 2019 will further promote the concept of cooperatives as an integral element on the energy market.

While energy (generation) cooperatives are prevalent, energy efficiency and savings cooperatives are still novel. For testing the ALLIES concept in Germany, B.A.U.M. Consult turned to the prosperous region of the Allgäu. B.A.U.M. has cooperated closely with the key actors in the energy domain in Allgäu for several years and is well familiar with the regional circumstances. In this region, private equity is available as well as professional consultancy. However, broad information about such potentials for technical feasibility assessments as well as financing options is often lacking. Investigations throughout ALLIES clearly showed that access to existing entities and one-stop-shopping support is needed.

First, B.A.U.M. gathered the key stakeholders like the regional energy agency eza! and the utility Allgäu Überlandwerk (AÜW) and many more, in a round table in order to discuss the basic question: Is there a need for an LFEEE in Allgäu? As the question could not be ultimately resolved it was decided to test the benefits of an LFEEE in real-life situations, that is in two planned energy efficiency projects. The following two projects were in the pipeline at the time and served as testing grounds for an Allgäu LFEEE:

Table 3: Project overview in Germany

Project 1	
Type of energy efficiency measure	Renewable energy
Category	Hotel and hospitality
Sector	Hotel
Optimization measures	PV system for own electricity use
Percentage energy savings per year	13%
Reduction of energy consumption per year	68,8 MWh
CO2 reduction per year	36,8 t
Investment costs	145000 EUR
Cost savings per year	13320 EUR
Amortisation period via ALLIES	10,9 y

Project 2	
Type of energy efficiency measure	Energy efficiency measures
Category	Hotel and hospitality
Sector	Hotel
Optimization measures	Changeover of lighting to LED
Percentage energy savings per year	5%
Reduction of energy consumption per year	100MWh
CO2 reduction per year	53,7 t
Investment costs	40500 EUR
Cost savings per year	15600 EUR
Amortisation period via ALLIES	2,6 y

In the meantime, activities for promoting the energy transition in Allgäu brought forward the initiative Climate Plan 2040. This plan introduced the idea of financing energy efficiency measures within the framework of a CO2 compensation mechanism. The LFEEE could play the role of the mediator between the financing entities and loan recipients in this model. One of the models is to issue local White Certificates (i.e. Energy Savings Certificate or Energy Efficiency Credit) and pair them with international certificates. This mechanism shall be implemented by the LFEEE as a means to create local financial funds for local energy efficiency measures.

2.1.4 Dissemination of the ALLIES concept

ALLIES held a number of conferences throughout the project. In the early stages of the project in 2018 and 2019 the conferences aimed mainly at promoting the setup of an LFEEE in the project countries. In the project's second half the conferences shifted focus to presenting the findings from the development processes and to discuss with the participants options for replicability of the ALLIES model in other EU countries. This question was discussed in general in the Advisory Board (ADB) meeting on May 12, 2020 and in the (virtual) ALLIES Final Conference in country/region specific working groups on the Baltics, Mediterranean and Balkan, on May 26, 2020.

In a nutshell, this is the central message of the ALLIES Final Conference:

Debate on cooperatives

Experts from CEE confirmed the experience that KÖVET and FEWE made at first hand in Hungary and Poland respectively when pursuing the establishment of an LFEEE in the form of a cooperative. Due to historical connotations and outdated legal framework, **cooperatives have a bad standing** in many new member states.

Contrarily, in Germany and other (Western) European countries, cooperatives have been very successful in the past, especially in the field of energy generation. Initiatives, like REScoop, clearly demonstrate the **uneven distribution of energy cooperatives** in Western Europe and Southern and Eastern Europe.

However, recent developments in European legislation define a Citizen Energy Community (CEC), contained in Directive (EU) 2019/944 (recast Electricity Directive), and a Renewable Energy Community (REC), contained in Directive (EU) 2018/2001 (the recast Renewable Energy Directive, RED II). After transposition of the EC Directives to national law (due in December 2020 and June 2021 respectively) such Energy Communities **promise to gradually boost local and democratically controlled initiatives like cooperatives** also in younger EU member states.

On a macro-level, the implementation of the EU Directives in national legislation and, moreover, the individual **national means to support the establishment** will decide on the success of CEC and REC throughout Europe and consequently on the future of energy savings cooperatives.

Debate on stakeholder management

On a local level, it is important to **identify and involve all relevant stakeholders** necessary for successfully planning, financing and implementing energy efficiency measures. In a second step, it is key to bring together these stakeholders in a roundtable and convince them to cooperate and offer their services jointly in a one-stop-shopping model.

Raising awareness among relevant stakeholders on energy savings, in general, and on different financing models, in specific, including cooperatives (preferably termed differently like energy community) remain key.

Last but not least, there will certainly be not one fit for all. Rather, **national, regional or even local modifications** need to be taken into consideration.

2.2. Recommendations to Policy Makers

Above and in chapter 5 in detail, KÖVET, FEWE and Allgäu describe the challenges they faced when setting up a structure for financing energy efficiency in their political and legal context. From this experience they derive the following recommendations to policy makers. If these obstacles were alleviated, the business of financing and implementing energy savings would find many more followers.

2.2.1 Hungary

Recommendation 1: Facilitate Energy Efficiency Financing

As the owners of many facilities, municipalities are key actors in increasing energy efficiency on their territories by modernizing housing and building stock. Furthermore, as public entities they have the necessary guarantees on creditworthiness. In order to do so, they need easy access to loans. In Hungary, however, barriers for municipalities to take loans are high. The central government has imposed strict regulations and requires of municipalities and (other loan seeking applicants) to first obtain permissions. This hinders them in acquiring necessary financing means for energy efficiency investments.

Furthermore, a highly structured and stable, long-run strategy of financing energy efficiency investments still needs to be developed. The financial framework of energy efficiency investments should be simplified.

At the same time, the requirements for financing entities giving loans should also be simplified, in specific, if the money is used for promoting energy efficiency or other services related to promoting the energy transition.

Recommendation 2: Support the Development of Citizen Energy Communities/Renewable Energy Communities

In order for CEC/REC to gain a foothold in society, the involved stakeholders first need legal clarity in terms of the national implementation of the respective EU Directive. Furthermore, campaigns raising awareness are necessary to promote the concept within society, to attract attention to its benefits and increase understanding on how it can work.

Recommendation 3: Alleviate Restrictions on the Development of RES on Behalf of Utilities

When developing renewable energy supply by way of solar panels, utilities play a crucial role as they own and operate the grid. They are the ones that make the connection to the grid possible in the first place. This is why it is very important to partner with the utilities from the outset of project development.

It can prove difficult to get the permissions from the utilities necessary to develop, for example, solar projects. Often the quantity of panels can be limited, based on the level of the latest electricity consumption. In this case, if you decide to buy an electric vehicle at a later stage the amount of electricity you are producing may not be able to cover the increased consumption.

2.2.2 Poland

Recommendation 1:
Facilitate Local Investments in Energy Efficiency

Investments in energy efficiency at local level face multiple obstacles. Legislation regulating energy services and the energy savings market should be changed in order to facilitate investors' use, in particular of support systems by, i.e. white certificates.

Local investments in energy efficiency would be further facilitated if comprehensive databases for use by municipalities were in place. The databases are key to strategic and short-term energy planning. They enable municipalities to calculate energy savings investments and integrate them in their energy plans in the first place.

Local stakeholders often lack organizational and financial resources as well as know-how needed to collect necessary information for all relevant steps in the planning process of energy efficiency projects. For example, expert consultancy is often needed to support the process of acquiring financing as well as to secure state-of-the-art measures in implementation from a technical viewpoint. Linking local stakeholders to institutions of the public sector including energy agencies and energy auditors which offer respective services for public and non-public investors in a one-stop-shop approach helps to overcome this gap.

Recommendation 2:
Support Enterprises in Energy Efficiency Projects

The role of the private sector and each individual company in boosting energy efficiency is hardly promoted in Poland. In order to empower and encourage companies to take action and increase energy savings it is necessary to include, describe and anchor the important role of enterprises in a strategic document for the state policy - for example in the Strategy of Responsible Development or in the National Energy and Climate Plan (KPEiK 2030).

Recommendation 3:
Support ESCOs

ESCOs – Energy Service Companies can play an important role in offering consulting and technical services for developing and implementing energy efficiency projects. Improving conditions for ESCO operations, in particular by developing guarantee instruments, can considerably promote the pillar of energy efficiency in the energy transition. Generally, de-risking measures are essential, e.g. for the professionalization of energy services or guarantee mechanisms (system/fund).

3. Political and Legal Context

3. Political and Legal Context

The energy transition is based on two pillars - the development of renewable energies and the increase in energy efficiency. Since the ALLIES project is primarily dedicated to energy efficiency, we will briefly discuss the current energy efficiency policy with its targets and measures. The legal framework conditions, which are important in this context, are listed and explained in the second part of the chapter.

3.1. Political Objectives

Since improving energy efficiency deals with cross-cutting issues which affect all sectors, the energy efficiency policy is very complex. This is, in turn, reflected in a range of directives and regulations at both European and national level.

3.1.1 EU

The EU aims to be climate-neutral by 2050 – an economy with net-zero greenhouse gas emissions. This objective is the nucleus of the European Green Deal and in line with the EU's commitment to global climate action under the Paris Agreement.

At the World Climate Summit in Madrid 2019, the international community reinforced the global understanding that 1.5°C is the socially, economically, politically and scientifically safe limit to global warming by the end of this century. To achieve this, net zero emissions need to be achieved worldwide by 2050. The Summit also demonstrated the need to urgently update and enhance all short-term commitments by 2020, and the mid-term commitments by 2030, which will be captured in the national climate plans, known as Nationally Determined Contributions to the Paris Agreement.

For the EU, measures to promote renewable energy and improve energy efficiency are key to reducing Europe's greenhouse gas emissions. Therefore, the European Union (EU) aims to achieve an energy efficiency target of 20% energy savings by 2020 and 27% by 2030. The Energy Efficiency Directive (EED 2012) and the Energy Performance of Buildings Directive (EPBD 2010) are the main EU pieces of legislation to reach these goals. Under the directive all EU countries are required to use energy more efficiently at all stages of the energy chain, including energy generation, transmission, distribution and end-use consumption.

In 2018 and 2019, two new European Directives supporting the development of 'citizen energy communities - CEC' and 'renewables energy communities REC', respectively, gave citizens new momentum to participate collectively in the energy transition process. They are two out of four directives in the Clean Energy for all Europeans Package. These Energy Communities are an important catalyst for the implementation of energy efficiency. The participation of citizens and communities as partners in energy projects are transforming the energy system. Community energy initiatives offer new opportunities for citizens to get actively involved in energy matters. Community energy refers to collective energy actions fostering citizen' participation across the energy system. It has received increased attention in recent years, developing a wide range of practices to manage community energy projects.

3.1.2 Germany

In Germany, the energy concept was adopted at federal level in 2010 with objectives set up to 2050. This was followed in 2011 by an extensive legislative package and the decision to withdraw from the nuclear energy programme by 2022 triggered by the nuclear disaster in Fukushima. In 2016, the Climate Action Plan 2050 was agreed on. A review was to be carried out on a regular basis to check its progress and ensure objectives were met (BMUB 2017). For the 18th legislative period, the efficiency strategy, the German National Action Plan on Energy Efficiency (NAPE), was submitted specifically to exploit potential energy savings (BMWi 2014, p. 6). For energy savings and the increase in energy efficiency, the design of the planned measures is based on the triad policy of "promote, demand, inform" (ibid., p.21). The NAPE results from the EU Energy Efficiency Directive, which is a concept promoted by member states to achieve the EU efficiency objectives.

A core element of the efficiency strategy is the area of energy saving as a model for generating returns and as a business model (BMWi 2014, p.29). In the NAPE, there is a provision for emergency measures and other measures. In addition to the further development of the KfW energy efficiency programme, a competitive tendering model for energy efficiency was introduced to help identify the most favourable and at the same time most cost-efficient provider (ibid., p.30). This could also be cooperatives as well as other providers. In order to minimise the risks and transaction costs of contracting and, thus, make it more attractive, surety banks developed the surety bond scheme, providing both letters of indemnity as well as advice (ibid.). Another field of action for an emergency measure is waste heat utilisation. Two thirds of energy used in industrial processes is consumed for process heat. Waste heat utilisation concepts should help provide some relief and be supported as part of the "energy consulting for medium-sized businesses" and through financial subsidies (ibid., p.31).

NAPE describes - in addition to the emergency measures - further work processes to be pursued continually. Initially, these include the general **improvement of framework conditions for energy efficiency services,** as these are often not implemented due to a number of different barriers even in the case of promising profitability (see also BMWi 2014, p.32). The barriers and positive experiences of the federal states should be combined and recommendations for action derived from them. Public properties, in particular, should be tested in terms of their suitability for contracting. Furthermore, **new financing concepts** should be developed and tested to counteract the many barriers and risks – both, on the part of the companies, and also on the part of the banks' and investors (ibid.). One example is the transfer of future profits in liquidity for current efficiency investments since profits in companies are often already tied elsewhere and energy efficiency is not deemed a priority. **Extensive and networked research** is mentioned as a basic addition to the measures taken (ibid.). The ALLIES project is a key contributor - particularly for the last two points mentioned - in increasing energy efficiency and therefore in achieving the efficiency target set out in the policy.

3.1.3 Hungary

The following goals are dedicated to Hungary's National Energy Strategy:

1. To enhance energy sovereignty Hungary aims at decreasing residential natural gas consumption by two billion m3/ year in order to lower imports of natural gas to 70% until 2040.
2. To strengthen energy safety Hungary aims at raising domestic non-carbon sources of energy production to 90% of total consumption. Consequently, by 2030, 6000 MW photo-voltaic power plants are to be built. Import proportion of electricity is to be stabilized at a level of under 20% by 2040. For reaching these goals, energy efficiency is vitally important. Energy consumption in the dynamic economy of Hungary is not to exceed the energy values of reference year 2005.
3. To keep the level of overhead expenses low.
4. Decarbonise the power supply is only possible with nuclear and renewable sources. This way the countries' CO2 equivalent emission can be reduced below the 1990 level.

Summing up the main goals of the strategy, it is clearly visible that for countries poor in traditional energy sources, energy sovereignty relates to a status of well-being, economic and national security.

It is important for Hungary to decrease its energy import, and to connect more strongly to European gas and electricity networks. These can assure both energy safety and acceptable prices.

Up to 2020, the Effort Sharing Decision regulated emissions of non-ETS sectors (energy management in buildings, waste sector, transport, agriculture, small industrial emitters and F-gases). Pursuant to the Decision, between 2013 and 2020, i.e. during the ESD period, Hungary may increase its emissions by 10% compared to the emission levels of 2005. The Effort Sharing Regulation was adopted in May 2018, which sets national emission reduction targets for Member States for the 2021–2030 period, relative to the base year of 2005. To this end, GDP/capita-proportionate targets were set for Member States in the range of 0–40%. Pursuant to the Regulation, Hungary's reduction target is 7% between 2021 and 2030, i.e. during the ESR period.

Based on the EU decision of 2011 for a 'Roadmap for moving to a competitive low-carbon economy in 2050', GHG emissions in the entire economy of the EU should decrease to 80% of the level measured in 1990 by the year 2050. The "2030 Climate and Energy Framework"- approved by the European Council in October 2014 - determine the overall EU targets. The document declares that the EU will reduce GHG emissions by at least 40% until 2030 compared to 1990. Based on the second National Climate Change Strategy, adopted by Parliament in October 2018, Hungary plans a reduction of emissions of 52% to 85% compared to 1990 by 2050.

The following national objectives, targets and areas of intervention are relevant for reaching this end:

GHG emissions should be reduced by at least 40% by 2030 compared to 1990, i.e. gross emissions in 2030 may not exceed the gross value of 56.28 million tCO_2e (the value for 2017 is 64.44 million tCO2e based on the preliminary inventory report, indicating a need to achieve an emission reduction of 8.2 million tCO_2e).

This requires the following:

- Phase-out of traditional coal-fired power plant operations in the energy industry and the reduction of GHG emissions to 7.30 million tCO_2e;
- Capping of GHG emissions at 15.66 million tCO_2e in transport and controlling the current trend of strong growth
- Reduction of GHG emissions to 8.07 million tCO_2e relating to buildings
- In industry, limit the increase of emissions to 11.37 million tCO_2e. Thereof, energy emissions should stay below 5.05 million tCO2e, notwithstanding an increase in production, while emissions from industrial processes should remain below 6.32 million tCO_2e
- In agriculture, limit the increase of GHG emissions to 9.28 million tCO_2e, which entails 1.59 million tCO_2e energy emissions and 7.69 million tCO_2e non-energy emissions
- In waste management, reduce GHG emissions to 2.97 million tCO_2e
- In other sectors, we aim to reduce GHG emissions to 1.63 million tCO_2e

For the full National and Energy Climate Plan of Hungary please see:
https://ec.europa.eu/energy/sites/ener/files/documents/ec_courtesy_translation_hu_necp.pdf

Hungary has achieved remarkable results in the past two years regarding its political commitment to pro-climate policy. In January 2020, the Hungarian government passed the ambitious New National Energy Strategy with the overriding goal to strengthen energy independence by creating clean, smart, affordable energy reaching a CO2 neutral state by 2050.

3.1.4 Poland

In the previous two years (2019-2020), Poland's efforts in creating a community energy policy which is in line with the common goal of the 2050 EU climate neutrality agreement, have not gained the necessary acceptance, neither in society nor at government level. Negotiations are ongoing. The Just Transition concept demands further discussion.

Poland´s national energy targets are included in the official document "Poland´s National Energy and Climate Plan 2021-2030" (NECP PL), presented to the EU commission in December 2019. They describe the Polish contribution to the collective achievement of the EU climate-energy goal. Poland sets the national target for improving energy efficiency by 2030 at a 23% reduction of primary energy consumption based on a consumption rate forecasted by PRIMES (2007). However, to fulfil the level of 23%, some targets require additional EU funds, including those addressed to the Just Transition.

Activities directed at reducing energy consumption contribute also to more energy safety, to sustainable use of energy resources and to further reduction of emissions, all of which lead to achieving energy and climate goals.

The recently established Ministry of Climate (responsible for energy and EED) and the Ministry of Development (responsible for building and EPBD) build strongly on the principle of "energy efficiency first" and have started combined activities with the National Fund for Environment Protection and Water Management (NFEPWM) to achieve synergies.

The NFEPWM is declared as the recipient of the substitution fee (the last resort solution of the White Certificate 2016 scheme) and expected to generate new activities which promote EE measures. The flagship programmes developed by government is the "Clean Air" programme and the Energy Advisory Programme.

Currently, the National Fund (NFEPWM), joined with the provincial funds for environment protection and water management, represents a system for financing environment protection in Poland. NFEPWM focuses on national projects of strategic importance for the country - often connected to the EE improvements. Regional tasks are supported by provincial funds for environment protection and water management (PFEPWM). NFEPWM is also a key stakeholder of the BOŚ Bank, a bank specialising in supporting projects and tasks for the protection of the environment.

The National Fund becomes an important "competence centre" in financing and implementing projects in the environmental field, in terms of standards compliant with EU directives. The entity offers consultation and legislative work as well as co-financing research, analyses and expert opinions.

Having taken a look at the overriding political objectives and their interrelated targets and measures in relation to energy efficiency at European and selected national levels, the next chapter focuses on the legal framework.

3.2. Legal Framework

European legislation forms the basis for respective implementation at national level. The most important acts of law for climate protection and energy regulation at European level, as well as the equivalent at national level of the ALLIES countries are listed in the following table (for Germany see also UBA 2018).

Table 4: EU Directives and the national implementations

EU level	Germany	Hungary	Poland
EU Greenhouse Gas Emissions allowance trading Directive 2003/87/EC (32003L0087)	• Greenhouse Gas Emissions Trading Act • Emissions Trading Regulation 2020	• 2012/217 Act on participation in the public greenhouse gas emission allowance trading scheme and in the implementation of the effort sharing decision	• Greenhouse Gas Emissions System Act (2009) • Greenhouse Gas Emissions Trading Acts • Environment Law (2001)
EU Renewable Energy Directive 2009/28/EC (32009L0028) 2018/2001 (32018L2001)	• Renewable Energy Law • Renewable Energy Heat Act • Biomass Ordinance • and others	• 2017/299 Government Decree on the mandatory acceptance and premium type support for electricity produced from renewable energy sources	• Energy Law Act (1997) • Renewable Energy (2015)
EU Energy Efficiency Directive (EED) 2009/125/EC (32009L0125) 2010/30/EU (32010L0030) 2012/27/EU (32012L0027)	• Energy Services Law • National Action Plan for Energy Efficiency	• 2015/57 Act on energy efficiency • 2015/1601 Government decision on National Energy Efficiency Action Plan	• Energy Efficiency Acts (2011 &2016) • Energy Law Act (1997) • Cogeneration Act (2018) • Environment Law (2001) The PPP Act (2009)
EU Directive on the Energy Performance of Buildings 2010/31/EU (32010L0031) 2018/844 (32018L0844)	• Energy Savings Act • Energy Savings Directive	• 2006/7 & 2014/20 Ministry regulation on determining the energy performance of buildings	• Building Law (1994) • Thermo-modernisation Act (2008) • Building Performance Act (2014) Regulations (2017)
EU Framework for Energy Labelling Regulation 2017/1369 (32017R1369) Directive 2010/30/EU (32010L0030)	• Energy Labelling Directive	• 2018/210 Government Decree on the energy labelling and product information label of a product that affects energy consumption	• Energy Labelling Act (2012) • Direct EU Regulations based on ECOdesign Act
The Electricity Directive and Electricity Regulation Directive 2009/72/EC 32009L0072 Regulation 2019/943 (32019R0943) Directive 2019/944 (32019L0944)	• Energy Act • Supplementary Directives (e.g. Network Charges Ordinance)	• 2007/86 Act on electricity	• Energy Law Act (1997)
EU Energy Tax Directive 2003/96 (32003L0096)	• Electricity Tax Law • Energy Tax Act	• 2016/68 Act on excise tax • 2013/87 Act on energy tax	• Excise Tax Act (2008)

In the following section the EU directives as well as national implementations in Hungary and Poland are briefly described respectively. German legislation on energy efficiency is left out as it was already investigated and compiled in written form in the predecessor project REEG[4].

EU Greenhouse Gas Emissions Directive

This Directive forms the legal basis for EU emissions trading, including the setting of an upper limit for emissions and the corresponding quantity of tradable emission rights (allowances), the procedure for issuing emission allowances and the individual periods of time during which trading in allowances takes place (EUR-lex 32003L0087 2003).

The aim of the Directive is to work towards reducing greenhouse gas emissions in the most cost-effective and economically viable way through an emissions trading scheme. The Directive was adopted under the co-decision procedure as part of EU environmental policy and entered into force on 25 October 2003 (ibid.).

The Directive applies primarily to large industries in the sectors of energy conversion and transformation, ferrous metal production and processing, mineral industry and paper and pulp industry. It accounts for almost half of the EU-wide greenhouse gas emissions (ibid.).

The emission trading was divided into the following trading periods:

- First trading period: 2004 – 2007
- Second trading period: 2008 – 2012
- Third trading period: 2013 – 2020
- Fourth trading period: starting 2021

Hungary

Hungary introduced both, the act to participate in the public greenhouse gas emission allowance trading scheme and the act to implement the effort sharing decision (2012/217). Purpose was to create an opportunity for Hungary to minimize human-induced climate change, reducing greenhouse gas emissions through participating in the greenhouse gas trading system applied in the European Union.

Poland

In Poland, the Greenhouse Gas Emissions System Act was passed in 2009. This Act introduces the legal basis for the management of national GHG emissions and other substances in order to fulfill Poland's obligations towards the EU and the UNFCCC. It allows pollution to be cut in the cheapest possible way and it introduces into Polish law the three mechanisms under the Kyoto Protocol: Emissions Trading, the Clean Development Mechanism and Joint Implementation. Among other things, this Act sets the responsibilities of the National Centre for Emission Balancing and Management, the principles of the management of emissions of GHGs and other substances, the principles of trading in and managing the Kyoto units and the terms and conditions of the management of the Joint Implementation projects in the territory of the Republic of Poland and outside the territory (Grantham Research Institute 2009).

4 reeg-info.de, July 16, 2020

Renewable Energy (RE) Directive

The RE Directive of 2018 (now called RED II) is a recast of the RE Directive from 2009 setting new targets. The provisions relate to (EUR-lex 32009L0028 2009):

- A binding Union target of a share of at least 32% of renewable energy
- the EU commission is bound to review whether the targets should be increased due to substantial cost reductions in the production of renewable energy
- it entered into force on December 24, 2018 and must be transposed into national law by June 30, 2021.

In addition, RED II describes the possibility to establish Renewable Energy Communities (REC) to allow for energy sharing and complex models of self-supply. RECs are defined as a legal entity based on open and voluntary participation, autonomous and effectively controlled by shareholders or members that are located in the proximity of the renewable energy project that are owned and developed by that legal entity (REScoop 2020a). RED II and its national transpositions can prove highly relevant for setting a legal framework favourable to the development of LFEEE and other citizen-based institutions.

The RE Directive leaves it predominantly up to the member states to decide how they split their national RE expansion targets between the electricity sector, the heating and cooling sector, and the transport sector, which RE technologies they promote and how they promote them.

It is a key instrument at European Union level for the promotion of renewable energies and forms the legal framework for the overall European strategy in this policy area. The Renewable Energy Directive (2009/28/EC; Bonn et al. (2014)) set out for 2020 (old Art. 3 (1) and (4)):

- An EU-wide target to increase the share of renewable energy (RE) in the total energy used in the EU (RE share) to at least 20%,
- Binding national RE expansion targets for member states in accordance with their respective RE potential
- Binding RE expansion target for member states in the transport sector of at least 10% each.

Hungary

Hungary passed the Government Decree on the mandatory acceptance and premium type support for electricity produced from renewable energy sources (299/2017). It sets rules for mandatory electricity take-up and premium support as well as conditions for take-up prices.

Poland

The corner stone of all energy-related regulations in Poland is included in the Energy Law Act (ELA-1997u). Since 1997 and 2004 the ELA was adapted severely to adopt EU and Polish government policies; nevertheless, most basic definition and rules are entailed there. The legal duty to perform an energy planning process and review it every three years or set Energy Plans for Poland has never been revoked. In addition, the Act of February 20 , 2015 on renewable energy sources introduced the concept of micro installations and a separate support scheme for renewable energy micro-generation into the Polish legal system including a scheme for the certification of installers of micro installations, small installations or renewable energy installations with a total installed thermal capacity of up to 600 kW.

Energy Efficiency Directive

The Energy Efficiency Directive 2012/27/EU is an essential part of the European Union's energy legislation and sets standards in the EU Member States to find solutions to the growing energy dependence of the Union on a few regions of the world and to the problem of climate change.

The amendment of 2018 sets a target of 32.5% for 2030 regarding the reduction of primary and/or final energy consumption compared to the projections for 2030 made in 2007. This equals 1 273 Mtoe of primary energy and/or no more than 956 Mtoe of final energy. Compared to the 2005 levels, this means that primary energy consumption in the Union should be reduced by 26 %, and final energy consumption by 20 %. The EU commission also reviews whether the targets should be increased (EUR-lex 32012L0027 2012).

The member states are free to set their own national contributions based either on primary or final energy consumption or primary or final energy savings or on energy intensity.

The amended directive entered into force in December 2018 and needed to be transposed into national law by Member States by 25 June 2020. Under the Governance Regulation 2018/1999, the member states are required to set up integrated 10-year national energy and climate plans (NECPs) showing how they plan to meet the energy efficiency and other targets for 2030 (European Commission 2019a).

Hungary

In Hungary, the Act on energy efficiency (2015/57) was passed in 2015. The aims of the Act are to define specific tasks necessary to meet the national energy efficiency target; to guarantee the conditions for their implementation; to comprehensively ensure the efficiency of energy supply and use; and, finally, to help reduce energy consumption costs and protect environmental resources for future generations.

Poland

The ESD of 2006 and EED of 2012 were introduced into the Polish legal system with serious delays through the Energy Efficiency Act of 2011 and Energy Efficiency Act of 2016 (EED, EEA2016).

Another piece of legislation, relevant in the context of the implementation of Article 18 of Directive 2012/27/EU, is the Act of 19 December 2008 on public-private partnerships (Journal of Laws of 2017, item 1834). Under the Act, public bodies may implement energy performance contracts through public-private partnerships they enter into. The Act sets out detailed rules for cooperation between public bodies and private partners (including ESCOs) for implementing joint projects. According to the Act, the minister in charge is required to popularise and promote public-private partnerships and assess their performance.

The close relation of PPP and EPC practice has been confirmed in many non-regulatory publications. Public-private partnership projects are effectively completed due to significant exchange of expertise and good practices and developing and disseminating model documents. According to provisions of EEA2016, a system of energy efficiency certificates has been set up. The Energy efficiency certificate represents a "White Certificate scheme", a statutory obligation for energy companies selling electricity, heat or natural gas to end consumers. These companies are obliged to advance projects supporting energy efficiency on the end-consumer side. Alternatively, the companies need to obtain certificates confirming specific quantities of final energy savings (White Certificate) and submit them to the President of the Energy Regulatory Office (PURE) for redemption.

The obligation may be fulfilled, on a conditional basis, by paying a substitute fee. The proceeds from this fee are to be allocated to carry out projects aimed at improving energy efficiency on the end-consumer side. The allocation of the respective proceeds of the fee is supplemented by a report directed to the Ministry for Climate - including the amount of funds allocated to energy efficiency projects and an overview of the final energy savings.

The President of URE (PURE) needs to file the applications for an energy efficiency certificate along with the respective audit report in order to obtain White Certificates.

Property rights under White Certificates are transferrable and a commodity traded on the Polish Power Exchange (Towarowa Giełda Energii S.A. - TGE).

Energy Performance of Building Directive

Buildings are responsible for approximately 40% of energy consumption and 36% of the greenhouse gas emissions in the European Union. Buildings are, therefore, the single largest energy consumer in Europe. At present, about 35% of the EU's buildings are over 50 years old and almost 75% of the building stock is energy inefficient. At the same time, only about 1% of the building stock is renovated each year (EUR-lex 32018L0844 2018).

Hence, in addition to the Energy Efficiency Directive, the EU has established the Energy Performance of Buildings Directive to achieve a highly energy efficient and decarbonised building stock by 2050.

The directive was introduced in 2010 and amended in 2018/2019 as part of the "Clean energy for all Europeans" package (European Commission 2019b).

The measure of the directive includes, amongst other, the following (ibid.):

- The member states must establish strong long-term renovation strategies targeting at decarbonising the national building stocks by 2050, including indicative milestones for 2030, 2040 and 2050.
- The strategies should contribute to achieving energy efficiency targets of the national energy and climate plans.
- The member states must set cost-optimized requirements for minimum energy performance for new buildings, for existing buildings undergoing major renovation and for the replacement or retrofit of building elements, such as heating and cooling systems, roofs and walls.
- All new buildings must be nearly zero-energy buildings (NZEB) from 31 December 2020 on. NZEB already applies for new public buildings since 31 December 2018.
- Energy performance certificates must be issued when a building is sold or rented, and inspection schemes for heating and air conditioning systems must be established.

Hungary

In Hungary, the decree 20/2014 of 7 March 2014 and decree 7/2006 of 24 May 2006 determine the energy performance characteristics of buildings. Domestic and/or EU support is granted accordingly.

Poland

Poland can be presented as the former pioneer of large-scale thermo-modernisation. The Construction Law (1994) and the Thermo-modernisation Act/ TAct (2008) precede the EPBD 2010. TAct declared an energy audit (EAT) as a study defining the scope and technical and economic parameters of thermo-modernisation projects. It indicates optimal solutions in terms of costs of implementation and energy savings and provides the basis for the application for thermo-modernisations projects. Objective of implementing thermo-modernisation is to reduce energy consumption and costs of hot water and heating of buildings to ensure comfortable use of premises.

To prepare and carry out modernisation of specific categories of appliances, installations, or buildings, it is necessary to obtain independent certificates, specified in other Acts (e.g. in the Construction Law or in the Energy Law). The provisions of EPBD have been adopted in the Act of 29 August 2014 on Energy Performances of Buildings. Corresponding certificates define the respective energy performance of buildings and offer, thus, solutions for the most complicated categories of projects. Overall aim is to improve energy efficiency, accreditation and certification systems.

EU Framework for Energy Labelling (Ecodesign Directive & Regulation)

The EU's energy labelling framework regulation is the basis for the energy labelling requirements for individual product groups. The process is organised by the European Commission. 15 product groups require an energy label (EUR-lex 32010L0030 2010).

Additionally, the EU's Ecodesign Directive provides EU-wide rules for improving environmental performance of products and sets the requirements for individual product groups in the EU. This ensures the free movement of such products within the internal market. Since energy-related products account for a large proportion of the consumption of natural resources and energy in the EU, the eco-design of products is a crucial factor in the strategy on Integrated Product Policy. The EU legislation on eco-design is applicable on 31 product groups (ibid.).

EU Electricity Market Directive

The Directive on common rules for the internal market for electricity (EU) 2019/944 and the new Regulation on the internal market for electricity (EU) 2019/943 (EMD) is a recast of Directive 2009/72/EC. Similar to the RE Directive above, the EMD defines the notion of a Citizen Energy Community (CEC) as a legal entity based on voluntary and open participation, effectively controlled by members or shareholders that are national persons, local authorities, including municipalities, or small enterprises (REScoop 2020a). Such a CEC can be engaged "in electricity generation, distribution and supply, consumption, aggregation, storage or energy efficiency services, generation of renewable electricity, charging services for electric vehicles or provide other energy services to its shareholders or members".

Furthermore, it introduces a new limit for power plants eligible to receive subsidies as capacity mechanisms (confirming the phasing out of subsidies to generation capacity emitting 550gr CO2/kWh or more). By allowing electricity to move freely to where it is most needed, society will increasingly benefit from cross-border trade and competition (European Commission 2019c).

The new electricity market design will help to achieve the goals set out in the European Green Deal (i.e. carbon neutrality by 2050) and contribute to the creation of jobs and growth. The new Directive and Regulation has to be transposed into national law by the end of 2020.

EU Energy Tax Directive

The Energy Tax Directive 2003/96 defines the framework conditions of the European Union for the taxation of electricity, fuels and most heating fuels. The directive is part of EU energy law, its core component being the setting of minimum tax rates for all member states. The Member States are relatively free in the design of the taxes. The directive only requires that indirect taxes excluding VAT reach the minimum levels in total.

The directive is intended to ensure the functioning of the EU internal energy market and to avoid distortions of competition caused by different tax systems. It is also intended to have a steering effect with the aim of protecting the environment and the climate (EUR-lex 32003L0096 2003).

4. Financial Framework

4. Financial Framework

This chapter examines the various ways in which energy efficiency improvements could be financed in the partner countries of the ALLIES project. From the various financing options, ranging from public funds, market-based instruments to bank financing and private sector initiatives, it describes those that seem most appropriate for the partner country's financing needs.

Financing schemes at European, national or regional level create the conditions for adequate supply of (private) finance for energy efficiency investments. Additionally, public funding programmes for energy efficiency aim to progressively maximise the leverage of public funds to private finance. This is why in all countries funding is an important source for financing energy efficiency. But in most cases funding provides only a limited share of the entire investment and therefore other sources are needed for co-financing the funds.

Many project promoters, cities, individuals, or businesses, need assistance to take their energy efficiency projects from idea to implementation. Funding programmes support organisations such as LFEEEs to bring projects through the financing process and to encourage the development of regional or local one-stop-shops.

4.1. Financing Energy Efficiency

4.1.1 Institutional Investment and Funding Programmes in Europe

There are several EU funding programmes that also finance energy efficiency projects. In the next section we single out two central funding schemes that have proven relevant and useful in the partners' efforts to develop an LFEEE. These are ELENA - European Local ENergy Assistance managed by the European Investment Bank (EIB) and the EU Research and Innovation Programme, HORIZON 2020.

ELENA

ELENA, managed by the European Investment Bank (EIB), supports private and public promoters to develop and launch large-scale bankable sustainable energy investments (above EUR 30 million), including in sustainable transport. ELENA covers up to 90% of project development costs.

ELENA provides technical assistance for energy efficiency and renewable energy investments targeting buildings and innovative urban transport on local scale.

The ELENA applicant can be a public or private entity including local, regional or national authorities, transport authorities and operators, social housing operators, estate managers, retail chains, energy service companies, financial institutions and SMEs.

Activities eligible for ELENA grants include: Technical studies, energy audits, business plans and financial advisory, legal advice, tendering procedure preparation, project bundling, project management.

ELENA provides support to three different sectors and for that purpose, three different envelopes were developed: Energy efficiency, Sustainable residential and Urban transport and mobility. ELENA supports the preparation of projects that improve energy efficiency and renewable energy use in buildings. Eligible projects include: Energy efficiency in residential and non-residential buildings, building-integrated renewables (such as solar panels), public lighting, district heating (including combined heat and power plants and biomass boilers) and smart grids.

Horizon 2020

Horizon 2020 is the biggest EU research and innovation programme ever. Almost EUR 80 billion of funding is available over seven years (2014 to 2020). Horizon 2020 helps to achieve smart, sustainable and inclusive economic growth. The goal is to remove barriers to innovation and make it easier for the public and private sectors to work together.

The successor programme to Horizon 2020 is the Ninth European Framework Programme. It is in the pipeline and is called Horizon Europe.

Horizon 2020 helps public and private promoters develop model sustainable energy projects, focusing on small and medium-sized energy investments of at least EUR 7.5 million and up to EUR 50 million, covering up to 100% of eligible project development costs.

Horizon 2020 is structured in several sections, including "Excellent Science", "Industrial Leadership" and "Societal Challenges". The energy efficiency calls managed by EASME - the Executive Agency for SMEs - come under Societal Challenge 3 "Secure, Clean and Efficient Energy".

Horizon 2020 also operates an Energy Efficiency programme providing support for innovation through research and demonstration of more energy-efficient technologies and solutions; and market uptake measures to remove market and governance barriers by addressing financing, regulations and the improvement of skills and knowledge. The programme supports the research, demonstration and market up-take of energy-efficient technologies. Funds are available to support energy-efficient buildings, industry, heating and cooling, SMEs and energy-related products and services, as well as for improving the attractiveness of energy-efficiency investments.

Any EU member, associated country or third-country national or legal person can take part in Horizon 2020, for instance companies, research organisations, universities, non-governmental organisations – regardless of their place of establishment or residence.

4.1.2 Institutional Investment and Funding Programmes in Hungary

Financial institutions in Hungary include credit institutions and financial enterprises. According to the Act on Credit Institutions and Financial Enterprises their mandate is to provide a number of financial services, provided that they are entitled to by the Hungarian Financial Supervisory Authority (PSzÁF). These are, among others:

1. accept deposits and other repayable funds,
2. extend credits and loans,
3. provide financial leasing,

Credit institutions are financial institutions that collect deposits and extend loans (see (1) and (2) above). Only credit institutions are entitled to collect deposits and exchange currency. Three types of credit institutions exist: banks, specialized credit institutions and cooperatives (savings and credit cooperatives).

Banks are credit institutions which collect deposits, extend loans and make payment transactions. They are the only type of credit institutions that are entitled to provide all types of financial services. In this sense, banks can be called "universal" credit institutions as they are allowed to fulfil both commercial- and investment-type functions.

There is one bank in Hungary that stands out from the others and turned out to be a key partner in ALLIES/HETES. This is MagNet Bank, the only community bank of the country. The MagNet Bank retains, on its own account, traditional banking values and objectives while, at the same time, applying principles of organic organizational development such as transparency in operations or giving clients a say in the bank's community activities.

Specialized credit institutions can provide services based on customized legislation. This special group includes mortgage banks, home savings and loan associations as well as, e.g. the Hungarian Development Bank (MFB). The MFB is mainly involved in financing activities and investments to which a high degree of public (Hungarian or EU) interest is attached and/or which are initiated and carried out by Hungarian government institutions.

Savings cooperatives were the first typically commercial financial institutions in Hungary in the sense that they were granted permission to extend credits to city dwellers, as well, years before the creation of the two-tier banking sector in 1987. Their wide coverage lends them their typical local appeal. They provide all financial services except for credit reference, operation of payment systems and cash processing. Credit cooperatives provide the same financial services as savings cooperatives but exclusively to their own members.

Financial enterprises are either credit institutions that provide financial services other than payment transactions, issue of electronic money, deposit collection and currency exchange or they are financial holdings. They are a very diverse group of financial institutions, providing specialized financial services such as car, real estate and other types of leasing, factoring or consumer loans.

Banks and specialized credit institutions can operate in the form of public/private limited company or branch office, cooperative credit institutions as cooperative, financial enterprises as Plc., cooperative, foundation or branch office, money operations institutions and electronic money issuers as Plc., Limited Liability Company, cooperative or branch office.

Start-up capital requirements prescribed by the law are (§112, Para 9, HPT, 1996):

- Banks, financial holdings and branch offices of credit institutions based abroad: HUF 2 billion (circa. EUR 6.9 million)
- Cooperatives: HUF 250 million (circa EUR 860,000)

Home Savings and Loan Associations

The introduction of the institutional form of home savings banks was based on German legislation, which is reflected in Act CXIII of 1996 on Home Savings and Loan Associations (LPT). Home savings banks offer a rather conservative and predictable form of savings for home purposes coupled with the opportunity to take out a mortgage loan when the saving period expires. A home savings bank can be established with a capital of HUF 1 billion forints (circa EUR 3,4 million) with PSzÁF permission and is allowed to collect deposits and extend loans in the form of home savings contracts. The saving period lasts for a minimum of 4 years with monthly payments of maximum HUF 20,000 forints (circa EUR 70). The saving scheme receives preferential treatment from the state: payments are subsidized in 30% throughout the saving period and tax on deposit interest payments is not applied. Currently, three home savings banks operate in Hungary, all of them foreign-owned, giving 1% of all financial assets, which is less than 2% of GDP. German-owned Fundamenta-Lakáskassza, a company established after the merger of Fundamenta and Lakáskassza in 2003, is leading the market, followed closely by the previously dominant OTP Home Savings Bank. Erste Home Savings Bank only started its operations in 2011.

Investment Fund Managers

Act CXCIII of 2011 on Investment Fund Managers and Collective Investment Forms (BAT) lays down the rules of operation for investment funds. Investment funds are collective investment enterprises that issue and trade investment coupons. Their main activity is investment management. Auxiliary activities include portfolio management, investment consulting, security account keeping and security lending. Investment funds can be established with a capital of EUR 125,000 or, in the case of real estate funds, EUR 300,000.

Venture Capital Fund Managers

Venture capital funds are an alternative instrument of financial disintermediation: they collect funds by issuing venture capital fund coupons with a minimum maturity of 6 years and invest these funds on the commission of their clients. The strict rules governing venture capital fund managers' activities are specified in Act CXX of 2001 on the Capital Market (TPT). Their registered capital must be at least 250 million forints (circa EUR 850,000). Their investment in and lending to one group of companies combined is not to exceed 25% of their total capital.

Private Equity in Hungary

While venture capital funds usually provide seed capital or early or expansion stage financing and a few of them even act as typical business angels, larger volume transactions into more mature and less risky companies such as buyouts in Hungary have been carried out mostly by foreign-based private equity funds. A conservative estimate is, that private equity funds currently manage Hungarian corporate assets worth circa EUR 2-3 billion.

Households:

The Home Warm Programme offered very favourable conditions to insulate, change doors/ windows, heating system upgrade for renewables like solar panels. At the beginning, this type of funding was partly non-refundable but recently changed to refundable offered by the Hungarian Development Bank. The total sum of funds is EUR 112 million.

The Fund of the HDB operates with 0% interest for households. Its scope is the same as of the Home Warm Programme, total sum EUR 315 million.

Enterprises, municipalities, institutions:

Corporation tax relief allows for transferring a significant proportion of the annual corporate tax to energy efficiency investments and is non-refundable.

There are a number of operational programmes which are partly non-refundable and vary in aid intensity. *The Environmental and Energy Efficiency Operational Programme or the Operational Programme for Regional and Municipal Development* are the most relevant here.

Additionally, Hungary subsidizes energy efficiency investments by:

- Offering the preferential electricity tariff for heat pumps (citizens own approx. 12,000 heat pumps)
- Allowing household-sized power plants to sell produced electricity at the 100% price (40,000 SPP with capacity of 330 MW in 2018)
- Demanding an obligatory acceptance fee for renewably produced electricity
- Offering tax breaks and other benefits for hybrid and electric cars

4.1.3 Institutional Investment and Funding Programmes in Poland

The Thermo-modernisation Act (2008) combined with the Building Law (1994) and the Building Performance Act (2014) as well as Technical Regulations of 2017 together create a comprehensive system supporting investments in energy modernisation of the Polish building stock. The Thermo-modernisation and Repairs Fund are run by the Bank Gospodarstwa Krajowego (BGK a state-owned development bank) and remain an important support programme for efficient energy use. The programme addresses housing and service sectors. The following requirements apply to obtain a thermo-modernisation bonus:

- the investor carries out an energy audit to determine the work that needs to be done, the estimated cost and the expected savings;
- the investor files a loan application at a commercial bank together with the application for a thermo-modernisation bonus;
- after the bonus is awarded, the investor draws up a construction plan and carries out the investment accordingly;
- the crediting bank gives the loan;
- the crediting bank notifies BGK that the investment is completed and that a loan was given;
- BGK pays the thermo-modernisation bonus.

The amount of the thermo-modernisation bonus constitutes 20% of the loan for the investment, but no more than:

- 16% of expenses incurred for the investment, and
- twice the amount of expected annual energy savings.

In the case of a repair investment, the investor is entitled to a bonus for paying back a part of the loan taken for the investment, which is called a repairs bonus; under the Act, awarding the bonus depends on achieving

a specific energy savings effect (a decrease in annual demand for energy delivered to multi-dwelling units for heating and water heating by at least 10%, and if the cost indicator of the investment exceeds 0.3 – by at least 25%).

Changes in the **Thermo-modernisation Act (2008)** introduced new instruments and now envisages the implementation of communal low-emission programmes (GPN - Gminny Programme Niskoemisyjny) focused on activities related to the improvement of air quality. The programmes address the least prosperous households. The GPN should be consistent with other planning documents, including the low-emission economy plan as well as the **plans for the supply of heat, electricity and gas fuels.** GPN provisions allow combining its activities with the White Certificate system as described below.

White Certificate schemes

In Poland the key and almost universal (transport excluded) measure to support energy efficiency is the scheme of so-called White Certificates - or white tags - issued by the Energy Regulatory Office. The act imposes an obligation, under penalty of a fine, mainly on companies selling electricity, heat or earth gas to end users (who buy energy for their own use).

While requesting the White Certificate an applicant "investor in spe"- declares how much less energy he/she is going to use thanks to the planned investment or modernisation - insulation of industrial installations, replacement of lighting, reconstruction or renovation of a building including installations and technical devices or modernisation of local district heating. That declaration needs to be confirmed by an "energy efficiency" audit.

After the request is submitted, the Energy Regulatory Office grants the White Certificate certifying that the owner may sell on the Energy Commodity Market. The white tags may then be bought there by so-called obliged companies, selling energy to end users. They may pay a substitution fee to the National Fund for Environmental Protection and Water Management- **NFEPWM.**

Currently the National Fund **(NFEPWM),** as a national legal person, jointly with the provincial funds for environment protection and water management, as independent self-governed entities and legal persons, on the basis of a common strategy, represent a system for financing environmental protection in Poland. The National Fund is the source of funding primarily supra-regional environmental projects. However, the 16 provincial environment protection and water management funds support financing of protecting the environment at the regional level.

NFEPWM conducts national projects of strategic importance for the country often connected to improvements. Regional tasks – in each of the 16 provinces of Poland – are supported by the PFEPWM. It is also a key stakeholder of the BOŚ Bank. BOŚ S.A. is a bank specialising in supporting projects and tasks for the protection of the environment.

The National Fund is an important "competence centre" in financing and implementing projects in the environmental field and is compliant with the standards in EU directives. Experienced staff uses modern management techniques in the ongoing activities of the National Fund. The NFEPWM participates in consultation and legislative activities and also co-finances research, analyses and expert opinions.

The biggest of all Regional FEPWM is the Silesian one. It plays for the Region of Silesia mutatis mutandi the same role as NFEPWM for Poland.

Currently, the NFEPWM and the 16 provincial funds are introducing two flagship programmes related to energy efficiency. These are the System of Energy Advisors and the Clean Air Programme- combining actions for clean air and EE in Buildings.

The next section singles out financial support mechanisms for boosting the energy transition and, in specific, energy efficiency measures.

4.2. Features of Energy Efficiency Investments

Investments in energy efficient measures differ in several aspects from other investments usually made in small and medium-sized companies (SMEs), municipalities or private households.

One key difference is based on the fact that energy efficiency measures often refer to processes lying beyond the inherent business field. Thus, next to missing capacity in terms of personnel and know-how, the respective companies often do not have additional capital to implement measures of energy efficiency.

Once energy efficient measures are inherent in investments such as the optimization of systems or buildings, they are included in ongoing costs. As investments related to energy efficiency are often fragmented and decentralised, they are more complex to put into practice. Consequently, even small-scale energy measures with a considerable impact on savings are too costly to be realised in-house by staff: Generally, both expertise and economic incentives are missing. At the same time, large-scale energy measures also fail to be realised as the investment risk outside the core business is considered high, preventing a business from getting capital exceeding usual credit lines.

Energy efficiency investments tend to have a longer period of amortisation tying capital for a long time. Basically, the type of energy efficiency measure determines the period of amortisation. Most energy projects require high initial investment with comparably low savings leading to a longer period of amortisation, say 10 to 20 years. EE projects requiring long-term high investments have even higher investment risks.

Different financing options for EE projects have different risk factors for stakeholders. These options and their suitability for the cause are outlined in the following chapters (Investopedia 2020).

4.2.1 Equity Capital

Equity capital is capital invested by a person or a company. It increases with profit and decreases with loss. It is, therefore, highly risky and may, in a worst-case scenario, result in a total loss. Equity capital can be invested in the following modes of participation: shareholding; citizen; special funds; foundations; cooperatives.
Key options for ALLIES are described below in detail:

EQUITY CAPITAL	Shareholding	Citizen	Special Fund	Cooperative
Definition	relates to the purchase of shares in a company, project or fund; involves risk-bearing equity capital provided by an investing partner; investing partner can be any legal person (citizens, special funds, foundations, companies, private equity companies, venture capital companies, municipal utilities); banks and savings banks only invest in a participation in exceptional circumstances (Basel II and Basel III); leasing companies and contractors are often not eligible for shareholding;	refers to all private persons willing to make an investment including business angels (private persons who regularly invest in companies);	EE special funds provide equity or equity-like forms of financing for EE projects;	a cooperative is a commercial enterprise founded by at least three natural or legal persons; characterised by the principles of self-help, self administration and self-responsibility; self-help refers to individual legal and/or natural persons with similar economic, social or cultural interests joining forces by means of a cooperative; purpose is to pool individual strengths: Tasks that individuals cannot accomplish on their own, can be achieved collectively;
Form	shareholding through purchase of limited liability company shareholdings (GmbH), limited partnership shareholdings (KG), limited company shares (AG) or fund units; a call option on stocks or shares is an early form of shareholding;	all types of financing are possible: equity, mezzanine capital, debt capital; there are numerous different ways to implement these: From direct investment to a savings bond;	the structure of these funds varies profoundedly ranging from complex Luxembourg (umbrella) fund structures to market structures (GmbH&Co.KG);	a registered cooperative is a legal person with an own legal personality registered in the register of cooperatives; in principle, the cooperative consists of three bodies: Executive Board, Supervisory Board and General Meeting; member of the Executive and Supervisory Board are required to be members of the registered cooperative; small cooperatives of up to 20 members can operate without a Supervisory Board; in Germany, the registerd cooperative is by far the safest legal form in terms of solvency due to internal monitoring by its members and by independent auditing carried out by the Federation of Cooperatives;
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EQUITY CAPITAL	Shareholding	Citizen	Special Fund	Cooperative
Function	shareholding strengthens the equity base the owner of a company or initiator of an EE project provides an increase in equity to start or extend an EE project, to carry out a larger/multiple EE projects; the injection of equity capital will improve the company´s or project´s credit rating and, thus, their capacity to borrow funds (bank loans); risk decreases; liquidity improves and larger investments are possible;	for a citizen, investing in energy efficient projects is more than a pure financial investment; aspects such as securing the livelihood of future generations are a big part of it; for business angels, entrepreneurial activity is frequently an important goal;	provision of equity or equity-like forms of financing;	the cooperative is a model of cooperation in business and society; it counters the challenges of competition, monopolistic structures and dependence offering a model of cooperation, independence and regional competence; cooperatives connect civil responsibility, participation and economic activity; basic features: (1) democratic (each member has a vote), (2) flexible (members can join and leave), (3) secure/ safe (liability is limited to shares), (4) responsible (ethical investment), (5) expandable (can include many different projects), (6) economical (dividends on profits), (7) visionary (e.g. a sustainable energy sector in the hands of citizens) and (8) cost-effective;
Providers	citizens, special funds, foundations, companies, private equity companies, venture capital companies, municipal utilities and/or the capital market;	many citizens finance purchase of share in solar and wind turbine limited partnership funds; these limited partnership funds are sold through savings banks, credit unions and other financial intermediaries, who act as a vehicle for raising capital;	Svs Capital Partners are one of several institutional providers in Europe who actively seek EE projects; examples: http://www.eeef.eu | http://www.salixfinance.co.uk | http://www.equtix.co.uk/html; there are corresponding funds or fund-like projects in Germany: www.baum-zukunftsfonds.de | www.proklimahannover.de; furthermore, several energy agencies offer funds to finance EE: www.eksh.org | www.energiekonsens.de. These were also shown on the KfW´s EE programme;	cooperative banks - a special form of cooperative - have unlimited financing options for EE projects as a group and with leading institutes of DZ Bank and WGZ Bank; cooperative associations also provide advice on setting up cooperatives;
Strengths	shareholding increases entrepreneurial scope; companies with increase of equity capital through shareholding are considered less risky by lenders; borrowing costs are respectively low; probability of receiving finance increases;	strong interest in (local, small-scale) investment for the benefit of energy transition; attractive opportunity/risk profile of alternative transition investments; also suitable for relatively conservative investors;	mostly risk-bearing capital or subsidies; bears leverage effect as it is the ideal complement to the existing funding programme; effect of professionalising the management of EE projects; provides learning effects;	act together, achieve more; remain independent; participate; assume responsibility; reimbursement from a cooperative is an attractive option for tax optimisation;
...	continued on the next page			

EQUITY CAPITAL	Shareholding	Citizen	Special Fund	Cooperative
Weaknesses	entrepreneurial freedom of decision-making is significantly limited as investing partners´ approval of key transactions is needed; complex contracts; entrepreneur is bound by extensive monitoring and transparency agreements; securing equity via shareholding lasts between 6-18 months, is time-consuming and expensive;	larger projects financed by citizens require a great deal of coordination over the long-term as well as a caretaker;	mostly a relatively complex process for raising capital with a relatively low probability of success; stringent requirements for the professionalism of the applicant; considerable costs for lawyers, auditors and transaction consultants;	the founding process takes time as it involves organising a suitable group of cooperative members; democratic decision-making processes can limit the ability to act in critical situations; risk of mass resignation;
Relevance for financing EE projects	shareholding is relevant for EE companies of projects as long as entrepreneurs or project sponsors do not have the financial means to finance the company or implement required projects; the final form of shareholding to increase equity is a complex issue;	financing EE projects through citizens is very much at the start of its development;	funds specialising in EE providing real, risk bearing equity are perhaps the most important financial instrument for the energy transition; enables to exploit all the potential of the numerous products available (e.g. subsidiaries, development loans, etc.); example: The European energy efficiency fund managed by Deutsche Bank (http://www.eeef.eu) shows a cost-to-investment ratio of 1:108;	in future, cooperative may be highly relevant in financing EE projects; for many energy cooperatives with a focus on renewable energy projects, part of their statute and purpose is the increase in EE;

4.2.2 Debt Capital

Companies can realise business plans by using debt capital that could not be achieved without. The debt is repaid to the respective creditor - usually banks - plus interest and redemption. Typical forms of debt capital are explained in detail below (Investopedia 2020).
These are loans, subordinated loans, promissory note loans and bonds.

DEBT CAPITAL	Loans	Subordinated Loans	Promissory Note Loans	Bonds
Definition	money given in exchange for future repayment, along with interest and collaterals provided (e.g. mortgage, transfer of property rights); in Germany, loans are typically granted by banks; they are regulated by the German Banking Act (KWG); private granting of loans is restricted by law;	any outstanding loan that in case of liquidation of borrower will be repaid only after all other debt and loans have been settled;	another form of debt financing for the public sector and mostly for companies with a good credit rating; a long-term loan granted by banks, savings banks and insurance companies which places a promissory note loan relatively large tranches to debtors with predominantly good credit ratings;	an interest-bearing security listed on the stock exchange; mainly issued for A certain maturity period; most bonds must be paid back at the end of the term;
Form	typical examples of loans: Loan agreements, purchases on account, deferments and bills of exchange;	long-term liability with a fixed interest rate, not profit-related; loan issued by individuals (members of cooperatives, citizens etc.);	banks, savings banks, cooperative banks and insurance companies place a promissory note loan to a company with a good credit rating in the form of a private placement; early termination is not possible in most cases; there is an informal secondary market; promissory note loans are not traded on the stock exchange;	issued in many different forms: Vary in terms of volume, maturity, interest rate, collateral security and repayment terms, amongst other things;
Function	based on an appropriate credit rating and collaterals provided, the entrepreneur or project sponsor/ project developer can increase funds by a factor of two to four based on the equity available (leverage effect);	further form of debt financing;	mostly unsecured loans suitable for institutional investors with large portfolios of fixed-income securities to diversify risk and stabilise their portfolios;	alternative form of debt financing; in addition to banks, a further financing option for a company; generally, purchased by institutional investors (e.g. insurance companies, pension funds, etc.) via stock exchange
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DEBT CAPITAL	Loans	Subordinated Loans	Promissory Note Loans	Bonds
Providers	there are numerous providers for loans: Commercial banks, savings bank and credit unions; there is also a relatively low number of specialist banks focusing on renewable energies or cleantech; these specialists are a good choice for EE projects;	generally issued for community members to finance specific community projects;	medium-sized companies and corporations with a good credit rating; recently, also healthy, fast-growing SMEs with good credit ratings;	bonds are issued by relevant companies; to offer a bond on the capital market it is necessary to determine the company´s "readiness for the capital market; usually, the company is prepared to meet capital market requirements as soon as an investment grade rating of at least BB is achieved; according to S&P, the long-standing, weighted default risk for this rating class is less than 1%[11;]
Strengths	standardised financial product; suitable for EE projects as repayments result from savings; no further budgets need to be approved; projects are easy to calculate;	higher interest rates for lenders; interest payments are tax deductible; for borrower, they contribute to an improved creditworthiness,	cost-effective with significantly minor efforts compared to A syndicated loan or A bond issue; low level of legal complexity; quick and easy to implement; market for promissory note loans was accessible even during the financial crisis; enables smaller companies with appropriate credit rating to gain access to the institutional capital market; no publication required (unlike bonds); slightly higher interest rate compared to A bond at A comparable level of risk;	no practical limits regarding the take-up volume of capital; also possible to increase; creates partial independence from the banks; raises awareness of company; continuous professionalization high levels of flexibility and individual tailoring; opens up the national and, where applicable, international capital market as a supplement to bank financing;
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DEBT CAPITAL	Loans	Subordinated Loans	Promissory Note Loans	Bonds
Weaknesses	difficulties in providing collateral may come up; many EE projects cannot be realised in the public space (e.g. lighting in a factory or insulation of the production line) as they are dependent on the creditworthiness of the companies or institutions; in case of lower credit ratings financing EE projects is more difficult;	higher risk as the priority of the debt is lower;	minimum volume; a rating is prerequisite for an easy placement; no marketing effect available; secondary market is not institutionalised;	a bond listing requires significant preliminary costs; successful management requires high levels of professionalism; considerable costs involved in remaining on the stock exchange; significant communication effort; rating required; transparency requirements for investors as well as the capital market; tightened liability for management and advisory board;
Relevance for financing EE projects.	financing EE projects is hardly possible without loans; the current low-interest phase is attractive for financing EE projects; additionally, there are numerous development loans available for KfW[7;]	capital is implemented for specific projects (e.g state subsidy programmes or crowdfunding);	in principle, promissory note loans are well suited for financing municipal EE projects;	financing specific EE projects is not yet known; for a certain period of time, demand for special bonds in renewable energies in particular was high among investors;

4.2.3 Mezzanine Capital

Mezzanine capital is either equity with a repayment obligation or unsecured debt capital (“unsecured loan“, “interest-bearing equity“). This depends on the individual case and is negotiated between the contracting parties. The investor does not acquire any shares in the financed company but has more or less limited participation rights and can participate in important company decisions.

Like debt capital (loan), mezzanine capital has to be paid back, generally after five to eight years. Mezzanine capital often has a mix of fixed and variable interest rates, calculated on the basis of profit (among others, distribution or dividends). Usually, there is no collateral provided for mezzanine capital. A higher risk comes with a higher rate of interest. Currently, interest rates range between 8% and 18% total interest. Mezzanine capital is used, for example, if the equity is not sufficient but the company does not want to sell shares and its profit margin is sufficient to make high interest payments.

Typical forms of mezzanine capital are described in detail in the table below:

MEZZANINE CAPITAL	Leasing	Contracting	Project Finance	Public Private Partnership	Crowdfunding
Definition	purchase and transfer of an asset to a third party for economic use; third party funds the purchase and transfer by means of a leasing fee; transfer processed with or without transferring property rights under civil law;	(1) agreement on a service contract for providing or supplying consumables as well as operating corresponding facilities; (2) contract with the purpose to achieve an energy savings guarantee given by the contractor; contracting represents a form of energy service (see also Blömer; Pehnt; Rechsteiner (2015), p. 11-13);	mostly, a target financing measure (e.g. build-up and operation of large photovoltaic plant); temporary financing based on cash generated by the respective project; credit standing of project initiator remains untouched by project financing; to minimize risks, it is advisable to make sure project financing is carried on by a third-party in case of payment default of initiator; term for SMEs is usually between 7 and 15 years;	project financing based on the cooperation between public sector, on the one hand, and several private companies, on the other hand; private companies are bound by contract to take over tasks of public functions (e.g. construction, operation and maintenance of bridges);	crowdfunding is a relatively new way of project-specific, campaign-like financing via a collective; initiators and investors meet directly on a digital communication platform; there is no anonymous financial intermediary (e.g. a bank); the contributions provided by a number of individual funders are comparably small (often less than EUR 500;
Form	the numerous forms of leasing differ in terms of transfer type, property right and tax considerations; since 2008, finance leasing in Germany is a financial service subject to approval according to KWG (German Banking Act); risk is assessed in line with the assessment of the bank; Basel II and III apply;	typically, the contractor bears the investment costs necessary for the project´s technical and partially also commercial support. The contractor´s investment costs as well as project and operating costs will be generated from the cost savings; these cost savings usually result from implementing new and clearly energy-efficient technologies; often, especially small-scale projects are economically feasible only if several technological areas are optimized; in addition to energy saving contracting, there is also energy supply contracting ensuring that a certain amount of energy is provided (see also Blömer; Pehnt; Rechsteiner (2015), p. 11-13);	typically assigned to legally independent special purpose entities with equity capital provided by project sponsor; financing banks may draw on the funds of the project´s sponsor or initiator; this is limited to the amount of equity capital paid into the special purpose entity; additional collaterals may be required;	can be backed up by grants, state guarantees and securities as well as by long-term purchase contracts; similar to “Project Financing”, the success of “Public Private Partnership” depends on a diligent analysis and a fair risk sharing approach;	crowdfunding mechanisms represent basically all types of existing financing (e.g. equity capital, mezzanine, debt capital, leasing, etc.);
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MEZZANINE CAPITAL	Leasing	Contracting	Project Finance	Public Private Partnership	Crowdfunding
Function	use of the leasing company´s ("lessor") financial capacity to finance one´s own investment; lessor places investment; the entrepreneur ("lessee") receives the lease and obtains full usage rights and pays a leasing fee as compensation; leasing enables entrepreneurs to build up business without additional capital or bank financing means; ratio between equity and debt capital does not change, credit rating remains the same, liquidity is preserved; might be possible to obtain tax advantages;	the contractor´s technical expertise and credit standing contributes to; significantly improving the given EE of a building; enhancing new technologies such as a cogeneration unit which effectively increases the energy and environmental performance (of a hospital e.g.);	suitable for projects with initially high capital need, yet comparably low risk status ("essential good") with stable and projectable cash flow surpluses;	due to high public debt, many public authorities are not able to finance capital-intensive projects on their own. This is when private financing comes into play; in case of private financing, public authorities are bound to take on fixed measures of infrastructure or services; it is the favourable credit standing of public authorities paving the way for both, urgently needed capital-intensive investments, and the use of commercial expertise;	investors´ intention (donation or "for profit"); main trigger for crowdfunding is the core idea of the campaign: initiator impresses emotionally; personal interest ("cool idea"); personal benefit (interest in the specific product or service); belief in the project ("believer" or "fan"); idea of supporting or promoting; interest for entertainment reasons; more interaction between project initiator and investor; considerable PR effect; market research based on the acquisition of capital; increase of the business network; uncomplicated transaction; social aspects; entertainment and education (e.g. how to act as a banker or venture capitalist); access to new, so far unknown markets; private customers can make venture capital investments (e.g. www.seedmatch.de); entrepreneurs from countries in need find financing support (e.g. www.kiva.org); relates to a new allocation mechanism between private capital and private demand for capital; reflects new ways of coordinating financing and investing needs;
Providers	according to the Federal Association of German Leasing Companies (BDL), there are about 180 leasing companies in Germany; further, there are numerous group-owned leasing companies; a number of these leasing companies specialise in financing EE projects (e.g. DAL – Deutsche Anlagen-Leasing from the savings bank group); a specialisation in the field of EE is not known;	specialised contracting companies, operating either as separate SMEs (e.g. www.enversum.de) or else as affiliates of municipal utilities or as group entities (e.g. www.cofely.de);	in terms of equity capital, there are numerous infrastructure funds available for large-scale projects; in terms of debt capital, there are banks which are specialised on project financing means; for SMEs, equity capital is generally provided by sponsors; until the implementation of the German Capital Investment Code (KAGB) in 2013, many projects were financed via "closed funds" which were distributed by savings banks and credit unions as well as by other participants of the financial market;	it is primarily the municipalities with local financing needs (e.g. a city ring road) who offer PPP projects;	the number of providers is (still) limited. In Germany, between ten and 15 serious providers may be active on the market. Meanwhile, there are now providers specialised in the energy transition sector and projects in this sector[2;] the number of providers of crowdfunding is still limited: In Germany, there are about 10 to 15 serious providers available on the market; so far, first crowdfunding providers get established in the sectors of energy transition and energy efficiency;
Strengths	leasing is a flexible form of financing; leasing allows to take the company´s Individual requirements and needs into account; eventually, due to certain tax advantages, a comprehensive range of leasing offers has developed in the last few decades; further to the financing advantages for entrepreneurs mentioned before, specialised leasing companies have significant expertise in the market;	maintains liquidity and stabilises the balance sheet of the contractee; provides the basis to participate in the contractor´s technical progress and expertise in the field of energy management; brings benefits and cost-savings to contractee without the need to provide investment; on average, 20-25% of the energy costs are realised by means of energy savings (see also Blömer; Pehnt; Rechsteiner (2015), p. 11-13);	real project financing is based on the cashflow rather than on the credit standing of the initiator of the project; suitable for the field of EE; at large-scale level, also adequate for EE projects;	through PPP, the public authorities are able to implement capital-intensive projects even in times of tight financial resources; involves specific sector expertise;	enables financing of strong concepts otherwise failing to fulfil expected credit standing; triggered by the emotional aspect, the relationship between investor and company is built on a direct, increasingly personal level; opportunity to use the intelligence of the crowd; allows for "pushing a vote through money"; private investors gain access to projects in need of financing; operators of platform know their investors very well: Currently, high transaction security (leading platforms show a security level of above 90%); may lay the grounds for future venture capital financing;
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MEZZANINE CAPITAL	Leasing	Contracting	Project Finance	Public Private Partnership	Crowdfunding
Weaknesses	resulting from the financial crisis and recent forms of regulation of the financial market, the leasing business has turned in many respects into the function of bank financing; before, leasing companies were able to secure leasing receivables and place these on the capital market and, thus, accept a considerably higher risk level; partially, leasing took on the function as a substitute for equity; today, it is primarily the banks who effect refinancing activities for leasing companies; accordingly, banks pass these comparably high requirements on the borrower when providing equity, granting margins and considering age and credit standing;	° Due to the long-term contract between contractor and contractee there is a considerable counterparty risk. ° Eventual concerns about the potential loss of jobs or outsourcing measures leads to resistance within the organisation. ° Contracting projects are difficult to scale. ° Default risks on both sides, liability and insurance issues in case of insolvency or damages (se also Blömer; Pehnt; Rechsteiner (2015), p. 11-13). ° As transaction costs are comparably high, contracting needs significant economies of scale in order to be economically profitable. ° Therefore, this financing option is not applicable for a big part of private residential building stocks.	comparably high complexity, considerable start-up and consulting costs and long lead time; for small-scale project financing, the market in Germany is not transparent;	public authorities are often faced with only limited resources paired with limited experience, on the one hand, and fiscal instability, on the other hand – at the same time, the complexity of projects is quite high; due to partly negative experiences with PPP projects, treasurers of the city are often profoundly sceptical as regards implementation; the complex nature of the contracts, the fear of losing control but also public authorities´ capacity to deliver specific services of adequate quality on their own, often impede rapid implementation of PPP projects;	recent type of financing; reliable legal regulation is missing; management of crowd is complex; high management overhead for entrepreneurs in terms of cultivating investor relations current willingness to take risks of investors may lead to increasing losses in the coming years;
Relevance for financing EE projects.	generally, leasing is an adequate means for financing EE projects; even more, when financing investments with the prospect of making profit; leasing competes with contracting; partially, there are challenges to be faced in terms of collateral requirements; especially when it comes to EE measures for buildings;	essence of energy savings contracting is to achieve a higher EE rate; in the past, numerous EE projects were implemented, some of these following the structure of a PPP (see 3.3.4); you´ll find a detailed presentation about energy saving contracting including additional sources in the following: “Einsparcontracting für Fortgeschrittene” (“Advanced Energy Saving Contracting”) issued by Wuppertal Institute;	small-scale project financing is being implemented for financing of EE projects;	generally, PPP structures are an adequate means to finance medium-sized and larger EE projects; there are a number of successful examples, especially in the segment of EE. “More than 30 federal contracting projects supported by “dena”, show energy savings of 37% on average. More than EUR 30 million came from private companies. The energy savings contribute to refinancing the contractors´ financial investment. ° Moreover, the federal budget is being relieved by more than EUR 1 million per year[4].”;	in a small number of cases, EE projects are already being financed via crowdfunding; there are no substantial reasons not to further expand financing via crowdfunding;

4.3. Organisational Models for Financing Energy Efficiency

Banks support company financing of energy efficiency measures by way of a wide range of financial services. These include, in particular, investment provisions and promotional loans. But there are other funding opportunities beyond banks, including organisations and institutions.

One of the main objectives of the ALLIES project was to elaborate how best to organize financing at local level with citizen participation. This chapter shows how citizen participation in energy saving measures can be organized in different legal forms associated with different corporate structures and liability limitations.

The following table gives an overview of legal forms organizing citizen participation in EE measures. Nine organizational forms are compared and described along selected criteria.

Table 5: Overview of different organization forms (DGRV 2013)[5]

Tabelle 1/5	Registered cooperative[3]	Registered association[4]	Civil law partnership[5]	Limited liability company [LLC][6]	Limited partnership[7]	Professional partnership	European Cooperative Society (SCE)	Private Limited Company (Ltd.)	Entrepreneurial Company (with Limited Liability)
Purpose	boosting earnings of members or their social/cultural interests through joint activities	all, but strictly no commercial activities	pursuance of random common interests	public limited company for the achievement of any legally permissible purpose	commercial trading by equal partners, generally all employed by the company	association of freelancers; no commercial trading	supporting members' needs and/or their commercial and/or social activities	public limited company under English law for the achievement of any legally permissible purpose	Like Ltd. (GmbH)
Formation	at least 3 members who are required to stipulate bylaws; no notarial certification; formation audit; upon entry in the cooperatives' register;	at least 7 members who are required to stipulate bylaws; no notarial certification; established upon entry in the associations' register;	at least 2 shareholders who may also conclude an informal or written contract; not entered in the commercial register;	notarial certification of a memorandum of association not necessarily requiring several shareholders; established upon entry in the commercial register	at least 2 shareholders who may also draw up informal or written articles of association; Ltd. as general partner (see below), additionally one limited partner established on commencement of business, latest on entry in the commercial register	at least 2 partners; written partnership agreement on entry in partnership register	at least 5 natural persons or 2 legal entities whose permanent abode or company headquarter is located in 2 member states or foundation in the process of change; established upon entry in the register of cooperatives	in England, under English law; Application for entry in the English commercial register with necessary documents (articles of association comprising two parts, founding declaration) or shell company acquisition; If centre of administration is in Germany and a branch office is existing; obligation to register in the German commercial register; established on entry in the English commercial register	notarial certification of an article of partnership, not necessarily requiring several shareholders; established on entry in the commercial register
Legal responsibility	legally responsible as a legal entity	legally responsible as a legal entity	not a legal entity; partial legal responsibility	legally responsible as a legal entity	not a legal entity, but rights can be acquired and liabilities assumed under its business name; can be entered in the cadastral register and can act before a court of law	not a legal entity, but rights can be acquired and liabilities assumed under its business name, can be entered in the cadastral register and is capable of acting before a court of law	legally responsible as a legal entity	legally responsible as a legal entity under English law	legally responsible as a legal entity
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5 amendments made after 2013 have not been taken into account
6 Eingetragene Genossenschaft eG
7 eingetragener Verein (eV)
8 Gesellschaft bürgerlichen Rechts (GbR)
9 Gesellschaft mit beschränkter Haftung (GmbH)
10 GmbH & Co. KG

Tabelle 2/5	Registered cooperative	Registered association	Civil law partnership	Limited liability company [LLC]	Limited partnership	Professional partnership	European Cooperative Society (SCE)	Private Limited Company (Ltd.)	Entrepreneurial Company (with Limited Liability)
List of share-holders	maintained by itself	maintained by itself	in practice, as with cooperative	all changes to be reported immediately to the commercial register	entry of shareholders in the commercial register (additional to Ltd. requirements	entry of the partners in the Partnership Register	maintained by the SCE itself	maintained by the English commercial register; annual obligation to update	as with GmbH
Capital	no fixed capital; member acquires shares by deposits; no minimum price per share	no fixed capital; membership fees set in bylaws	no fixed capital; no minimum deposits	fixed share capital of min. EUR 25,000; min. deposit of 25% of initial contribution; min. EUR 12,500 in total; min. share price EUR 1	no fixed capital (share capital held by GmbH); no min. deposits; (see also requirements for GmbH)	no fixed capital; no minimum deposits stipulated	no fixed capital; each member subscribes for a share in the business; deposits must be paid; min. 30,000 EUR	in general, 100 GBP, but 1 GBP is sufficient to initiate foundation	Basically, fixed share capital of EUR 1 to EUR 24,999, up to EUR 25,000; obligation to establish reserves
Business name	no fixed capital; member acquires shares by deposits; no minimum price per share	no fixed capital; membership fees set in bylaws	no fixed capital; no minimum deposits; fixed share capital of min. EUR 25,000; min. deposit of 25% of initial contribution min. EUR 12,500 in	total; min. share price EUR 1	no fixed capital (share capital held by GmbH); no min. deposits; (see also requirements for GmbH)	no fixed capital; no minimum deposits stipulated	no fixed capital; each member subscribes for a share in the business; deposits must be paid; min. 30,000 EUR	in general, 100 GBP, but 1 GBP is sufficient to initiate foundation	Basically, fixed share capital of EUR 1 to EUR 24,999, up to EUR 25,000; obligation to establish reserves
Company assets	own assets of the legal entity	own assets of the legal entity	special jointly-held assets	own assets of the legal entity	jointly-held total assets of the share-holders	jointly-held total assets of the partners	own assets of the company as a legal entity	own assets of the company as a legal entity	as with GmbH
Change of share-holders	unrestricted number of members free to join or leave; admission by approval of eG; termination of membership or exclusion by the end of the fiscal year in compliance with the cancellation period in bylaws; cancellation of membership by transferring assets, partial transfer possible	admission by approval of the eV; termination of membership in compliance with the cancellation period in bylaws	only by consensual agreement of all shareholders, if not otherwise differentiated by articles of association	no termination possible; shares may be sold (notarial certification) and are inheritable	only by consensual agreement of all shareholders; articles of association may include differing provisions; entry in the commercial register	as with GmbH & Co. KG, inheritability by third parties, who may be partners within the meaning of the respective definition of the freelance professions of the professional partnership, may be stipulated by contract; entry in the partnership register	unrestricted number of members; members free to join or leave, admission with SCE approval; termination of membership to end of fiscal year in compliance with the cancellation period stipulated in the bylaws; cancellation of membership by transferring the business assets, partial transfer possible	restricted number of members; entry only by consent of all shareholders and/or directors; shares are freely transferable	as with GmbH
Disputes	resigning member is entitled to reimbursement of deposits (business assets)	no claims against eV	entitlement to repayment of deposit according to articles of association; 5-year risk of extended liability	entitlement according to the articles of association; maintenance of capital	Entitlement to repayment of deposit according to articles of association; 5-year risk of extended liability	entitlement according to partnership agreement; upon repayment of the deposit, 5- year risk of extended liability	entitlement of the resigning member to reimbursement of the deposit (business assets)	entitlement according to the articles of association	as with GmbH
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Tabelle 3/5	Registered cooperative	Registered association	Civil law partnership	Limited liability company [LLC]	Limited partnership	Professional partnership	European Cooperative Society (SCE)	Private Limited Company (Ltd.)	Entrepreneurial Company (with Limited Liability)
Liability	cooperative assets liable to creditors; in case of insolvency, obligation of members to an additional contribution can be regulated in bylaws	assets of the association only	joint, i.e. direct and unlimited liability by all shareholders; liability may be limited to the company assets if so agreed individually with creditors	company assets liable to creditors; obligation by shareholders to make additional contribution can be regulated in the articles of association	joint liability by all shareholders (in the case of the GmbH, limited to assets; for the ltd. partner, limited to deposit)	generally joint, i.e. direct and unlimited; liability by all partners; liability due to deficient professional practice limited to the partner providing the professional service; limitation, e.g. to maximum amount, possible; personal liability can be excluded, limited to company assets, preconditions are professional indemnity insurance and name affix, e.g. "with limited professional liability"	assets of the cooperative itself	company itself to amount of equity	as with GmbH
Legally stipulated organs	board of directors (min. 2 people), supervisory board (min. 3 people) and general assembly; cooperatives with less than 20 members: board of directors (1 person), supervisory board optional	board of directors, members' general assembly	none	managing directors and shareholders' assembly; supervisory board optional	none (see requirements for GmbH)	no particular organs	general assembly and supervisory body and management body (dualistic system) or administration body (monistic system)	shareholders (shareholder, managing director and company secretary)	as with GmbH
Management	power of joint management by the board of directors, differing regulations may apply	power of joint management by the board of directors, differing regulations may apply	power of joint management by the board of directors, differing regulations may apply	power of joint management by the board of directors, differing regulations may apply	power of sole management by the general partner (see requirements for GmbH), differing regulations may apply	power of sole management by each partner, differing regulations may apply	joint management depending on executive or administrative body	power of joint management by the director, differing regulations may apply	as with GmbH
Representation	power of joint representation by the board of directors, differing regulations may apply	power of joint representation by the board of directors, differing regulations may apply	power of joint representation by all shareholders, differing regulations may apply	power of joint representation by the managing directors, differing regulations may apply	power of sole representation by the GmbH	power of sole representation by each partner, differing regulations may apply	power of joint representation by the executive or administrative body, differing regulations may apply	director, legal entity also possible, in case of several directors; in general, joint representation; deviation due to articles of association may apply	as with GmbH
...	continued on the next page								

Tabelle 4/5	Registered cooperative	Registered association	Civil law partnership	Limited liability company [LLC]	Limited partnership	Professional partnership	European Cooperative Society (SCE)	Private Limited Company (Ltd.)	Entrepreneurial Company (with Limited Liability)
Monitoring and information rights of shareholders	monitoring rights only through supervisory board; right of all members to information only in the general assembly; 10% of members can request a general assembly (protection of minorities)	only in the members' assembly, details in the articles of association where applicable	further monitoring rights through personal notification about the business of the company and inspection of the books; agreements to the contrary shall not apply	personal right of all shareholders to information that can be exercised at any time; agreements to the contrary shall not apply; shareholders, whose shares are equivalent to 10% of the share capital, may request a general assembly (protection of minorities); monitoring rights of supervisory board, if applicable	monitoring rights generally according to articles of association	further monitoring rights through personal notification about the company's business and inspection of books; agreements to the contrary shall not apply	report to advisory board at least every three months; in addition, the supervisory body must be informed of all events that have a noticeable effect on SCE		as with GmbH
Shareholders' resolution	one vote per member, resolutions passed in general assembly; in the case of business cooperatives; 1 member can be granted up to 10% of all designated votes, simple majority is basically sufficient	one vote per member, simple majority is basically sufficient, differing regulations may apply	One vote per shareholder, unanimous decision, differing regulations may apply	voting right according to shares; resolutions passed strictly in the shareholders' assembly; often majority decisions apply	voting right generally according to articles of association (usually depending on capital)	each shareholder has one vote, unanimous decisions, differing regulations may apply	each member has one vote, resolutions passed in general assembly	voting right generally according to articles of association (usually depending on capital)	as with GmbH
Annual statement	drawn up by board of directors within 5 months after end of fiscal year, passed by the general meeting within 6 months, including balance sheet, profit and loss statement with appendix	no statutory requirements	no statutory requirements	drawn up by the board of directors within 3 months after end of fiscal year, passed by company within 8 months (for small GmbHs, 6 or 11 months); Including balance sheet, profit and loss statement with appendix	drawn up by board of directors within 3 months after end of fiscal year, determined by company within 8 months (for small GmbHs, 6 or 11 months); Including balance sheet, profit and loss statement with appendix	no statutory requirements	as with eG	determined by English law due to centre of administration in England; at the latest, 22 months after establishment/annual submission of annual statement to companies' registration office, business report, profit and loss statement, notes, auditor's report, relief for small/medium-sized companies	as with GmbH
Reserves	statutory reserve required to cover balance sheet losses; other reserves possible; bylaws regulate minimum funding	possible	possible	reserve required for own shares, no statutory reserve, other reserves possible, articles of association regulate minimum funding	possible, see requirements for GmbH	possible	reserve required for own shares, otherwise as with the eG	no statutory reserve, but other reserves possible	mandatory reserve for capital increase; compensation for net loss or loss brought forward
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Tabelle 5/5	Registered cooperative	Registered association	Civil law partnership	Limited liability company [LLC]	Limited partnership	Professional partnership	European Cooperative Society (SCE)	Private Limited Company (Ltd.)	Entrepreneurial Company (with Limited Liability)
Profit and loss distribution	profit distribution decided by general assembly; distribution to members according to allocation to reserves in relation to the deposits paid by them on their shares	strictly not provided for	equal distribution to shareholders, differing regulations may apply	profit distribution decided by shareholder assembly, distribution according to allocation to reserves in relation to the deposits paid by them on their shares, differing regulations may apply	generally according to articles of association	equal distribution to shareholders, differing regulations may apply	as with eG	see annual statement	as with GmbH, but with mandatory reserve
Tax particularity	reimbursement as business expense						as with eG		
Advice and support	from cooperative association, particularly on economic, legal and tax- related issues	not provided for	not provided for	not provided for	not provided for	not provided for	as with eG	not provided for	not provided for
Publication and publicity of annual statements and management report	annual statements, management report and report of supervisory board are submitted to register of cooperatives; mandatory publication only for large cooperatives; submission to electronic Federal Gazette which is publicly accessible	no publication or publicity	no publication or publicity	submission of annual statements, management report and proposal and decision on appropriation of profit to commercial register; notice in Federal Gazette of submission to commercial register, publication in the Federal Gazette for large GmbHs	submission of annual statements, management report and proposal and decision on appropriation of profit to commercial register; notice in Federal Gazette of submission to the commercial register, publication in the Federal Gazette for large GmbHs	no publication or publicity	as with eG	comparable to GmbH	as with GmbH
Dissolution and termination	Dissolution, for example, by general assembly resolution, lapse of time, liquidation usually by board of directors on grounds of statutory regulations; after liquidation, registration for deletion of distribution of net equity among members after a twelve-month period	essentially as with eG	company closes down, for example, on notice of termination, achievement of or inability to achieve the business objective, lapse of time, opening of insolvency proceedings on the assets of a shareholder or the death of a shareholder; liquidation is determined by shareholders	company closes down, for example, due to lapse of time, shareholders' resolution, court judgement, opening of insolvency proceedings, liquidation by managing directors on grounds of statutory regulations; after liquidation, registration for deletion of business	dissolution due to lapse of time, shareholders' resolution, notice of termination, court decision, liquidation usually by GmbH; additional liquidation of GmbH, after liquidation is completed; registration for deletion of the business distribution of net equity; possible 5-year risk of extended liability	essentially like GbR, after liquidation, registration for deletion of the business	as with eG	comparable to GmbH	as with GmbH

5. LFEEEs as an Advanced Option of Fostering Energy Efficiency

5. LFEEEs as an Advanced Option of Fostering Energy Efficiency

As described above, the market hosts many financial institutions willing to offer their services also for financing energy savings. There are also several organisational models to be chosen from when setting up a structure for financing EE projects.

The LFEEE stands out here because it not only promises to secure both the necessary investment as well as provide for the technical expertise it also reaches out to stakeholders and promotes awareness raising for possible and feasible EE projects, in the first place. By doing so it constitutes a one-stop-shop, hitherto widely absent on the energy savings landscape.

In this chapter, first the operational model of the LFEEE is described as developed in the REEG project building on the organisational form of cooperative. Then, the experience developing novel LFEEEs in ALLIES in Allgäu, Southwest Germany, Hungary and Silesia, South Poland are described in turn.

5.1. Operational Model

In a nutshell, the overall principle of an LFEEE is that it is able to support identification, planning, financing, implementing and closure of Energy Efficiency (EE) projects out of one hand. In order to do so it encompasses the necessary expertise and resources within one institution and encourages all relevant actors in the region to be part of the LFEEE. These can be political decision-makers, chambers and associations, local banks, SMEs, energy consultants and many more. LFEEEs address primarily energy savings in SMEs, municipal facilities, schools and other institutions because they often lack the financial and human resources to foster energy efficiency on their grounds.

In its operational model, the LFEEE incorporates services traditionally offered by Energy Savings Performance Contracting and combines them with the benefits of the legal form of a cooperative. As a cooperative it collects investments from its members and reinvests them in energy efficiency projects of its clients. The energy savings not only cover the operational costs of the LFEEE but clients directly reap profit from them not to mention benefits in living comfort, environmental protection and CO2 reduction.

The operational model of the LFEEE encompasses the entire cycle underlying energy efficiency measures starting from activating involved/affected stakeholders; to assessing the technical finesse of the project in concern; up to finalizing the investment and operation contract securing its successful closure. The graphic below visualizes the LFEEE's step by step operations.

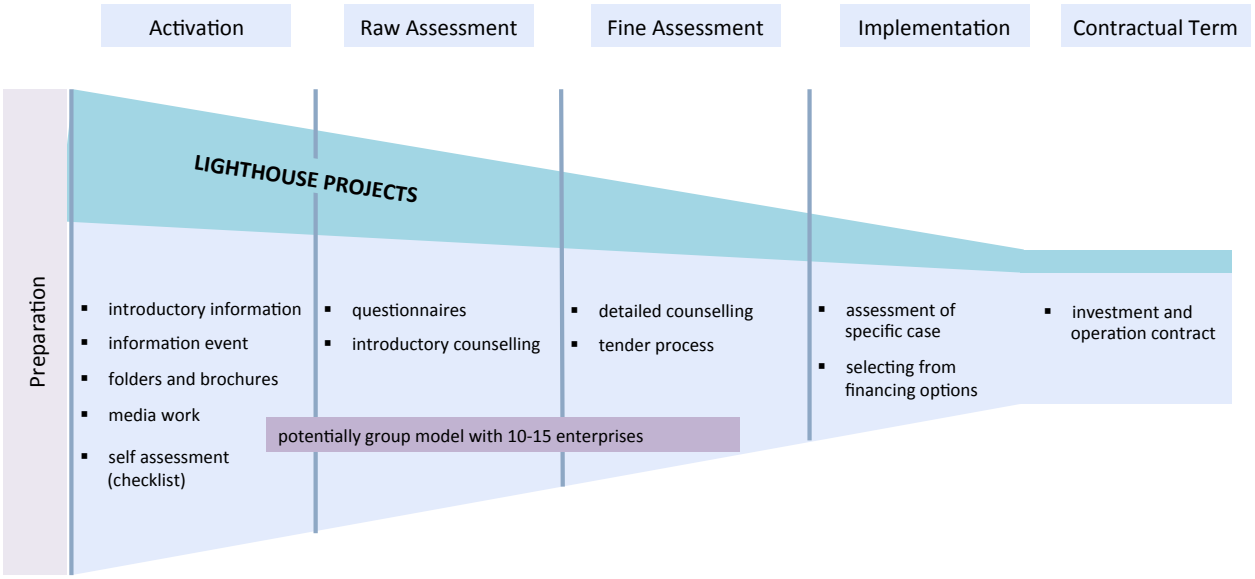


Figure 4: Operational Model of an LFEEE

Phase 0: Activation and Lead Generation

In the very initial phase of setting up an LFEEE information campaigns, rapid test methods and special consultancy offers can be helpful in generating leads for projects. Equally or maybe even more important, this also activates key stakeholders and motivates them to join in.

Phase 1: Feasibility Review: Raw and Fine Assessment

Step 1: Differentiating clients

This involves a rough assessment of the feasibility of a client's request from the perspective of the LFEEE. If the client is a company, a church organisation, an association or any other **private actor,** it can contract an energy service provider without a formal tendering process. Contrarily, municipal clients or any other **public actor** is subject to public procurement law (Vergaberecht) and is required to put procurement of products and services including energy performance contracting (EPC) to tender. In turn, the LFEEE can take part in public EPC tenders and offer a bidding.

Step 2: Identifying measures

Private companies are also subject to **credit checks,** whereas municipalities and other public actors generally are not. For clients such as church organisations or associations, the LFEEE checks their creditworthiness. For companies, a credit check is recommended before proceeding (e.g. by using Creditreform).

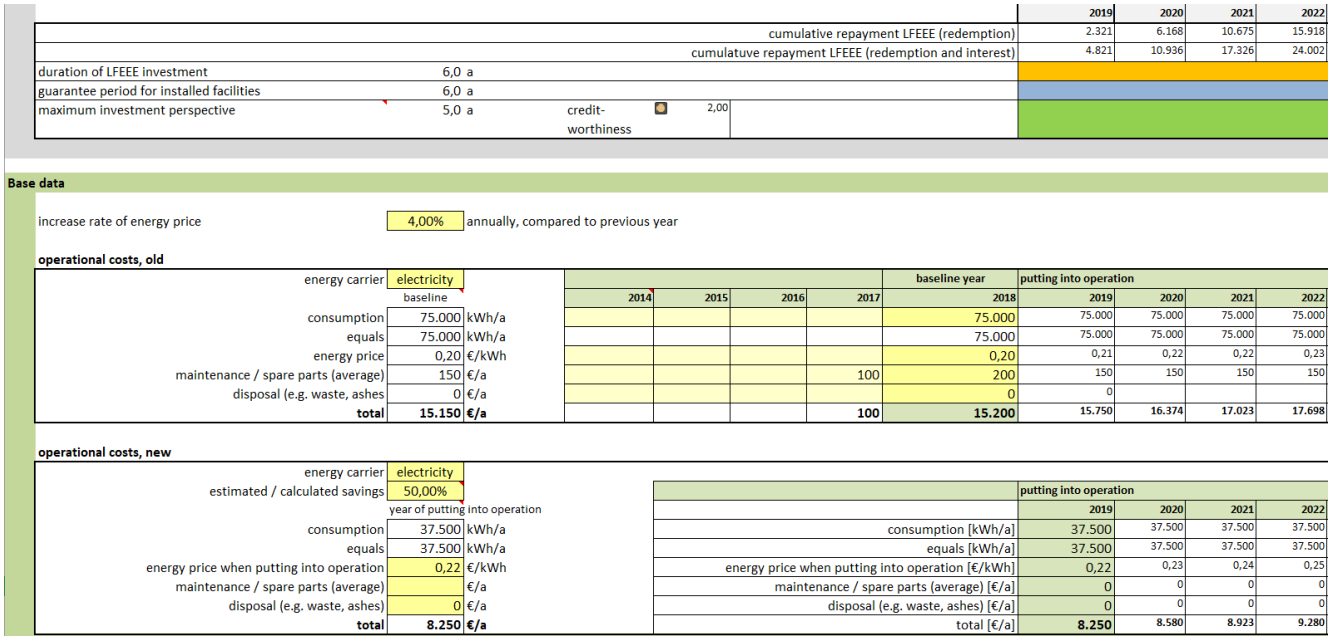
Step 3: Feasibility review

For public sector clients, the energy efficiency measures are generally already part of the tender so the LFEEE can check their feasibility. For private clients there are, on the one hand, those who already have identified possible energy saving measure(s) for implementation, for example, installing an efficient lighting system. On the other hand, some just want initial counselling on what energy efficiency measures would be suitable for their business or facilities.

The first step in the feasibility review is a simple **questionnaire** applicable to all user groups (companies, municipalities, etc). The questionnaire (to be found on the following website https://allies-project.eu/Sharing/Documents)

1. helps to identify areas in which the establishment is planning or wants efficiency measures; and
2. determines key energy figures that can be used for an initial, measurable comparison between the starting point and the future situation.

If the questionnaire results in the feasibility of the measures the next step in the **feasibility review** is to determine the economic viability of the project, that is to determine the expected payback period. For this purpose, B.A.U.M. Consult developed an Excel-based evaluation tool.



					2019	2020	2021	2022
				cumulative repayment LFEEE (redemption)	2.321	6.168	10.675	15.918
				cumulatuve repayment LFEEE (redemption and interest)	4.821	10.936	17.326	24.002
duration of LFEEE investment	6,0	a						
guarantee period for installed facilities	6,0	a						
maximum investment perspective	5,0	a	credit-worthiness	2,00				

Base data

increase rate of energy price: 4,00% annually, compared to previous year

operational costs, old

energy carrier	electricity					baseline year	putting into operation			
baseline			2014	2015	2016	2017	2018	2019	2020	2021	2022
consumption	75.000	kWh/a					75.000	75.000	75.000	75.000	75.000
equals	75.000	kWh/a					75.000	75.000	75.000	75.000	75.000
energy price	0,20	€/kWh					0,20	0,21	0,22	0,22	0,23
maintenance / spare parts (average)	150	€/a				100	200	150	150	150	150
disposal (e.g. waste, ashes	0	€/a					0	0			
total	**15.150**	**€/a**				**100**	**15.200**	**15.750**	**16.374**	**17.023**	**17.698**

operational costs, new

energy carrier	electricity	
estimated / calculated savings	50,00%	
year of putting into operation		
consumption	37.500	kWh/a
equals	37.500	kWh/a
energy price when putting into operation	0,22	€/kWh
maintenance / spare parts (average)		€/a
disposal (e.g. waste, ashes)	0	€/a
total	**8.250**	**€/a**

	putting into operation			
	2019	2020	2021	2022
consumption [kWh/a]	37.500	37.500	37.500	37.500
equals [kWh/a]	37.500	37.500	37.500	37.500
energy price when putting into operation [€/kWh]	0,22	0,23	0,24	0,25
maintenance / spare parts (average) [€/a]	0	0	0	0
disposal (e.g. waste, ashes) [€/a]	0	0	0	0
total [€/a]	**8.250**	**8.580**	**8.923**	**9.280**

Figure 5: Extract of the evaluation tool.

The complete tool can be found on the following website:
https://baumev.de/down.asp?Name=%7bOXOCSZYEZG-852020173O6-OOHYMWNBAX%7d

Ultimately, each LFEEE can decide for itself what payback period is 'acceptable' to them and it is also possible to exceed the upper limits in certain cases.

In the context of REEG, an upper limit was set at seven years for companies, twelve years for municipalities and ten years for church organisations and other not-for-profit institutions such as associations. This allows for assessing runtimes, risks and effects of the measures using the results of the questionnaire and the variable assumptions. The computational tool uses a number of input parameters about a planned measure to determine a number of evaluation results, which are mainly

- the cash flow when an LFEEE realises and finances the measure, taking into account a complex investment plan with the project owner's equity ratio (equity or debt capi-tal, subsidies) where necessary; and
- the effects of efficiency measures on CO2 emissions.

The tool helps the decision-makers in the LFEEE to easily evaluate the 'feasibility' of a measure. In a nutshell: if the tied-up capital period for the LFEEE investment is shorter than the guarantee period for the equipment installed, the measure can generally be financed. This means: the investment can be repaid using savings before the guarantee period ends.

Phase 2: Preparing an offer

An offer is prepared as an energy savings guarantee contract if the feasibility review was successful. In the contract, the LFEEE guarantees to the client energy savings or annual cost savings in percentage and estimates the contracting rate that the client is required to pay each month to the LFEEE if it accepts the offer. Phase 2 is the most significant and most costly phase in the whole project process.

Selecting technical partners, obtaining quotations, technical partner contract

In contrast to the private energy saving contractors on the market, the LFEEE does not implement measures itself, and instead employs qualified partners for the entire technical implementation - from the region if possible. Here, a number of different configurations are possible for technical partnerships:

- regional craftsmen businesses together with equipment wholesalers and, if necessary, a planning office;
- firms specialized in certain technology, e.g. for optimising lighting, heating systems or refrigeration technology, that offer a one-stop-shop for planning and technical implementation, but may also be prepared to cooperate with regional businesses for technical implementation; and
- power plant manufacturers together with a regional craftsmen business and, if necessary, a planning office.

The top criterion for selecting the technical partner is the qualification and willingness of the partner to provide an energy savings guarantee that the LFEEE can pass on to the client. Savings guarantees used in conventional contracting models with costly regular checks throughout the whole contractual period are materially disproportionate to the costs of the guarantee in the context of the LFEEE. It, therefore uses a **simplified version of a savings guarantee,** reasonable for the technical partners and sufficient for the LFEEE and its clients as outlined in the energy savings guarantee contract.

REEG technical partner contract

The LFEEE generally concludes only one contract with the consortium leader of several technical partners. Both LFEEE services and technical partner services are subject of the contract.

The contract includes an energy savings guarantee for the LFEEE. Furthermore, the technical partner commits to a quality warranty for the newly installed equipment. The warranty period is determined on a case-by-case basis and is at least equal to the contractual term. Extensions may be negotiated for longer contractual terms. In return, a fee s specified in the contract which the LFEEE owes the technical partner for its services. Planning costs are generally included in the fee. Special agreements can be made, for example, concerning costs of detailed planning if the contract falls through.

Calculating the contracting rate

An offer is prepared based on monthly contracting rates in accordance with the client's financing wishes. The LFEEE offers 100 percent financing, so that the measure has a neutral impact on the client's budget. Optionally, a mix of financing applies the LFEEE and the client splitting the financing on a fixed ratio.

For 100 percent financing, the contracting rate is calculated as follows: The starting point is the LFEEE's costs consisting of interest costs for capital and the cooperative's operating and management costs. Each LFEEE must set its own costs. The contracting rate is then calculated like an annuity loan. 4 percent is for interest on subordinated loans, 3.15 percent is for operating and management costs and 2 percent is for the risk premium. The cooperative's average costs are calculated at around 2.5 percent p.a. without taking into account interest on capital. These conditions are extremely favourable in comparison to other contracting offerings[11].

Offering clients an energy savings guarantee contract

As the name suggests, the contract includes a savings guarantee for the client, which is secured by the technical partner (see above). The guarantee is defined as follows: The LFEEE determines the average annual requirement of energy consumption that can be influenced together with the client. The basis for this is the data from a prior submitted concept. Where applicable, the previous findings of a certified energy consultant feed into this.

The LFEEE guarantees to the client that its energy consumption will decrease even if the requirement does not change and the equipment is not changed. The guaranteed saving is solely based on technical measures. Other aspects (for example, use changes, change of energy supplier or change in energy prices or taxes) are not taken into consideration.

If levels of consumption are part of the agreement, the parties shall measure consumption before the implementation of the project begins, based on Annex A5 of the contract. The level of consumption will be assessed again when the measure is accepted. Both parties record the outcome of the measurement. If the measurement taken out based on Annex A5 shows that the savings guaranteed by the LFEEE have been achieved (with an agreed tolerance of +/- 5 percent), the installed assets are approved. A typical energy efficiency measure that is generally used in this process is the installation of a voltage regulator.

Should the measurement show that the savings guaranteed by the LFEEE have not been achieved, the LFEEE has an opportunity to rectify this, in accordance with Annex A5. In turn, if the outcome of the measurement is not in line with the saving guaranteed by the REEG, the client may withdraw from the contract or renegotiate the conditions of the contract.

11 Like REEG, the LFEEE uses the B.A.U.M. Zukunftsgenossenschaft conditions as a reference. Like an annuity loan, it calculates the contracting rate by using an existing calculation tool.

Phase 3: Project implementation

When the client concludes the contract, it is purchasing a service package from the LFEEE. The LFEEE management's responsibility is to monitor the technical implementation of measures by technical partners for the client and to intervene in the interests of the client if necessary. The implementation of measures ends upon turnkey handover, including the acceptance report and any general documentation for ISO 50001 (presentation of CO_2 White Certificate).

Developing an implementation and financing plan for selected projects are further parts of the project implementation. Finally, the investment case is decided upon and contracts closed.

Phase 4: Contractual term

During the contractual term, the LFEEE is obligated to provide a guaranteed savings warranty in accordance with the energy savings guarantee contract, and to provide a warranty as part of the manufacturer's guarantee and the technical partner's guarantee. After the contractual term, the client generally obtains ownership of the equipment.

Investment Models

Non-Financial Model

While the overall idea of the LFEEE approach is to combine activation, consultancy and engineering services with the implementation and financing of energy efficiency measures, other models of LFEEEs are feasible. At least in an initial phase it may be worthwhile to implement an entity that concentrates on non-financial services. This may be the case when there is no need for the LFFEEE to provide financial support itself since initiators have a strong partner in the financial domain who is willing and capable to finance the measures that the LFEEE develops. Nonetheless, in its final stage the LFEEE will most probably be involved in investment activities. This is why the following overview describes LFEEE models that involve financial activities.

Basic Model

This sketch describes the basic model of a local financing entity: The LFEEE (in whatever legal or organisational form) collects financial means from investors such as private households, companies, municipalities, banks etc in its "regional community". It assesses and plans energy efficiency measures in premises of the same regional community (in this case: an enterprise) and – if technical and financial viability can be proven – invests with the acquired financial means into energy efficiency assets. The latter reside in the beneficiary's premises but remain the property of the LFEEE (at least until the end of a contracted period of time). For technical reasons the LFEEE may rent parts of the premise to mount the assets and may even have to pay a rental fee. In this basic model the assets are operated by the beneficiary to reduce risks and workload of the LFEEE and optimize operation. Neither equity nor debt in the balance of the enterprise are affected by the investment. However, the enterprise remunerates the LFEEE on the basis of a long-term contract. Remuneration will typically be in the range of the expected or proven savings induced by the measure.

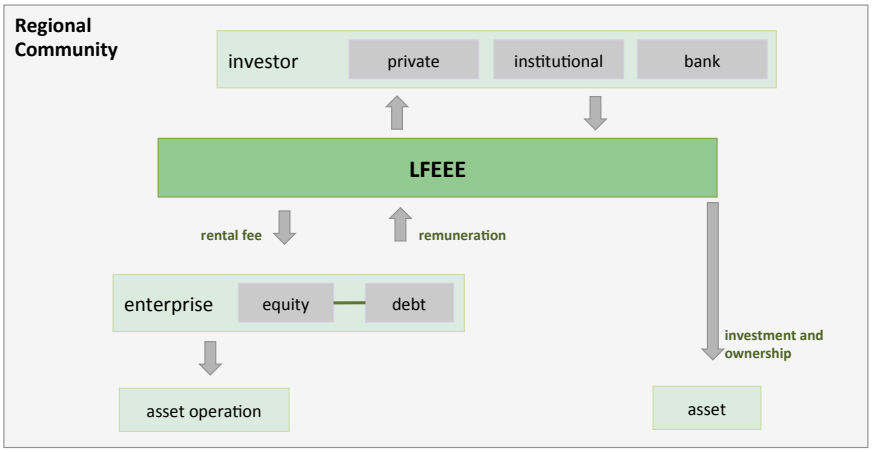


Figure 6: Basic Model

Basic Model all inclusive

In this model asset operation is with the LFEEE. For the beneficiary this means one-stop-shopping and minimal involvement. The LFEEE takes responsibility for maintenance, procurement of energy (e.g. gas for an installed CHP) and all activities to meet local and legal requirements.

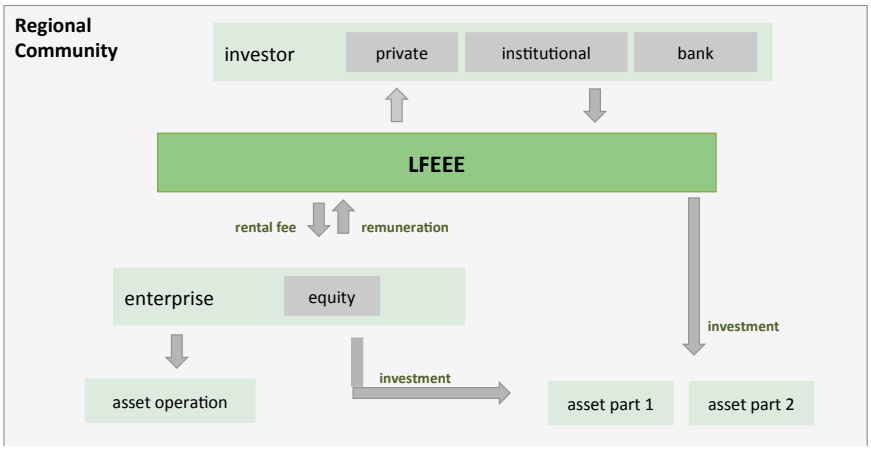


Figure 7: Basic Model all inclusive

Basic Model with Shared Assets

Mostly for financial reasons or to reduce risks it may be beneficial that LFEEE and beneficiary share the investment. An example could be a complex refurbishment of a production hall where the enterprise invests into the insulation of the building and the roof-top PV-installation whereas the LFEEE provides a combined cooling and heating system (CCHP) and a new compressed air system. A potential reason could be that in case of the enterprise bankruptcy the LFEEE could take back the "mobile" CCHP but not so easily "immobile" the insulation and the PV-modules.

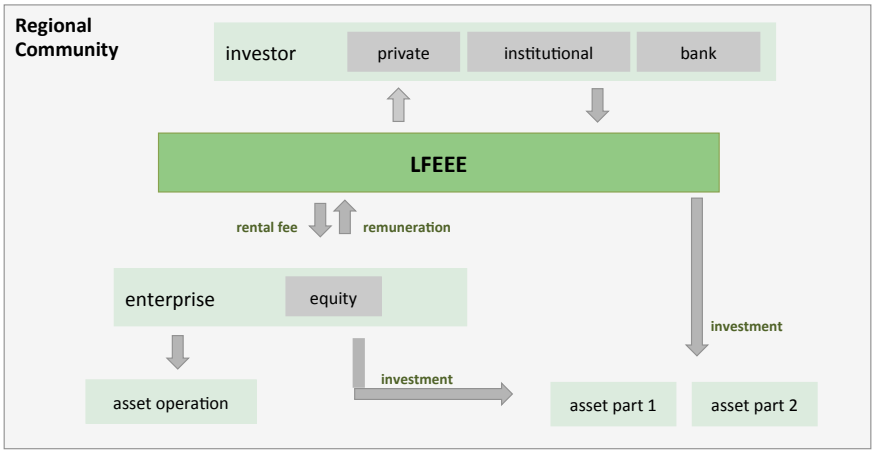


Figure 8: Basic Model with Shared Assets

Shared Assets with Bank Loan

Here the enterprise does not use its equity but a bank loan to invest in its part of the shared asset model. This reduces the financial engagement and risk of the LFEEE and the interest for the bank loan may be lower than the remuneration to the LFEEE. Banks tend to like this model since the LFEEE compensates non existing equity of the beneficiary and thus reduces the need for collateral.

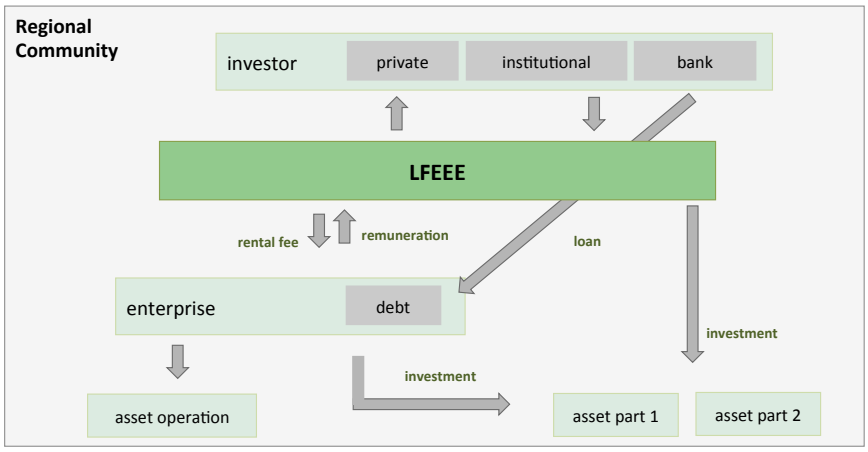


Figure 9: Shared Assets with Bank Loan

Loan Based Model

In this model the LFEEE does not directly invest into the assets but rather supplies the enterprise with financial means to do so itself. A proven mode for such financial engagements are subordinate loans or mezzanine capital. Remuneration for the LFEEE is via interest for the loan and/or a handling fee for the preparation of the project.

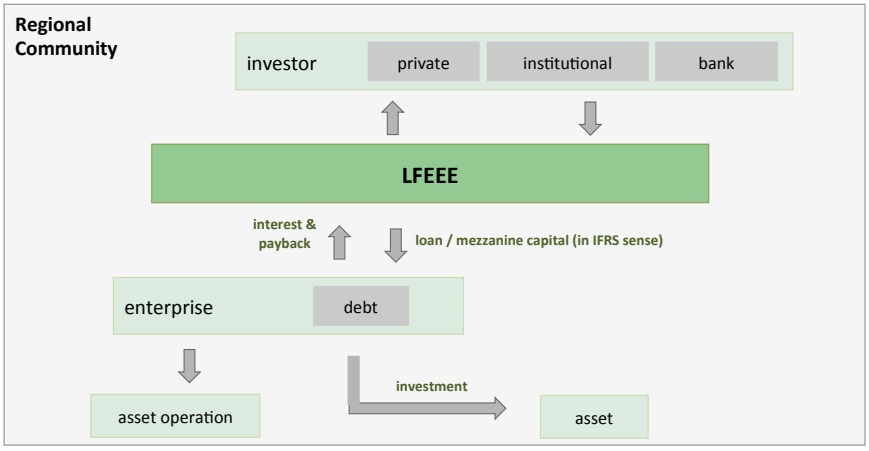


Figure 10: Loan Based Model

Mixed Financing Model

This model is similar to the "Shared Assets with Bank Loan" model. Here the LFEEE does not invest directly and does not withhold the property rights for the assets. It rather provides equity for the benefitting enterprise by acquiring shares and voting rights. This increases equity and may allow a bank to give loans to the enterprise. In many cases, this model may not be an option because it maximises the risks and overloads the capacity of the LFEEE. It may be a choice if the regional community has an interest in investments beyond the goal of increasing energy efficiency.

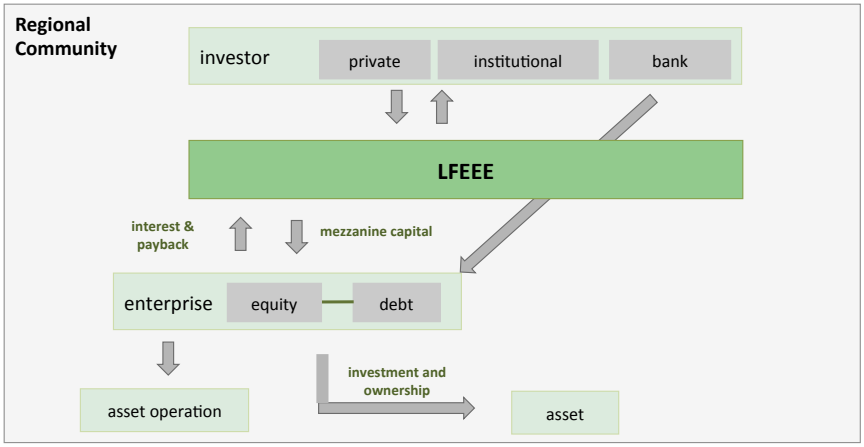


Figure 11: Mixed Financing Model

5.2. Establishing an LFEEE in Germany

THE REEG MODEL PROJECT IN GERMANY (B.A.U.M. e.V.)[12]

The idea of the Regional Energy Efficiency Cooperatives (REEG) was that citizen and other investors jointly invest private capital in energy efficiency measures for companies, public institutions and possibly also private households against an attractive interest rate. Based on an examination of many suitable municipalities, the project decided on the following regions:

1. City of Aachen: 249,000 inhabitants, North Rhine-Westphalia
2. Berchtesgadener Land (district with 15 municipalities): 102,000 inhabitants, Bavaria
3. City of Norderstedt: 74,600 inhabitants, Schleswig-Holstein

Energy efficiency cooperatives should be set up in each municipality and efficiency measures initiated and implemented operationally. The structure and functioning of the already existing Zukunftsfonds eG, which has a national, but not a regional focus, was taken as a basis. This was adapted on a case-by-case basis and modified in consultation with the regional actors and the responsible cooperative association. Involved key stakeholders and partners were:

City of Aachen: District Craftsmen's Association Aachen • Electrical Guild Aachen • United Business Associations Aachen e.V. • Protestant parish • Savings Bank Aachen • Aachen Chamber of Industry and Commerce • Aachen Public Utilities (STAWAG)

Berchtesgadener Land: District Office Berchtesgadener Land • Bad Reichenhall municipal savings bank • Volksbank Raiffeisenbank Energiegenossenschaft Oberbayern Southeast • Volksbank Raiffeisenbank Oberbayern Südost e.G. • the Berchtesgadener Business Development Corporation • Residential building in Berchtesgadener Land • Bavarian Association of Cooperatives (GVB)

City of Norderstedt: Guild "Heating Sanitary Air-conditioning" • Mayor of the municipality of Ellerau • Department for Sustainable Norderstedt (NaNo) • Company Sustainable Norderstedt (EGNO) • Volksbank Elmshorn e.G. • Volksbank Pinneberg-Elmshorn e.G.

Main result of the project:

City of Aachen: As a prerequisite for the establishment of an energy efficiency cooperative, projects with a total investment volume of at least 1.5 million euros were considered necessary in order to avoid or minimize initial losses. 20 projects were identified, five of which have been examined and recommended for implementation. One major project (lighting renovation in a school) was developed to a contractually acceptable stage and offered to the customer. Since project acquisition required a higher expenditure of time and resources than expected, the required investment volume of the projects could not be achieved by the planned date of foundation. The "hen-egg-dilemma" came into effect and the foundation of REEG Aachen was postponed.

Berchtesgadener Land: On October 22, 2014 Germany's first "REEG" was formally established, although not by a new foundation, but by expanding the business areas of an existing energy cooperative, named „VR EnergieGenossenschaft Oberbayern Südost e.G.". It was possible to identify 29 energy efficiency measures, eleven of which were classified as priorities, i.e. examined and recommended for implementation. Of these, eight were implemented during the project term.

City of Norderstedt: The Kick-off Event of the AG REEG Norderstedt took place on March 27, 2014. The Norderstedt energy efficiency cooperative was founded on November 3, 2015. 42 energy efficiency measures were identified. 20 of these projects were recommended for implementation following a feasibility study. Of these, six projects were contractually prepared and one project was finally implemented by March 31, 2016.

contact: B.A.U.M. e.V., Rainer Kant

12 http://reeg-info.de/

ALLIES / REEG project in the Allgäu Region, Germany (B.A.U.M. Consult)

In Allgäu, Southwest Germany, the regional energy agency eza!, the traditional energy supplier AÜW – Allgäuer Überlandwerk GmbH - celebrating its 100th anniversary in 2020, the association of regional waste management ZAK - Zweckverband für Abfallwirtschaft Kempten, the local banks Sparkasse/ Raiffeisenbank and the climate protection management of the county have put forward a team of utmost committed and experienced partners. Together, in ALLIES, they further promoted energy efficiency in companies.

The partners met in several sessions to identify the challenges in order to pinpoint needs for action. The problem of lacking financial resources was assessed as the least pressing; the involved banks assure, that they are able and willing to finance all plausible measures. This is also due to the generally good creditworthiness of the companies in the Allgäu region and the currently unusually high availability of financial means at low interest rates.

The biggest needs are qualified consulting (which can already be provided for today but demand is poor) and for streamlined and long-term support throughout the implementing process from one source. This is where an Allgäu LFEEE is of interest in which all partners coordinate their expertise in the respective stage of the material, energy and financial circle. An LFEEE can offer this one stop-shopping and provide for the respective consulting and financial support services.

Before setting up the LFEEE in Allgäu the partners tested the concept in two projects to assess the necessity of third party financing and the continuous support throughout the process. That should put them in a position of deciding on the need for an Allgäu LFEEE.

Main objective of the project: The main objective in Allgäu is to clearly communicate the benefits of the concept of ALLIES to the companies in question. In the region the main benefit is coordinating the consulting services of the involved partners throughout the entire value and energy chain under one roof. eza! (and others) provide consulting services rather at the beginning of the chain, AÜW and other utilities are (co-)operators of assets and banks are involved in the stage of financial implementation. ZAK can also operate assets and can assure the service of waste management for many years ahead – including the dismounting of the assets at the end of their life.

The LFEEE can bundle these services into a one-stop-shopping. In a sense it stands in for an energy manager in enterprises or provides a part time energy efficiency manager in municipalities or smaller companies. The biggest challenge: This comprehensive offer needs to be made public for municipalities and SMEs.

Main results of the project:

- Most relevant partners in the energy and value chain were brought together (see above)
- The needs in the field of energy efficiency were assessed: financing is not the crucial issue in the region but consulting is a great need, but not highly demanded for among clients
- Following these insights the project told us that the main objective is to make the concept of LFEEE public and advertise and communicate it accordingly to the respective companies or municipal actors

Towards the end of ALLIES, the Allgäu regions introduced the Climate Plan 2040 demanding a strong boost in energy savings, among other climate mitigation activities. In this context the idea arose to partly incorporate CO2 compensation of companies in the Allgäu LFEEE. In this case, the LFEEE will manage bundles of regional and global White Certificates and invest part of the compensation fees in the region. By doing so energy efficiency measures that wouldn't have been realized otherwise can be financed.

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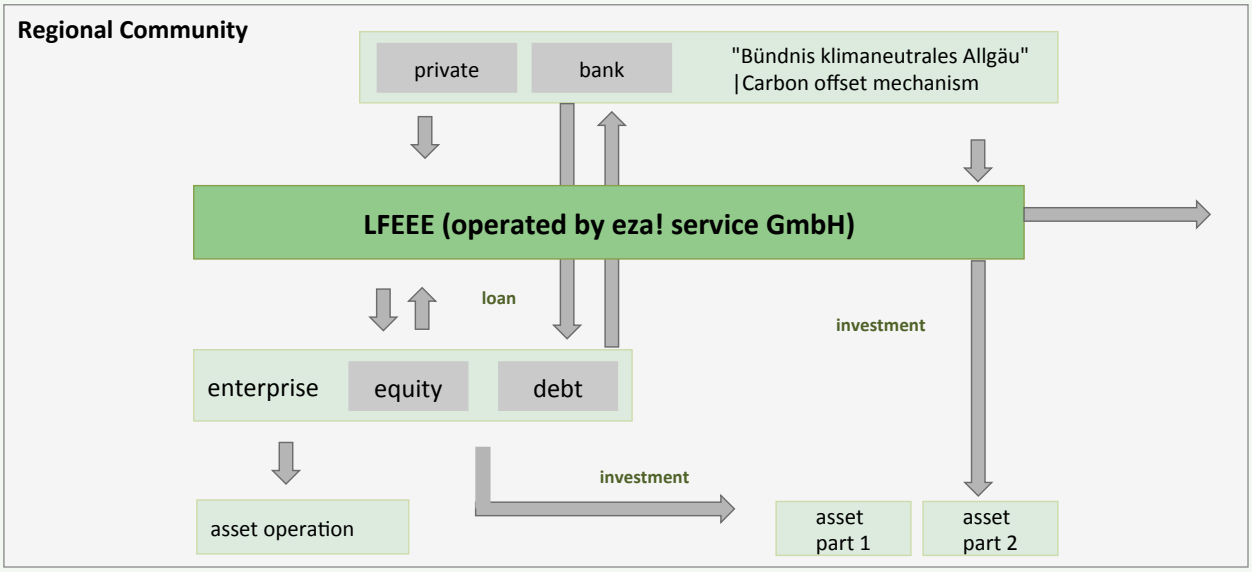

Figure 12: Basic Allgäu Model

contact: B.A.U.M. Consult, Ludwig Karg, and eza, Martin Sambale

5.2.1 ALLIES in the Allgäu, Germany

In a first step of approaching the question of developing an LFEEE in the prosperous region of Allgäu in Southwest Germany, B.A.U.M. Consult identified the following stakeholders as key to the process:

- regional energy agency eza!
- energy supplier AÜW – Allgäuer Überlandwerk GmbH
- association of regional waste management ZAK - Zweckverband für Abfallwirtschaft
- local banks Sparkassse/Raiffeisenbank
- climate protection management of the county

Next, the following basic question demanded clarification:

Is there a need to establish a REEG or an LFEEE in the Allgäu, in the first place?

On the one hand, financial resources are available and banks are willing and able to finance good projects. On the other hand, many municipalities in the Allgäu are not aware that they qualify for consultancy and funding for energy efficiency investments/projects.

From this viewpoint, a one-stop-shop is highly attractive. It offers all services from the idea of financing to implementing means and measures and managing cash flows back and forth for the long term, like 20 years. Before deciding whether the partners join forces to formally establish an LFEEE, this question was tested in the context of implementing two energy savings projects, a municipality and a hotel. The test revealed that the municipality does not really need it; while the hotel may benefit from such a structure. However, the coronavirus put all developments on hold.

The key figures of the two projects are shown in the following table:

Table 6: Key figures of two projects in the Allgäu region

Project 1	
Type of energy effiency measure	Renewable energy
Category	Hotel and hospitality
Sector	Hotel
Optimization measures	PV system for own electricity use
Percentage energy savings per year	13%
Reduction of energy consumption per year	68,8 MWh
CO2 reduction per year	36,8 t
Investment costs	145000 EUR
Cost savings per year	13320 EUR
Amortisation period via ALLIES	10,9 y

Project 2	
Type of energy efficiency measure	Energy efficiency measures
Category	Hotel and hospitality
Sector	Hotel
Optimization measures	Changeover of lighting to LED
Percentage energy savings per year	5%
Reduction of energy consumption per year	100MWh
CO2 reduction per year	53,7 t
Investment costs	40500 EUR
Cost savings per year	15600 EUR
Amortisation period via ALLIES	2,6 y

In the meantime, the Climate Plan 2040 for Allgäu came into being. This initiative calls for the implementation of 100.000 energy efficiency projects demanding high financial investments. While the banks are capable of meeting these financing needs, they lack the necessary expertise to comply with regulations such as Basel III and others. Particularly, lacking private equity could challenge the implementation of some projects. A combination of both private equity and contributions from the LFEEE, could provide a solution. Against this background, the stakeholders of the Allgäu climate action agreed on the need of an institution to prepare and attract investments necessary to implement climate activities, including public funds.

Finally, the key stakeholders in energy governance in Allgäu decided to set up a "One-Stop-Shop" comprising all respective consultancy services. This one-stop-shop will be somehow integrated in the Allgäu Climate Plan 2040 and will incorporate companies' CO2 compensation which, in turn, can finance energy efficiency measures that would not have been realized otherwise.

As of today, the LFEEE in Allgäu has not yet been formally set up. However, the partners had applied the concept of one-stop-shopping in two projects and are now about to decide on how to incorporate it into existing structures (e.g. eza!) or, alternatively, to establish a new legal entity (e.g. a cooperative with the members of the core group as the founding partners).

Simon Steuer, climate mitigation manager from the county: „One problem is that strict regulations on data privacy hinder cooperation among stakeholders. Consulters cannot pass on the data to banks and vice versa. A one-stop-shop would provide a solution to this problem ".

Besides cooperatives, other legal forms could also prove attractive. See, for example, citizen shareholder companies like "Regionalwert", as Wolfgang Teubner (ICLEI) pointed out at the final conference. However, generally, the legislative framework in Germany is more favourable for cooperatives compared to stock market companies.

Citizen Energy Communities (CEC) or Renewable Energy Communities as described in recent EC directives may also pave the way for novel energy savings institutions. CEC/REC do not state, specifically, that institutions have to be cooperatives in a formal way, but the governance structure is similar.

5.2.2 Defining and implementing a Development Process

Forming a Core Group

In a first step it is necessary to identify regional stakeholders with ambitions to foster and finance regional energy transition. Candidates are local and regional governments, financial institutions, SMEs, NGOs etc.

The German REEGs consisted of the most important regional actors (stakeholders): the municipalities, the economy, the associations and above all the citizen. When the REEG was founded, it was therefore important to identify and integrate all relevant stakeholders from the very beginning. This was done through a kick-off event and the establishment of working groups (see below). In addition, in the initial phase (first presentations, events and workshops), it was attempted to win important stakeholders for the committees of the future cooperative.

In principle, the following **regional stakeholders** are of interest for an LFEEE:

Economy: Manufacturing industry, trade, crafts, services, investors

Private households: Owners, landlords and tenants

Administration: Regional and local government

Politics: Politicians, mayors

Media: Digital and print media, social media

Science, research, education: Schools, colleges, educational / training and research institutions

Interest groups: Associations, chambers, religious communities, foundations, NGOs

In terms of LFEEE the establishment of a cooperative means first clarifying legal, economic and organizational issues. It is therefore worthwhile to find suitable cooperation partners with different skills, different knowledge and different networks. In the pilot municipalities, the city or county invites local and regional stakeholders who might be interested in the issue of energy efficiency to a **kick-off meeting.** The municipalities make suggestions regarding suitable persons (group representatives) to approach (see below).

Following groups or persons are to be considered:

- **Public actors (politics and administration)** such as Environmental Services, Head of Environmental Office, Head of Climate or Energy Agency, Climate Manager, Head of Building Management / Street Lighting
- **Business representatives** such as Chamber of Commerce and Industry and Chamber of Trade, e.g. the Guild of Craftsmen, the Electrical Guild, the Guild of Heating/Plumbing/Climate, development companies, banks, energy agencies, energy consultants, project developers, the federation of cooperatives
- **Civil society, associations and science,** such as societies, parishes, nature conservation and environmental associations, citizen environmental initiatives, consumers, University of Applied Sciences, etc.

The aim of the kick-off meeting is to present the LFEEE idea and business model. As many representatives of the stakeholder groups as possible should be actively involved in a **working group** (to create a statute, a business plan and to do project acquisition). At the end of the kick-off meeting, a first list of working group participants should be created.

Preparing information material

It is advisable to develop a **project logo** to make the pilot project unique. The project-specific website of REEG has been maintained after the pilot projects were completed (www.reeg-info.de).

Various different presentations about REEG were designed. The presentations were adapted in content to the different target groups (economy, citizen, foundations, business events, events of the associations and municipalities etc.).

Flyers were developed for the pilot municipalities of Aachen and Norderstedt, which together with other important documents became part of a folder for acquisition.

The **folder for acquisition** contained: Overview of the most important and effective energy efficiency measures, examples of energy efficiency measures (best practice), data sheet for companies with information on energy

and costs to be filled out, flyer for users (e.g. companies) and investors (e.g. citizen, foundations) and press articles. Depending on the target group, the presentation folder was compiled individually.

Three **target-group-specific video clips** were developed and used as an essential communication tool for attracting imitators and for public relations work.

1. a general information clip on the model REEG as a citizen energy cooperative 2.0 (target group: municipalities / regions, existing energy cooperatives and other imitators)
2. an information clip for potential customers of the energy service provider REEG (target group: companies, municipalities / municipal institutions, church institutions, associations and others)
3. an information clip for REEG members / investors (target group: citizen, foundations, associations, municipalities, companies and others)

The clips can serve to introduce the REEG/LFEEE model in the respective target group or to inform each other briefly and clearly.

The focus of the public relations work was to make the REEG project known as well nationwide in relevant circles as in regional municipalities.

Setting up a campaign

The core activity in the initial phase aims at attracting local investors and potential customers, i. e. enterprises or public authorities to use the locally-rooted funds for energy efficiency measures (including best practices and attractive self-assessment tools)

The communication of the pilot project was an important project goal from the beginning. The focus was on the following target groups:

- Potential imitators / stakeholders of a REEG:
  - › Municipalities (politics and administration), the economy (associations, guilds, business development companies, companies, banks), existing energy cooperatives, citizen
  - › Potential customers of the REEG: companies, municipalities, citizen as well as churches and associations
  - › Potential cooperative members as investors

In order to make the REEG project known, a wide range of information material was created as well as numerous presentations and lectures at various events. Press releases, TV reports and direct phone acquisition were also part of the campaign.

The accompanying public relations work was carried out both nationwide and especially in the participating pilot municipalities.

Some examples of **nationwide presentations** and discussions that were held: contracting congress of the climate and energy agency; non-governmental environmental and consumer protection organization; environmental and sustainability congresses; federal congress “cooperative energy transition”; congress of the Green Party “success model citizen energy turnaround” and many others.

The procedure for the **local campaigns** differed from the national campaign as follows:

In the respective pilot communes, contact was made with the local press in order to increase the attention of the community, the municipality and the citizen. Some examples of the information of different target groups are the following:

Numerous regional press releases; discussions with the environmental and climate protection committee of the city; presentation at the mayoral conference of the city; contact with potential technology partners (for the implementation of energy efficiency measures); meeting of the Department of Business Development of the City; meeting with the electronic crafts and lighting design; meeting with NGO`s; meeting with industry and chamber of commerce (property management); meetings with local banks; info events in regional and city councils; info events at guild of heating, sanitary and climate; presentation on the "day of innovations" of the city etc.

Deciding on the right model

Before formally setting up an LFEEE, the following questions need to be decided upon;

- Shall the LFEEE act as an investor itself or just refer and link to other financing institutions?

In the REEG case it was possible to refer to the B.A.U.M. Zukunftsfonds cooperative which uses investments from their members to invest into energy efficiency.

- What are the services the LFEEE shall provide to municipalities and enterprises in the region?

The REEG started with assessing first ideas by creating detailed technological and financial concepts.

Creating Examples

In order to convince stakeholders to support the development of an LFEEE, it may be valuable to create or at least refer to good examples. Good examples can be found, amongst others, in REScoop.eu, the European federation of citizen energy cooperatives. Like in the European energy policy, REScoop also builds on energy savings as a core pillar of fostering the energy transition and addresses its many facets in a comprehensive approach offering tools and guidance[13]. Furthermore, the EU Directives from 2019 Citizen Energy Community and 2018 Renewable Energy Directive now offer a legal framework to community activities which have been in existence long before these legislative developments took place. Today, they provide an ideal ground on which LFEEEs can prosper (REScoop 2020b).

5.2.3 Extending an Existing Entity

While in many cases a new entity needs to be developed (see chap. 5.2.4), expanding an existing energy organisation to become an LFFEE can also prove viable. This approach requires fewer steps, as the company, cooperative or other institution has already been founded and the bodies have been established. If there is an existing energy cooperative or similar, a review should be carried out to determine whether it can be converted into an LFEEE.

The prerequisite is that the existing cooperative is prepared, and in the position, to expand its business area to energy efficiency and to restructure the cooperative accordingly. It is not sufficient to simply supplement the articles of association. Energy efficiency is a different and more complex matter than building and operating renewable energy plants. Firstly, it changes the number of projects and the size of projects. Whilst traditional energy cooperatives carry out a few large-scale projects in the millions, energy efficiency cooperatives have a number of comparatively small-scale projects. The investment amounts generally range from 10,000 euros to less than 100,000 euros, here. Accordingly, the overall expenditure required to manage the cooperative's projects is also higher.

Secondly, energy efficiency measures require a number of completely different technologies. There are around a dozen cross-sectional technologies that are used in practically all industries, and hundreds of industry-specific efficiency technologies. These relate to heating just as much as they relate to electricity and fuel. Even if the cooperative doesn't have this technical know-how itself, and 'just' has to manage technical resources, this cannot be done with the volunteering structures of traditional energy cooperatives. Here, a key point is: an LFEEE needs full-time management!

Thirdly, the membership structure is generally different. In its pure form, the LFEEE / REEG is a citizen' cooperative that represents all large regional stakeholder groups, i.e. not just citizen but also municipalities and businesses. However, existing cooperatives may not want the structure to change.

But if a consensus can be reached for reclassification, it is the easiest way to form an LFEEE from a formal viewpoint. It eliminates the need to form a new cooperative and look for board and supervisory board members and shortens the preparatory phase considerably. It is less costly as the initial audit fee and any registration fees do not apply.

13 Website of REScoop: http://www.REScoop-ee.eu/

Steps

In terms of process, the following steps are relevant for an existing energy cooperative to expand its business area:

1 Willingness of an existing cooperative to be involved in the EPC business area

It is key that the existing cooperative and its bodies (board, supervisory board, general assembly) are willing to expand the practical business activity beyond the traditional fields of electricity generation, heat generation and grid operation to the new business area of energy efficiency knowing that EPC is a different type of business. On the other hand, including energy efficiency in the energy cooperative's core operations brings together two sides of the same coin in energy transition: expanding renewable energies and energy savings.

2 Amendment to the articles of association (if necessary)

Many energy cooperatives have either not defined energy conservation and energy efficiency as the purpose of their cooperative, at all, or not sufficiently for operating as an LFEEE. In this case, the articles of association must be amended by way of the general assembly. The existing VR EnergieGenossenschaft Oberbayern Südost e.G., alias REEG Berchtesgadener Land chose this approach in the pilot project in Germany.

A number of energy cooperatives have already adopted measures for improving energy efficiency and for energy contracting into the articles of association, without having previously had this type of business activity - for example, Energie- Genossenschaft Fünfseenland e.G., Herrsching (Bavaria). In such cases, the articles of association may not need to be amended, which once again simplifies and shortens the process of establishing the LFEEE.

3 Adding energy efficiency to the business plan

Even if the articles of association do not have to be amended, the business plan does in order to encompass energy efficiency. In principle, this process is not different to the process followed when founding a new cooperative, except that the amended plan does not have to be reviewed by the auditing association straight away. Instead the review can be deferred to the next regular annual audit

4 Entering the amendment to the articles of association into the Register of Cooperatives (if necessary)

If the articles of association have been amended, a resolution must be passed by the general assembly for the amendment and it must be entered in the Register of Cooperatives by a notary.

5.2.4 Setting up a New Organizational and Financial Entity

Selecting the right enterprise model (e. g. cooperative, limited, crowd-funding)

The following considerations should be made before deciding on a company form: What kind of products or services should be manufactured, sold or offered? How much capital is needed or available? Would you like to involve other people or will it be solely your own business? Are you prepared to contribute private assets to the enterprise? Do you want to work in the company yourself or just provide capital?

These basic contemplations are important when deciding upon the suitable legal form for the LFEEE.

There are basically three different types of businesses:

1. personal companies
2. capital companies
3. registered cooperatives

These and many more organizational models are described above in chapter 4.3.

For the German REEG project, the cooperative model was chosen because it is the most suitable for the purpose of the project due to the following advantages:

Co-determination – equal right for all

Cooperatives are based on a democratic corporate constitution. This means that each member has one vote - regardless of the amount of financial participation - and thus equal weight in decisions. Individual interests therefore cannot dominate. No member has to worry about being overruled by other members due to a higher level of equity participation. These democratic decision-making structures protect the cooperative from taking on third parties or other companies pursuing other interests.

Cooperatives serve its members

Cooperatives serve their members to pursue a common goal, be it economic, social or cultural. The cooperative offers services that the individual member cannot provide on his own or only at great expense - for example, the joint marketing of products or services. But also, the economic success making of the enterprise serve the members. Any surpluses may be distributed to members as a cooperative reimbursement or used to further stabilize the company in the form of reserves or investments.

Cooperative shares form the equity

There is no limit to the number of members of a cooperative. Each member makes a financial contribution upon entry by acquiring cooperative shares. The amount of shares is determined jointly by the members. Together, the shares of the members form the company's equity. A minimum capital does not provide the legal form of the cooperative. The cooperative is financed by its equity and current business operations.

Limited liability

The liability of the members is limited to the shares. However, in the case of insolvency the cooperatives Act provides for the possibility of obliging members to pay additional contributions. This may apply if the amount of the creditors' claims cannot be satisfied in the final distribution of the cooperative assets. The obligation to pay additional funds must be defined in the Articles of Association, may be limited or completely excluded.

Developing appropriate by-laws

The LFEEE's articles of association are its constitution. They govern the legal relations between the cooperative and its members. Based on the German Cooperatives Act (Genossenschaftsgesetz, GenG), the following points must be included: name and registered office of the cooperative; object of the company; provisions on the obligation to make further contributions (liability); provisions on members' general assembly; provisions concerning the form of announcement for the cooperative; the amount to which individual members can become involved through contributions (shares in the business) as well as statements on the formation of a statutory reserve.

Further provisions may be made, for example, for entering and leaving the cooperative; on decision-making powers of the various committees (Management Board, Supervisory Board, General Assembly); for the election of the Management Board and the Supervisory Board; on rights and obligations of members.

Another important detail is the appropriate price of the cooperative share. Traditional energy cooperatives which only or essentially work with cooperative shares as equity, set a rather high cost for a share, for example at 500 or 1,000 euros.

The REEG according to the B.A.U.M. model procured its equity primarily through subordinated loans of its members. As a rule, no dividend is paid on the cooperative share in order to avoid double taxation of income and unnecessary bureaucracy. Therefore, the mandatory share in a newly established LFEEE can and should be kept low, for example at 100 euros.

An essential advantage of the corporate form of a cooperative is that the liability of the members can be limited. Therefore, in every LFEEE statute, it is essential to exclude the passage on members' payment obligation and limit the liability on the assets.

Establishing a business plan

For the creation of an LFEEE business plan it is necessary to estimate the regional potential for energy efficiency investments and capital from citizen. Persons who wish to found an LFEEE should have an idea of feasible efficiency measures, of profitability, and the number of measures the LFEEE could realistically be involved in. This also depends on the amount of capital that the LFEEE is able to acquire in the region.

Hence, a double potential analysis should be carried out: how much capital can be acquired and how big is the project's potential?

Acquirable capital

Ideally, the LFEEE is financed primarily by members' loans with easy to access financial assets at short notice like sight and savings deposits, short-term time deposits and savings bonds with banks, also called "deposits". They can be used as an indicator for the capital that can be acquired by an LFEEE.

Acquirable energy efficiency projects

The experiences from the REEG pilot project show that it makes sense to distinguish between activatable and acquirable projects.

The capitalized projects include the efficiency measures in which the LFEEE directly or indirectly provides the impetus for their implementation, but which ultimately takes place without it. All measures which, under certain assumptions, can be implemented by the LFEEE as an energy service provider for third parties constitute the projects that can be acquired.

In order to calculate the potential for investment in energy efficiency projects in your region, we suggest using the calculation tool from B.A.U.M. Consult.

Business plan

Three quantitatively elaborated sections are at the heart of the business plan:

1. the investment plan showing the start-up costs and the planned energy efficiency investments,
2. the profit plan showing whether the current income from energy savings covers the expenses and
3. the liquidity plan indicating whether the solvency of the REEG appears secure including a financing plan

What belongs in the business plan?

1.	Company name	What is the name of the future company?
2.	Founding member(s)	Specify founding team.
3.	Business Idea | Unique Selling Proposition	Define the type of business and your added value.
4.	Experiences and knowledge	What does qualify you for this start-up activity?
5.	Target group	Which customers are eligible for your offer?
6.	Marketing	How do you reach relevant customers?
7.	Capital requirement	Calculate financial figures for your project.
8.	Sales volume	Which sales volume do you expect in the next years?
9.	Organisation and staff	Define the number of employees for the next three years.
10.	Goals and objectives	Specify your goals of doing business.
11.	Risks and challenges	What are potential risks your project is exposed to?
10.	Timing	When do you want to start your project?

Implementing an organisational model

Managing Director

A decisive question for the LFEEE is the number of employees at the start. An LFEEE cannot operate on a purely voluntary basis like many energy cooperatives in the electricity generation business. The practical business of an LFEEE is too complex and time-consuming. This is why a full-time manager is necessary from the start. This may be a board of directors who takes over the operational management in personal union (as with the B.A.U.M Zukunftsgenossenschaft) or a managing director employed by the cooperative who acts on behalf of the executive committee (as with the VR energy cooperative Upper Bavaria southeast e.G., alias REEG Berchtesgadener country).

This demands additional financing and must be covered permanently by the implemented projects requiring a minimum investment of one to two million Euro p. a. Since, however, the LFEEE earns little to no revenue from projects in the start-up phase and, at the same time, faces costs from the outset (start-up costs, software costs, management) and depreciation, the balance sheet shows a deficit at least in the first year. As this may deter potential founders there are several possibilities to overcome this hurdle.

1. **external start-up funding** from state support programmes, (regional) foundation for climate protection and energy transition, municipalities involved in establishing the LFEEE (see the REEG Norderstedt pilot).
2. **use the networks of the founding groups** to acquire projects as large as possible (in the total volume of one to two million euros - on a basis of letters of intent) (see REEG Aachen pilot).
3. first implement a **part-time management** and on an additional earnings basis and dock it on to an organization from the founding working group.

Insurances

In the case of an LFEEE, **D & O insurance** and **public liability insurance** have proven to be the most important risk protection for a cooperative.

D&O insurance policies offer liability cover for company managers to protect them from claims which may arise from the decisions and actions taken within the scope of their regular duties. As such, D&O insurance has become a regular part of companies' risk management.

Companies purchase D&O cover because managers can make mistakes. D&O coverage includes financial protection for managers against the consequences of actual or alleged "wrongful acts". Policies cover the personal liability of company directors but also the reimbursement of the insured company in case it has paid the claim of a third party on behalf of its managers in order to protect them.

A business must have a **public liability insurance,** so that if it is responsible for hurting someone or causing damage to their property, it can pay them compensation. Public liability insurance covers the cost of legal action and compensation claims made against your business if a third party is injured or their property suffers damage whilst at your business premises or when you are working in their home, office or business property.

Depending on the nature and extent of the business activities, of course, further risks must be considered and, if necessary, insured.

Energy efficiency experts

In order to record a systemic analysis of energy consumption and the possibilities of energy saving measures, it is advisable to cooperate with independent energy consultants. This is the only way to avoid bad investments, since it is a question of holistic data collection and the effect of individual energy efficiency measures can be taken into account.

In the case of the Cooperative in Norderstedt, it cooperated with independent energy consultants who provided energy advice to the companies. Up to 80% of the costs were covered by a state subsidy programme.

Formal founding of the LFEEE

Inaugural general assembly

Once the articles of association have been drafted and the business plan has been drawn up, founding can take place as part of an inaugural general assembly. In this assembly, the founding group puts forward the LFEEE's business idea, the articles of association, the business plan, and where applicable, initial projects as well. It has been proven that a representative of the audit association is a good choice for leading the inaugural general assembly, as they are already familiar with the LFEEE's specific features, possibly through previous assistance provided in drafting the articles of association and drawing up the business plan.

The LFEEE is founded when founding members sign the articles of association. The founding members all form the first general assembly, which immediately follows. The general assembly decides on the number of supervisory board members, their term in office and elects them. Depending on the articles of association, either the supervisory board or the general assembly elects the board. As with the supervisory board, an uneven number of members is advisable in order to avoid a stalemate.

The LFEEE can now be publicly promoted which is helpful for recruiting members and initial discussion on projects. Legal transactions are not recommended in the phase of formation as all members are still unlimitedly personally liable. Limited liability first applies once the cooperative has been enlisted in the register. Therefore, until then, either no transactions should be made or only transactions with no risk.

Auditing association opinion

After founding, the LFEEE board shall engage the selected auditing association to audit the organisational formation documents (articles of association, business plan, etc.) All cooperatives in Germany must be members of a statutory auditing association (Federation of Cooperatives), which carries out such a formation audit. This is a key condition of becoming a registered cooperative. The auditing association confirms that there are no risks to the members' assets and no risks to clients.

Entry into the Register of Cooperatives

The LFEEE can now sending the formation documents approved by the audit to the Regional Court responsible for the Register of Cooperatives where the LFEEE is based. The board's signatures require notarisation when entered into the Register of Cooperatives. The notary then registers the LFEEE via the Court of Registration's electronic court mailbox and confirms the registration in writing as well as by a register excerpt. Now the LFEEE is a legal entity and a business according to the German Commercial Code (Handelsgesetzbuch, HGB). Limitation of liability now applies for the board, and the LFEEE can accept further members.

5.2.5 The German Experience: Dos and Don’ts

Do this ...

- Comprise all relevant services related to the technical, organisational and financial solutions of a project in a one-stop-shop. Clients don’t want to deal with a number of consultants
- Develop a compelling USP – there are already many competing actors on the market offering full service solutions
- Focus on raising awareness on how to tap financial resources rather than on financing sources as these are sufficiently at hand.
- Acknowledge the needs of the market and be aware of already existent offers. Maybe the role of the LFEEE can be to serve as a coordinating framework for available potentials.

Don't do that ...

- Don't underestimate the costs in terms of money, human resources and time demanded by the process of setting up an LFEEE.
- Don't restrict your communication activities on developing an LFEEE to market actors, only. Also identify potential multipliers of the public sector such as politicians, mayors and other local authorities.
- Don't focus solely on “selling” financing models but rather stress marketing the one-stop-shop concept comprising all relevant services related to energy efficiency projects

5.3. Establishing an LFEEE in Hungary

Lokalizáció Ltd. – the LFEEE in Hungary (KÖVET Association)

The Hungarian LFEEE named Lokalizáció Ltd. was created by KÖVET in cooperation with the Hungarian community bank, MagNet Bank. All legal and financial conditions essential for its operation are secured. Financial security is granted by way of the national deposit insurance system. After a long and weary process and with the support of the ADB and experts the foundation process succeeded in November 2019.

Lokalizáció Ltd. was reorganized in the form of an LFEEE after being operationally dormant for a while.

Our key partners in the formation phase were:

- KÖVET Association for Sustainable Economies
- MagNet Hungarian Community Bank
- Commercial and Industrial Chamber of Somogy County
- Commercial and Industrial Chamber of Zala County
- Enterprise Development Foundations in Somogy and Zala Counties

Main objectives

In line with the ALLIES project's objective Lokalizáció Ltd pursues promotion and support of energy efficiency projects.

The regional focus in Hungary was on Somogy and Zala counties. However, requests from other countires were also accepted.

Another important role of the LFEEE in Hungary is to raise awareness for energy efficiency. Besides a number of information events equal emphasis has been put on personal information exchange as personal contacts have proven much more effective both in the initial phase and in later phases of a given project.

While the greatest interest has been in solar technology interest is also in other more unknown technologies.

The LFEEE conceptualized a functional financing system both for investors (HETES deposit) and project implementers (HETES loan). It offers project management from the beginning to the end including writing applications, technical knowhow, as well as consultancy in selecting contractors.

Main results

- Technical support for Hotel Kristály in Keszthely in selecting a renewable energy production; Preparing a financial solution for investment in a solar system (50 kW); preparing applications for credit for the favourable HETES loan. Bank review is in progress.
- A very special form of financing for a city spa solar investment (100 kW) in Zalaszentgrót: local HETES deposits can secure the HETES loan to finance the investment. Investors are sought out by the municipality with the help of Lokalizáció Ltd. After collection, the needed sum can be provided by MagNet Community Bank via the HETES loan for the spa company. After completing the investment, the securing deposits can successively be let out from the bank captivity.

...

...

Investor	Location	Type of EEI	Total costs (EUR)	HETES financing (EUR)	Status
ADMIRÁL KFT Kristály HOTEL	Keszthely	27.9 KW solar system	35 758	16 061	Loan application in progress
Szöllősi Dental Kft	Vonyarcvashegy	60 KW solar system	13 637	6 061	Loan application in progress
PANORÁMA HOTEL	Noszvaj	9.1 KW solar system	54 546	25 758	Preparing
TIZIANO Business Center	Budapest	2x60 KW solar system	112 122	112 122	Loan application in progress
BARTA AUTÓHÁZ	Siófok	60 KW solar system	54 546		Preparing

contact: KÖVET Association

5.3.1 Defining and implementing a Development Process

The following descriptions are based on the experiences of the Hungarian ALLIES case.

At the beginning of the ALLIES project the team set out to find a niche for this novel financial structure. In the first year there were many very favourable tools for almost every group in society: citizen, enterprises, municipalities. The non-refundable funds had already been spent and paid and only a few applicants were able to apply for the remaining EU-money. At the same time the topic of global warming was becoming more and more alarming turning the whole situation into fruitful grounds for activating society to take a stand for the energy transition.

The first step was to study the documents on the preceding cases of setting up REEG models in Germany. However, now the task was to adapt these recommendations to Hungarian circumstances. In parallel, we put together a team in KÖVET to manage the project and to acquire the necessary skills in project management. We then reached out to our stakeholders to learn from them and set up an initial meeting, September 28, 2018 in Kaposvar.

Due to their expertise in setting up cooperatives or similar institutions and /or in financing energy efficiency following groups or persons were invited:

Members of the first Hungarian LFEEE ADB:

chairman of the ADB

- László Jónás

ADB members:

- Dr. Anett Parádi-Dolgos– Kaposvár UNIVERSITY
- Tamás Trenyik– Kaposvár UNIVERSITY - Phd. fellow
- Dr. Mónika Kuti– Pécs UNIVERSITY
- Gábor Pozsonyi– MagNet Bank Zrt.
- Dr. Zsolt Hetesi– NK UNIVERSITY
- Mark McCaffrey – NK UNIVERSITY

Some potential thinkers/members were also invited:

- Dr. habil Szilárd Berke– Kaposvár UNIVERSITY
- Dr. Csaba Borbély– Kaposvár UNIVERSITY
- Dr. Veronika Gál– Kaposvár UNIVERSITY
- Tibor Bareith - Kaposvár UNIVERSITY

The aim of the kick-off meeting was to define the financial and geographical possibilities and to select prospective stakeholders to involve in the project.

Results:

In the process, we decided to focus on the two neighbouring counties Somogy and Zalain South-West Hungary. Both counties have a similar structure: part of the county is located directly at Lake Balaton where tourism is an important sector. The other part has small villages without industry and big companies. They have been selected partly because of the above-mentioned facts and partly because KÖVET has a regional office in Keszthely, Zala county and thus has good connections to companies, universities and institutions. Finally, local thinking is strong in the region which is important for the success of the project.

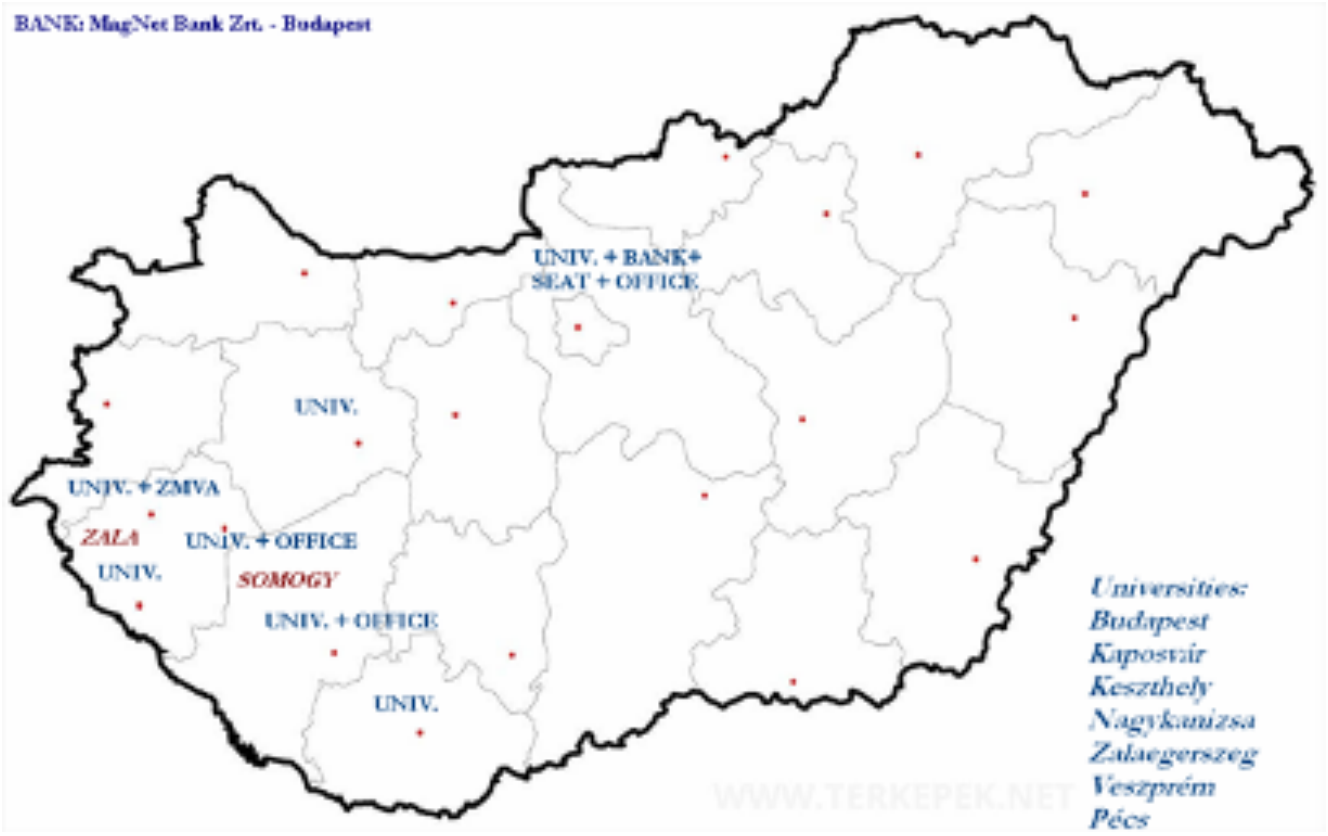

Figure 13: Map of Hungary and its counties

In this region the following stakeholders were identified for the LFEEE:

- Industrial and Commercial Chamber in Zala and Somogy Counties
- Enterprise Development Foundations in Somogy and Zala Counties
- Kaposvar University
- Municipality of Kaposvár
- Municipality of Keszthely
- Balaton Development Council
- Government Offices in Somogy and Zala Counties
- Hungarian National Bank
- MagNet Community Bank

Finally, we signed contracts on partnering with ZMVA (Zala County Foundation for the Development of Enterprises) and the same organization in Somogy County - SMIK (Chamber of commerce in Somogy County) in order to reach SMEs through them.

These organizations were crucial for ALLIES because they function as multipliers for accessing enterprises. Finally, we completed the evaluation of stakeholders taken into consideration according to those main groups that had already been defined in the German documents developed in the REEG project.

To assess the potential of cooperation, as well as the needs and expectations of different stakeholders the following potential partners have been taken into account:

Local government: Bigger municipalities own and manage many buildings. These are mainly old built ones with little attention on energy efficiency. Small municipalities only manage the building of the townhall, where heating is done by wood burning stoves. So, in both cases, facilities operated by both big and small municipalities could have been a highly significant target group for ALLIES. Nevertheless, many conditions make the entry of municipalities almost impossible:

1. The system developed by KÖVET uses loans as the form of financing. However, municipalities in Hungary follow strict regulations from the Hungarian central government: they need central (ministerial) permission to take loans. In practice, it seems difficult or next to impossible to get that permission.
2. Besides taking loans, municipalities also have access to non-refundable financial support from EU funds for energy efficiency investments.
3. Municipalities' budgets are tight, abundant money is minimal, so realistically they are not able to appear on the investors' side either.

Municipalities can nevertheless play a very important role as multipliers in the project. They have access to every household in their area as well as to media channels like local broadcasters and newspapers and to all enterprises through tax collection.

Regional government: there is no such institution in Hungary today as their tasks were taken over partly by county municipalities and government offices of the given county a couple of years ago. There are supervisory bodies of municipalities which perform public administration tasks and run a special consulting office focusing on energy efficiency. After authorizing the official cooperation between KÖVET and the responsible officials appointed by the governor of the county we worked together, for example, during roadshows.

Financial institutions: to provide financial services in Hungary, it requires several permissions and a rather big amount of capital. The overall financial situation in Hungary could be described by near-to-zero interest rates on deposits. This increases the attractiveness of HETES/ALLIES.

After evaluating different options cooperation with a bank committed to sustainability that has all permissions and is already operational proved the most feasible for HETES/ALLIES.

SMEs: SMEs in Hungary have capital shortage and therefore need financial support to carry out improvements. They can get bank loans and can apply for EU funding on a large scale. These EU funds offer very favourable conditions since subsidization can reach up to 50% or higher and they are usually non-refundable. From this point of view, SMEs are not the right target group for HETES/ALLIES. However, there could be a model which is profitable for SMEs to join as investors of energy efficiency projects. In this model, HETES/ALLIES could fund energy efficiency projects by way of EU subsidies and also apply for the funds. This model is especially promising because a new call for funding energy efficiency goals will open in the near future. In this model the LFEEE can play two major roles: 1. to arouse interest and investments and 2. financing the investment (as the system is always post-financing) completely or only the company's own share.

To get bank loans is always a difficult, weary and slow process so it is feasible to finance smaller projects with the help of HETES/ALLIES.

NGOs: KÖVET has connections to many NGOs in Hungary. These partnerships can be useful to spread information about HETES/ALLIES but their role and impact should not be overestimated.

Citizen: because of the very low deposit interest rates the citizen do not earn any money from their bank deposits. The special HETES Deposit by MagNet Bank promises significantly higher interest. That is why the hope is to attract citizen' assets from their "payable on demand" accounts.

When the LFEEE started to become operational the initial evaluation changed. It turned out that the needs and opportunities of possible stakeholders were much broader and more flexible. While working in the field more and more special niches were found.

Preparing information material

In the context of promoting the LFEEE and the HETES project press conferences were held, one in Keszthely and one in Kaposvar. Additionally, several articles in local newspapers (Zalai hírlap, etc. were published and radio interviews (MARIA RADIO, KLUB RADIO countrywide, and local broadcasters Somogy County wide: KAPOS RADIO) and TV channels (Keszthely TV, Kapos TV) given.

We hired a PR expert for planning the information in 2019.

We developed the HETES content in English on our KÖVET website and set up a HETES project website.

In parallel we organized an EUKI workshop and invited all interested parties: ADB, experts, potential investors, municipalities and SMEs. The event took place on December 10, 2018 in Zalakaros which is situated in the middle of the selected region. 50 participants took part in the event, most of them target groups of the ALLIES/HETES project.

Setting up a campaign

At the beginning we approached 1000 municipal leaders by e-mail and/or by phone. From these we chose 250 to stay in touch with. Most of them being EMAS certified organisations representing 184 municipalities, named LAKE BALATON DEVELOPMENT COORDINATION AGENCY.

Other selected partners:

1. MagNet Bank Zrt.- negotiation in providing financial framework
2. Tőkeportál.hu – negotiation, being in touch, wating for licence from MNB
3. ESCO – product from innovation (Booster) MoU with the inventor Katona Zoltán and the Slovakian production factory
4. Energy audit – TAO – pick up the connection with 80 auditors by e-mail and phone, negotiation to take part in energy efficiency related project on Act number LXXXI of 1996 on corporation tax and capital return tax
5. Lokalizáció kft. – LFEEE – jointly with MagNet Bank Zrt. for implementing HETES banking product to collect investments and grant

Together with the above-mentioned partners we approached the following stakeholders:

1. **local governments:** during the preparatory phase we had a meeting with the mayor of Kaposvár in order to describe our plan. After that meeting, we informally circulated the plan among many mayors of smaller municipalities. As we have seen, towns have the professional and administrational background for making investments, besides this they are at a professional level for applying for EU money.

   We started out by spreading general and specific information about our project. We had already reached out to them via email and they got information about the roadshows. At the starting point of HETES/ALLIES we created a contact database on the availability of all municipalities in Somogy and Zala counties.
2. **County municipalities and government offices of the given county:** personal contact with National Energy Consultant Network established, joint work during the roadshow.
3. **Financial institutions:** strong relationship with MagNet Bank, many personal meetings with bank employees and CEO. Draft version of the cooperation contract (dependent agent) created at an early stage. Continuous contact with them in contrast to other banks to which we did not build any personal channels, we gathered only information on deposits, loans and other financial products.
4. **SMEs:** at the beginning of the project we created a list of enterprises from the national business register in Somogy and Zala counties. We already sent them information about roadshows as well as a questionnaire[14] we developed for the cause. After establishing the LFEEE we started sending them information on the LFEEE's services.
5. **Citizen:** we reached out to citizen via press news and personal contacts.

14 https://docs.google.com/forms/d/1R0NJBzbDFNRWEIeGm5YzCLp89WsjG5ZICmtqP_HIwEY/edit

Three events in the project area were held in April and May 2019 to inform potential actors. Here, the chambers were helpful when reaching out to enterprises.

The agenda of the roadshows:

1. introduction to HETES
2. special financial offer of HETES
3. Energy efficiency solutions
4. Test driving of an electric vehicle

We created a questionnaire to draw attention to energy efficiency and spread it widely with the invitation to the main events. We created an information paper with basic information for both sides. The option list part of the questionnaire plays an important role in the communication and at information events. The national financial circumstances, national funds and EU funds make it difficult to develop an original and an attractive financial product. The German model would have meant a novel and innovative form of financing in Hungary but is, under the national legal system, very costly and therefore not feasible.

Deciding on the right model

Developing a country specific overall concept took much more time than thought or as outlined in the work-plan. Suitable experts for the ADB have been identified and activated, partly from the selected counties covering all the issues important for the project: crowdfunding, banking, research, cooperative. Communication with the ADB has been active and regular meetings were held in order to find the most appropriate project concept. This resulted in 5 options:

DECIDING AMONG A RANGE OF FINANCING METHODS FOR ALLIES/HETES PROJECT

Following options were validated for the financing part of the LFEEE:

1. *Partnership with MagNet Bank as a community bank.* MagNet Bank uses a special programme for financing energy efficiency related projects. The projects are chosen and monitored by the investor, who will deposit the needed amount directly to the bank. The Bank will then allocate a loan in the specific sector from the deposit.

   Deposit owners can determine the rate of the interest paid on their deposit within a specified range: they may even choose an interest lower than the market interest if they wish the specific recipient's loan to have even more favourable conditions.

   In this Community Deposit linking the three seemingly separate interest groups (i.e. the deposit owner, the bank and the loan recipient) is achievable.

   Thus, the clients provide resources by their deposits to local businesses operating in line with the principles of sustainability.

   Deposit owner clients considerably contribute to the reduction of the loan burden borne by the loan recipient clients. At the time of placing this special deposit, its owner clients may select the loan recipient to which the bank and KÖVET Association shall provide a loan from their term deposit. Subsequently, the bank allocates a loan exclusively for the specified purpose. This way the deposit owners can be certain that, while their money is resting in the bank, it supports the objective of their choice.

2. *Using Lokalizáció Liability Limited Company* as an ESCO company or a special financial institute best equipped for reaching the best solution based on energy efficiency goals of their clients.

3. *To issue bonds / KÖVET association or Lokalizáció Kft.*/LLC - we discussed the closed and open variation, too, making a soft SWOT analysis preferable to an open one, despite its longer procedure

4. *To issue local money* based on WIR experiences in Switzerland and using it for project financing (https://www.wir.ch/), despite natural, good and/or bad experiences in Hungary (in Germany maybe you know Minuto), see more details at the following link: https://ijccr.net/tag/hungary/

5. *Crowdfunding* – as a Business Angel, KÖVET Association and/or Lokalizáció LLC. arrange and organize campaigns with full technical, marketing, etc. support.

   Based on the „prospect order" one legal entity can issue shares amounting to a maximum of 1 million euros capital – this can meet the ALLIES/HETES project's goal, too.

6. *Cooperative* – although it has a different meaning as in Germany, this legal entity is also usable for LFEEEs in Hungary, the garbage-gathering project by Social Cooperative, for example, could be established in several municipalities to support jobless people, etc.

After a long but fruitful evaluation phase we decided to implement a hybrid model derived from the elements in the list above. The reason: **it got clear, that** due to special financial circumstances there was no chance for a one-on-one implementation of the German model (REEG or similar) **in Hungary.** We had to decide to create a special form of structure as a hub for connecting. Basically, it meant that the LFEEE itself had to be supplemented by the MagNet Community Bank.

Following that decision, a conference held in December 2019 was a major milestone in the project in identifying "the right way". At the end, the model described below was implemented.

5.3.2 Extending an Existing Entity

KÖVET owned a company named Lokalizáció Ltd., that had been inactive in the last couple of years. Private persons were even in the ownership, their share had been purchased by KÖVET. So, KÖVET owned 100% of Lokalizáció. The final administrative steps have been concluded by the registry court.

Since the special Hungarian financial service system (permissions and costs) does not allow to implement the originally suggested LFEEE structure, the Lokalizáció company will be the LFEEE connected to the community bank MagNet using the rights and permissions of the latter in a so called "dependent agent status". The final version of the contract between MagNet Bank and Lokalizáció as dependent agent has been signed.

In parallel with contract signing negotiations on selling/purchasing the ~30% ownership in Lokalizáció to the community bank (MagNet Bank) resulted in a done deal at the end of the year 2019.

The MagNet Bank committed to establish a special bank deposit named HETES with reduced (near 0%) profit marge on the side of the bank, so Lokalizáció as an agent is able to offer it as a very favourable investment opportunity on the market.

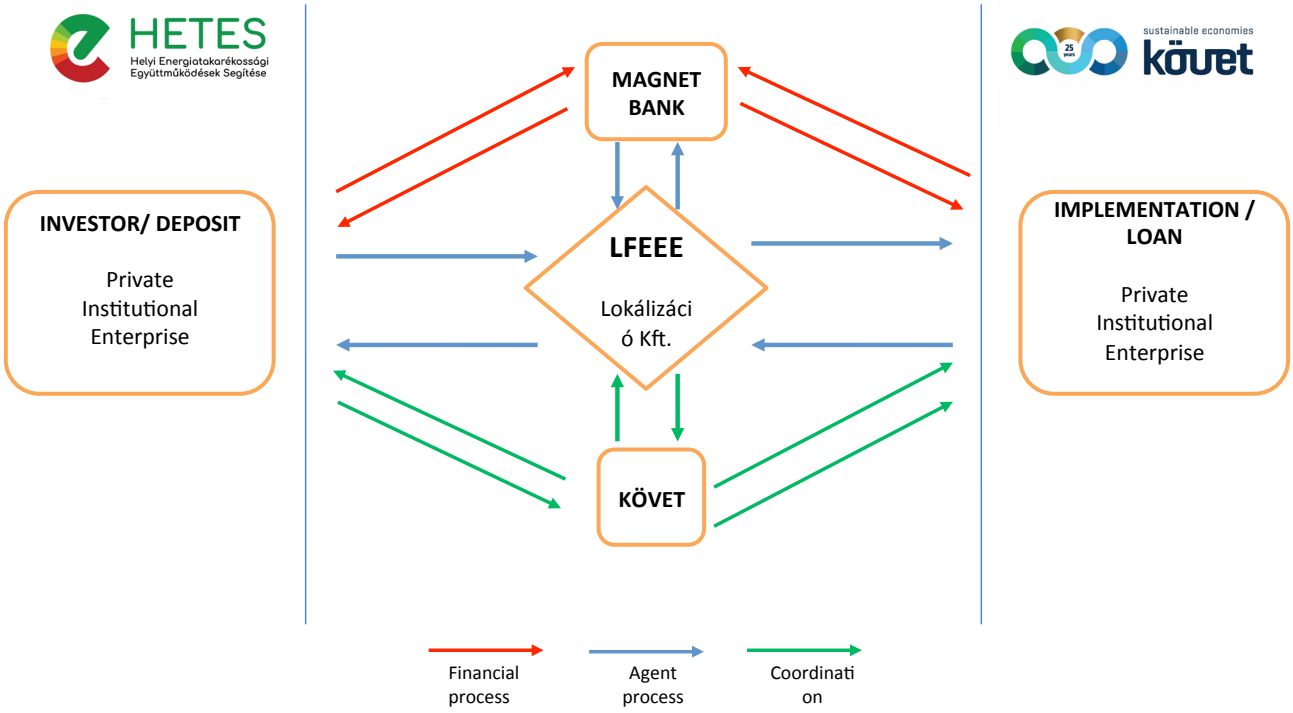

Figure 14: Lokalizáció Model

After a long coordination process, Lokalizáció can offer very favourable conditions both to investors and end-users. With the LFEEE involving a bank we can offer the security of the national deposit insurance fund. This is essential as the memories of the former global financial crisis and bankrupts of financial institutions are still vivid in Hungarian society.

Selecting the right enterprise model (e. g. cooperative, limited, crowd-funding)

According to our final standpoint the Lokalizáció Kft. had been developed to be an LFEEE-organization. It is an already existing company owned by the KÖVET Association and many private persons.

After clarifying the ownership structure, the following task was to build up the organizational and financial framework.

After signing that contract the Lokalizáció submitted an application to the Hungarian National Bank for permission to practise financial services. The above-mentioned contract and the proof of the skilled management are required in order to apply.

Once the permission has been granted, Lokalizáció can officially begin to function as a financial actor, to gather money through Szféra8/HETES construction and to lend money for energy efficiency projects.

Developing appropriate by-law

Lokalizáció has an accounting policy, GDPR policy and a modified deed of foundation.

Implementing an organisational model

At the beginning there was only one employee at Lokalizáció. Later, when the financial stability of the organization becomes stronger, more employees will be hired.

The managing director is currently doing all of the focus activities, assisted by an accountant and an experienced project manager. It seems to be inevitable to hire an assistant, even if in part time.

Registering the LFEEE

As Lokalizáció is a company founded a decade ago, it was not necessary to register it as an LFEEE. However, it is a new company with a view on its operational focus. In parallel, there were changes in ownership, which have already been completed with success.

Developing a contractual model

In the Hungarian contractual model the three seemingly separate interest groups of the deposit owner/investor, the bank and the loan recipient are linked. The investor chooses and monitors energy efficiency projects out of the MagNet Bank portfolio and deposits the needed amount directly to the bank which then allocates a loan in the specific sector.

Deposit owners can determine the rate of the interest paid on their deposit within a specified range. This gives them the leeway to actively promote the uptake of energy efficiency measures by, for example, creating highly favourable conditions of the recipient's loan by choosing an interest lower than the market interest. Accordingly, investors provide resources by their deposits to local businesses operating in line with the principles of sustainability.

Furthermore, at the time of placing the special deposit, the owner clients can choose the loan recipient to which the bank and KÖVET Association shall provide a loan from their term deposit. Subsequently, the bank allocates a loan exclusively for the specified purpose. This way the deposit owners can be certain that, while their money is resting in the bank, it supports the objective of their choice.

Developing a business plan

The business model of Lokalizáció is based on the incomes from generating projects in the field of energy efficiency and from its other activities. A further source of income in project generating arises from completing application forms.

A draft business plan has already been created; however, the final version has not yet been approved by the general assembly.

Creating Examples

At the beginning of March 2020, the following projects were in the pipeline but had not yet been started because they were waiting for energy assessments or positive tender results etc.:

Table 7: Planned Projects in Hungary

Partner	Energy efficiency project	Investment EUR	Financing EUR HETES	Planned completion
Hotel Kristály, Kristály95 KFT	SOLAR Panel installing 35kW	35,000	35,000	2020.05.31.
Bartha & Bartha Kft Siófok	SOLAR Panel installing 35KW	35,000	15,000	2020.05.31.
Hotel Panoráma KFT Noszvaj	SOLAR Panel Installing 60KW	47,000	20,000	2020.04.30.
Csoba Papír Kft Marcali	SOLAR Panel Installing 6KW	6,000	Under arrangement	2020.05.31.
LIDÓ Friends Kft Gyenesdiás	SOLAR Panel Installing 10KW	10,000	Under arrangement	2020.05.31.
Szöllösi Dental Kft	SOLAR Panel Installing 8KW	8,000	Under arrangement	2020.05.31.
Napsugár Üdülőszöv. KFt Héviz	SOLAR Panel Installing 60KW	60,000	60.000	2020.04.30.
Friemd Travel Kft Keszthely	SOLAR Panel Installing 5KW	5,000	Under arrangement	2020.04.30.
SUM:	***219 KW***	***219,000***	***120,000***	

Table 8: Projects invery initial phase

Partner	Energy efficiency project	Investment EUR	Financing EUR HETES	Planned completion
Egeraracsa (Zala M) Önkormányzat	SOLAR Panel installing 10KW	10,000	Under arrangement	2020.06.30.
Dióskál (Zala) Önkormányzat,Kultúrház	SOLAR Panel installing 20KW	20,000	Under arrangement	2020.06.30.
Zalaszentgrót Önkormányzat	SOLAR Panel Installing 200KW	200,000	200,000	2021.03.31.
SUM:	***230 KW***	***220,000***	***200,000***	

5.3.3 Operating the LFEEE

Phase 0: Activation and Lead Generation

In the initial phase of the LFEEE's operation KÖVET's comprehensive network of sustainable companies was activated to discuss potential projects in personal meetings. Besides these networks it proved very useful to reach out to potential partners through project management experts and accountant companies, as well.

At the end of the project we were planning to hold one informational event in the two counties of the focus area with participants from the existing HETES database and from the overall database of the commercial chambers.

Phase 1: Feasibility Review: Raw and Fine Assessment

In case of concrete interest Lokalizáció uses a questionnaire to discover the needs of the partner and the organizational constraints. When tender funds can be involved, the criteria for participating are in the tender documentation. During the information gathering phase Lokalizáció clarifies the criteria. If participation in the tender proves feasible Lokalizáció assembles the tender dossier and submits it.

If the investor is not interested in bidding in a tender or is not eligible, Lokalizáció compiles a loan applying documentation. This consists of a preliminary loan assessment which is subsequently forwarded to the bank.

A combination of using tenders and loans is also possible. In any case, Lokalizáció offers technical help to investors in the field of energy efficiency.

Further stages have not yet been reached in the case of Lokalizácío.

5.3.4 The Hungarian Experience: Dos and Don'ts

Do this ...

- First identify potential projects, then look for investors
- Focus on public projects because it is easier to attract investors (like the spa in Zalaszentgrót run as an Ltd. but owned by the municipality)
- Develop strong arguments for attracting investments to private projects
- Hire experts with strong business networks as established contacts are extremely helpful in the fledgling stages
- Choose the USP of your product/entity well and make it stand out among the many competing tools on the market (specifically relevant in Central Europe with a view on EU funds)
- Offer not only financial expertise but also technical and project management services
- Find projects together with municipality decision-makers because they can identify feasible projects with positive effects
- Find projects together with municipality decision-makers because they can identify feasible projects with positive effects
- Formulate your financial reasoning in clear terms (returns, amortisation etc.) in order to gain the support of business leaders
- Find projects together with municipality decision-makers because they can identify feasible projects with positive effects
- Find projects together with municipality decision-makers because they can identify feasible projects with positive effects
- Build financial partnerships with several local banks rather than only one as one change in management can annihilate the achieved results

Don't do that ...

- Don't lose your enthusiasm! It is a stressful process to find a remarkable financing mechanism. It is like crossing a jungle. At the beginning you don't even have a machete, but as you go further, you will find one and it will help you find (or create) the right path
- Don't waste your time with "investors" on revolutionary energy technology. Often, their marketing is better than the product
- Don't stagnate. Remain attentive. New possibilities can turn up any time. Be open to embrace them
- Don't hesitate to change individuals in your team if they turn out not to have the necessary skills. for documentation; project management and financial and technical project assessment

5.4. Establishing an LFEEE in Poland

The road to an LFEEE in Poland: Czechowice –Dziedzice and RFE S.A. (FEWE)

ALLIES Activating and Learning from Local Investments in Energy Savings is not only a project name but it is also a mission. However, as the idea of setting up an LFEEE had to face the challenges of the Polish market and institutional framework necessary adaptations had to be made to the German predecessor model.

FEWE first decided to define the area to be addressed and chose to negotiate with a group of municipalities including large cities like Katowice, capital of Silesia as well as smaller ones e.g. Czechowice-Dziedzice. Finally, the municipality of Czechowice-Dziedzice turned out to be a focus of the ALLIES-PARTNER.

Involved key stakeholders and partners

- City of Czechowice - Dziedzice – medium size community, located in the South of Silesia
- RFE S.A. – private entity, owned by the Silesian Environmental Fund
- NAPE – National Polish energy agency
- SAPE – association of energy agencies
- PROMAR – ESCO company
- KHK, PIIOB – entrepreneurs, EPC providers

Main objective of the project

From the outset FEWE followed two separate leads in the project that it considered equally important.

1. organizing a new entity
2. identifying projects and activating new investments

First, FEWE considered establishing a new entity based on cooperation with local municipalities. The new entity should have the capacity of financing itself on its own or combining private capital (PPP) with currently available support and incentive investment schemes e.g. White Certificates or environmental funds. However, the abundance of obtainable (EU) funds distracted investors from day to day decision-making. Many stakeholders were waiting for the result of their former applications to earlier calls.

In parallel, FEWE identified RFE S.A. from Bielsko-Biała, a joint stock company owned to 100% by the Silesian Fund for Environment Protection and Water Management as a strong partner which could be transformed into a one-stop-shop or an EPC regional provider.

Secondly, in the quest for activating new investments the ELENA mechanism proved attractive. The ELENA programme had been promoted in Poland to cover lacking competences in the Silesia region.

Main results of the project

The EIB accepted FEWEs pre-application of **SILENA/ RFE Regional Energy Efficiency Assistance to Residential Buildings** and enabled its further transfer to RFE. Furthermore, FEWE prepared a package of financial support from the EU for the thermo-modernization of housing cooperatives in the Silesia region. The aim is to trigger investments of EUR 30 million for energy efficiency projects.

...

...

In the Czechowice-Dziedzice area, FEWE activated a local EE investment concept.

Earlier relations between FEWE and Czechowice-Dziedzice city enabled to set the PONE (Low Emission Mitigation Plan) into motion. Together with the Low Carbon Economy Plan PONE was followed by the mayor signing the one-year agreement of cooperation in support of ALLIES. As an outcome following small-scale projects were introduced:

1. Liquidation of furnace heating and connecting buildings to the municipal network in the framework of the low emission mitigation programme of Czechowice-Dziedzice. Two buildings have already been renovated. The works on connecting another 4 buildings within the first year of the programme are underway;
2. Preparation of a micro-cogeneration project (72 kWe). Financing was obtained through the ROP programme. When the project is completed, it is expected that emissions will be reduced by 230t CO2 per year.

contact: FEWE, Szymon Liszka

5.4.1 Defining and implementing a Development Process

The following descriptions are based on the experiences of the Polish ALLIES case named ALLIES-PARTNER.

All market actors including LFEEE-like institutions should generate profits by meeting market demand and by doing so ensuring its sustainability. The ALLIES concept is closely related to the widely recognized ESCO business model. One main difference is ALLIES local/regional focus. The best practices of EPC contracts in Poland can be found among small PPP – Public Private Partnerships concluded by Polish cities or smaller communities in the building sector.

In Poland, transition towards a green economy and scaling up EE investments in existing buildings require business models or financial structures that

- vertically integrate the EE investment process
- align risks and rewards of stakeholders to de-risk and lower transaction costs and facilitate aggregation

In practice this is reflected in standardising processes and documentation regarding, e.g. investment guidelines, contract templates and EE documentation for the secondary market.

Energy efficiency financing in the buildings sector showed ways to scale up financing of energy efficiency refurbishment of buildings. The study and observation of initiatives and instruments to support measures in respectively public, multi-family and single-family buildings were also informative. Research and observation of the market also showed that energy advisory schemes are being introduced as a way to facilitate EE investment in the building sector in Poland. These developments all promote the concept of one-stop-shop offering a variety of services along the entire process of identifying projects, approaching stakeholders for implementing projects, arranging the financing, direct financing up to project implementation and closure. As the activation of new investments seemed to be crucial as well as organizing a new entity tempting, FEWE split its actions in those two directions.

The centrally organized governmental programme CAP (Clean Air Programme) had not addressed multifamily buildings and the EIB sponsored ELENA mechanism offered unique opportunities dedicated to the housing sector. Together, these circumstances created an interesting niche for FEWE's ALLIES-PARTNER.

Forming a Core Group

In a meeting held November 12, 2018 in Katowice FEWE presented and discussed the REEG documents and results of preliminary research to key stakeholders and experts. The invitation was issued to regional and local governments, experienced energy services providers and facilitators, potential investors (property owners and managers), consulting (legal) professionals and PPP developers. Following the meeting the Polish /Silesian advisory and dissemination board was formed with the representatives of:

- RFE – potential investor,
- NAPE and FEWE – energy agencies
- PROMAR – an EnPC provider
- Various building (property) managers
- Entrepreneurs and managers – energy services providers.

These individuals also made up the LAC – Local ALLIES Committee. The aim of the kick-off meeting was to introduce the ALLIES project and business model and discuss experiences on Polish market conditions and best practices.

Act locally... where to start?

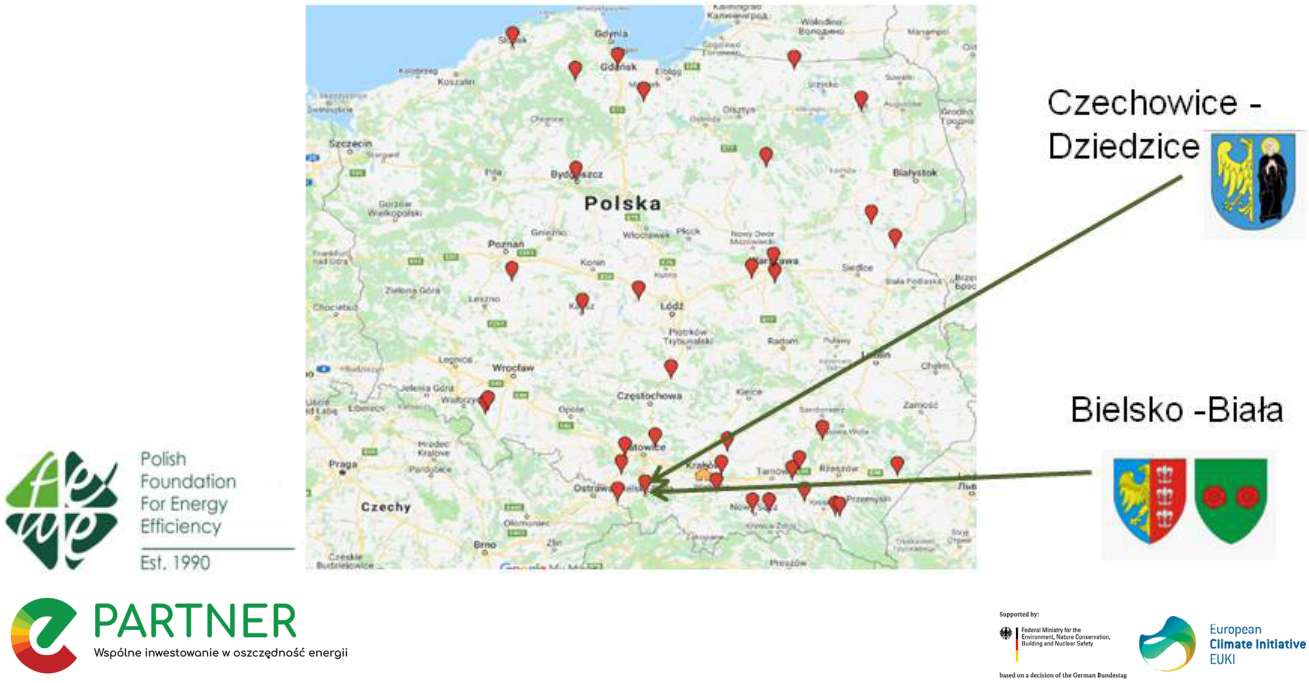

Figure 16: Map of Poland and the regional focus

First, FEWE decided to define the regional focus of ALLIES-PARTNER. Due to its strong network it chose to primarily work together with a group of municipalities in the South of Poland including large communities like Katowice (capital of Silesia) and smaller ones like Czechowice-Dziedzice. The municipalities were chosen because they either were already familiar with the Covenant of Mayors ideas or had established preliminary structures to tackle energy issues within their organisations. In both cases, their representatives were acquainted with working within the structures of Silesian Association of Municipalities and Poviats and its Local Energy Policy Commission.

Moreover, FEWE identified RFE S.A., Regionalny Fundusz Ekorozwoju S.A. (Regional Fund for Sustainable Development) from Bielsko-Biała as an interesting and strong partner. RFE S.A. is a joint stock company, owned to 100% by the Silesian Fund for Environment Protection and Water Management seated it Katowice.

- In the next two months a Memorandum of Understanding was concluded by the Mayor of Czechowice–Dziedzice and the President of FEWE. The MoU paved the way for putting the PONE plan, Local Low Emission Mitigation Plan into motion.
- Furthermore, a Letter of Intent was signed among RFE as a financial investor, PIIOB as a technical projects developer and FEWE as an energy agency.

Figure 17 below shows the relevant actors and their relations in the context of the Polish LFEEE model.

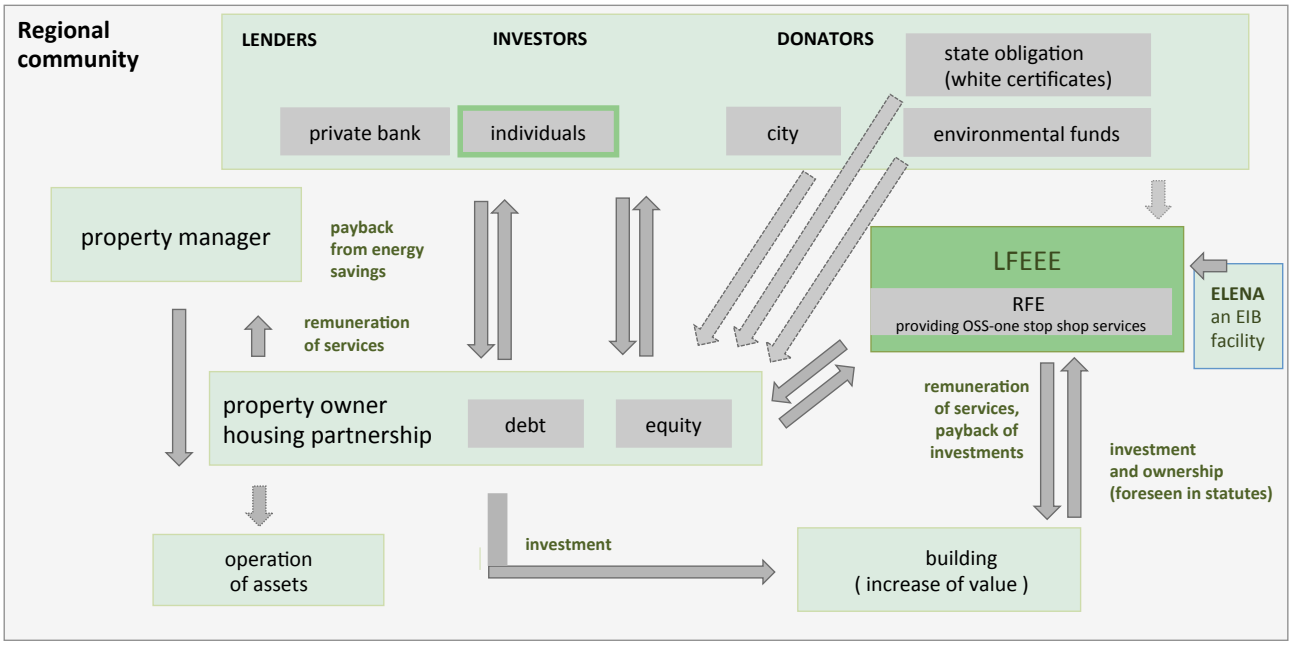

Figure 17: Polish Model

In the meantime, on March 27, 2019 representatives of the ALLIES-PARTNER ADB took part in the Second Round Table on Financing Energy Efficiency in Poland. This event was organised in the framework of the Sustainable Energy Investment Forums[15] and concentrated on the following topics:

- Support for investment on local level; Support for improving energy efficiency in enterprises,
- Support for improving energy efficiency in buildings.

The event was followed by another meeting at ZBP (the Polish Bank Association) resulting in establishing a working group on "An effective model of using funds to increase energy efficiency in SMEs". However, the most important effect of the open discussion was the confirmation that the banks were ready to support the "almost risk free" investments in energy efficiency measures in the housing sector. Yet, risks related to SMEs' operations would require additional support mechanisms like ELENA or guarantee funds.

Preparing information material

A **project logo** was developed to make the pilot project unique and in line with the project-specific website www.allies.eu and https://fewe.pl/pl/allies/. The ALLIES/PARTNER concept has been customized to Polish conditions.

Various different PowerPoint presentations about ALLIES/PARTNER were developed. The presentations were primarily designed for the two target groups "municipalities" and potential investors.

15 The SEI Forums have hosted more than 30 events in up to 15 Member States in 2016-2019. More information can be found here: https://ec.europa.eu/info/events/sustainable-energy-investment-forums_en July 24, 2020

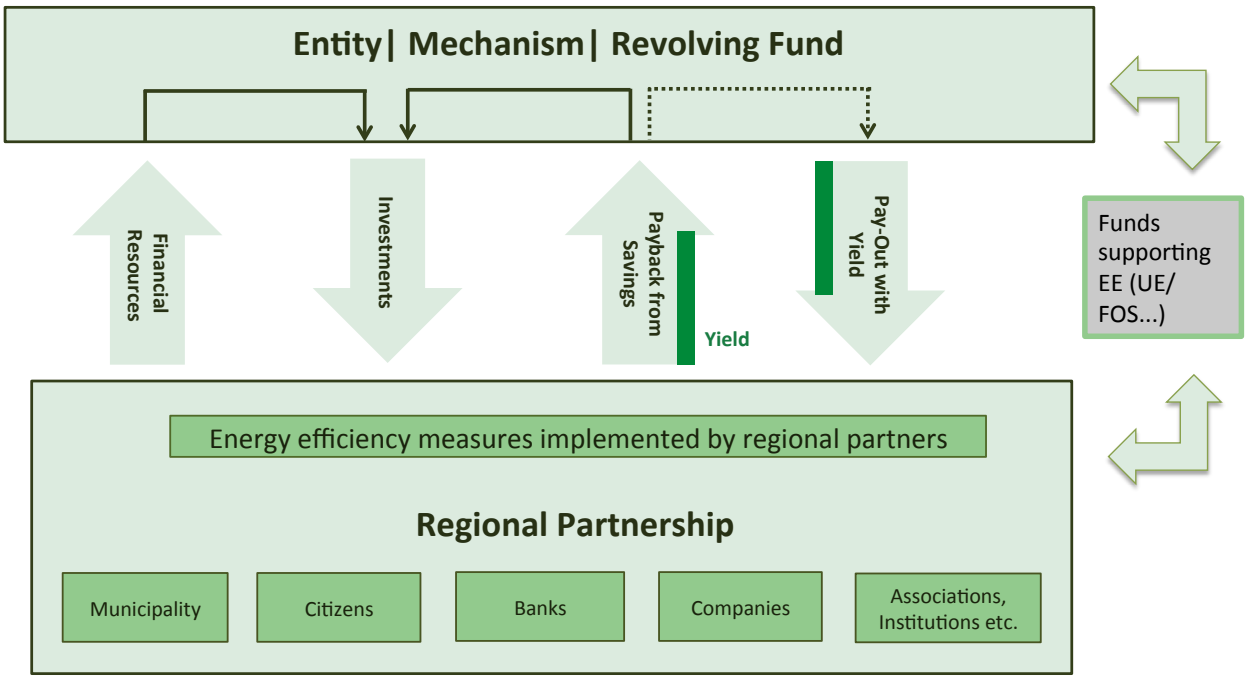

Figure 18: LFEEE – Poland basic concept

The long-lasting Polish tradition of sponsoring energy efficiency measures related to low price energy policy had been developed by the Thermodernisation Fund, NFEPWM and other funds. Most investors take it for granted that energy savings measures should be financially and technically supported or even awarded with high grants. The abundance of obtainable grants distributed via "call-based systems" distracted investors from day to day decision-making. Many stakeholders were waiting for the result of their former applications vested in calls of previous years. In 2019 the Polish government decided to "freeze" the electricity prices for household and SMEs, thus increasing risks and raising expectations for new support mechanisms.

Setting up a campaign

In a first step, FEWE and the ADB/LAC members decided to start the development process of establishing an LFEEE by turning to its regional partners. FEWE had cooperated a lot with different municipalities. It therefore presented the ALLIES concept and the outcomes of the Second Round Table on Financing Energy Efficiency in Poland within the SEI Forum regarding the ELENA mechanism and the banking sectors' opinion to them and their associations to maximize the effects of the ALLIES/PARTNER. As capital of Silesia, Katowice was predestined to play an exemplary role in the region. However, despite a well-developed Energy Bureau, Katowice did not decide to apply to EIB for the ELENA technical assistance itself but promoted that concept within the regional Metropolis GZM (Górnośląsko-Zagłębiowska Metropolia). On May 15, 2020 this time-consuming process finally entered a new stage: The Metropolis and the energy agency signed the consultancy agreement 191/2020[16].

As cooperation within the agreement still proved difficult FEWE developed its own SILENA concept in order to prove that the ELENA mechanism is accessible. The flow chart below describes the step by step process of applying for technical support in the ELENA support programme.

16 http://bip.metropoliagzm.pl/rejestry-umow/szukaj?keyword=&subject=&a_id=&mode_id=-1

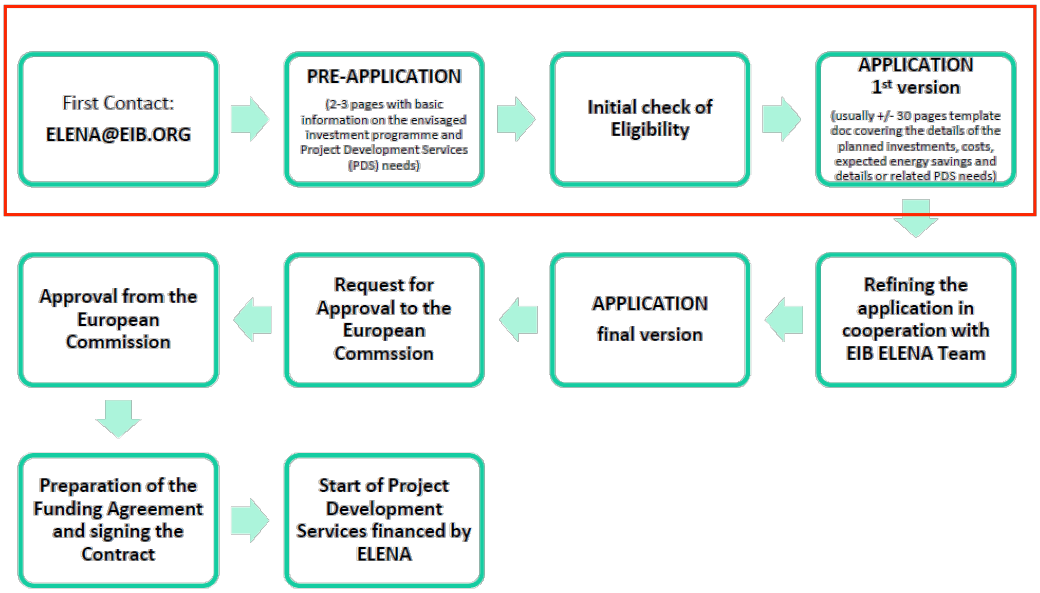

Figure 19: Process of applying for technical support in the ELENA support programme

In the spring of 2019 SILENA passed the initial check of eligibility and reached the status of "1st version of application ready".

The planned Investment Programme – Silesian Energy Efficiency Assistance to Multifamily Buildings should be predominantly implemented in multifamily buildings located in Silesian voivodships, in the South of Poland. Based on investment opportunities the programme may be extended to other voivodships in Southern Poland (Opole, Lower Silesia, Lesser Poland). It will address both the private and public residential sector. The programme will target mainly housing associations but municipal buildings, housing cooperatives and individually owned buildings are not excluded.

The scope of investment may include (deep) energy efficient buildings retrofit:

- Building insulation and tightening, exchange of windows, doors, etc.
- Improvement / exchange of heating sources /systems plus controlling systems
- Improvement / exchange of hot water sources / systems
- Implementation of (built-in) small scale renewable energy sources
- Exchange of built-in and external lighting
- Improvement of building elevator systems
- Other energy efficiency improvements including occupants' behaviour

In most cases, the investments will be made by the asset owner – with the prevailing use of loans (borrowed on the market or to preferential conditions). Supporting financial mechanisms will be proposed for each investment including available national, regional and local solutions (thermo-renovation fund, White Certificates, structural funds and others) as well as SILENA's own solutions (clients' aggregation). SILENA will propose a combination of available supporting funds whenever they can be used jointly.

SILENA was expected to start early autumn 2019 and close after a 3-year period (September 2022). While the Investment phase is expected to start not earlier than late spring 2020 and the last investment will commence first in late summer 2022.

Unfortunately, FEWE is not eligible to take part as a public body. The EIB requires from "private sector" entities additional financial and bank guarantees which FEWE cannot provide. This is why late summer 2019 FEWE promoted the SILENA concept to the local SILESIAN – Provincial Fund for Environment Protection and Water Management (Wojewódzki Fundusz Ochrony Środowiska in Katowice) and set a first meeting between WFOŚiGW and an EIB representative. WFOŚiGW like any other public entity does not need additional guarantees. However, the decision-making process was still ongoing at the end of the ALLIES project.

In the meantime, the executive decision of the president of FEWE to focus on much smaller projects resulted in a cooperation with the municipality of Czechowice-Dziedzice, a medium-size municipality in the southern part of Silesia. FEWE, as well as some of the ADB members have a long history of close cooperation with this city building on a strong foundation of trust. The support of the development of a decarbonisation of the economy (Low Carbon Economy Plan – **PGN**) as well as the low emission mitigation (PONE) strategy plan were followed by signing a one-year agreement of cooperation in support of the ALLIES concept. Consequently, the first Memorandum of Understanding was signed and despite the fact that the modernization of the city street lighting in the PPP formula was not possible the added value outcome was the development and running of the following small-scale projects.

1. Liquidation of inefficient solid fuel sources of heating and connecting multifamily buildings to the municipal network in the framework of the low emission mitigation programme of Czechowice-Dziedzice. Three buildings were renovated in 2019, another 3 buildings in 2020. As a result of the first-year works, a reduction of CO2 emissions by 38 tonnes was expected. The energy saving measures were financed by a combination of credits of private investors from Czechowice-Dziedzice, by the Silesian PFEPWM and the Thermomodernisation Fund.

   Although the municipality did not decide to establish a new entity, due to the relatively small scale of individual investments, the decision had been made to support the investment process by organizing a temporary bureau for coordinating all financial applications and settlements. The LFEEE-like bureau, in close cooperation with property managers coordinating the physical (real) investments, performed the function of the one-stop-shop.
2. A micro-cogeneration project (72 kWe) of a local swimming pool was developed as the result of the analysis financed within the ALLIES/Partner project. The idea was second place after the modernization of the city street lighting. However, a unique window of opportunity appeared when a call within the Regional Operating Programme was announced and the financing was obtained through the EU sponsored ROP programme. When the project is completed in late 2020, it is expected that emissions will be reduced by another 230t CO2 per year.

Deciding on the right model

When explaining the process of setting up an LFEEE in Poland, FEWE first stated that cooperatives - which have proven successful in Germany - cannot work in Poland and many other Eastern European former socialist countries due to negative historical connotations. So, we started conceptualizing a model that would work in Poland.

Finally, FEWE understood that the financial institution is not the most important in the process. There are several entities on the market with the interest in financing EE projects. So FEWE decided to propose to the members of the LAC (Local ALLIES Committee) to develop a Special Purpose Vehicle, an entity that would be a one-stop-shop solution offering services and receiving remuneration for its actions.

The focus on private investors resulted in the decision to offer "Integrated home renovation services" covering the whole "customer journey" from technical and social diagnosis, technical offer, contracting of works, structuring and provision of finance, to the monitoring of works and quality assurance. In this respect, the decision had been made that a one-stop-shop solution is what private investors really need.

FEWE pursued to set up a new company working on a one-stop-shop basis offering services from the beginning of the feasibility studies of an investment project through planning such as technical design, selecting contractors for the works up to support in commissioning project verification. However, it is extraordinarily costly and thus very difficult to sell this on a market which is used to selecting the cheapest offer.

So FEWE turned to a new opportunity: the EC ELENA mechanism through the EIB. In recent years institutional funding though ELENA has been highly promoted in Eastern Europe, because the programme had not been popular there before. ELENA also finances preparatory works leading to EE projects and is thus very attractive for FEWE's objectives in ALLIES of setting up a one-stop-shop.

FEWE's proposal for thermo-modernization of residential, multifamily (cooperative) buildings in Silesia received preliminary approval by the EIB. However, the EIB requested a EUR 3 million bank guarantee from FEWE which FEWE had difficulties in providing. Therefore, a possibility of close cooperation with the Silesian PFEPWM was considered.

Finally, FEWE proposed the project to the private entity, RFE, owned to 100% by the Silesian government. FEWE prepared a concept for adapting the structure of RFE to become a one-stop-shop as conceptualized in ALLIES.

5.4.2 Extending an Existing Entity

The Regionalny Fundusz Ekorozwoju S.A. (acronym RFE or Regional Sustainable Development Fund -jsc) was established in 1998 under the name Beskidzki - Sustainable Development Fund. Currently, it is a joint-stock company in which Wojewódzki Fundusz Ochrony Środowiska i Gospodarki Wodnej w Katowicach (Silesian - Provincial Fund for Environment Protection and Water Management (SFEPWM) in Katowice) holds 100% of the stock. The registered capital amounts to PLN 6.5 million.

SFEPWM in Katowice is the public body but RFE acts as a private entity according to its registered statutes (articles of the company). As independent entity it provides consultancy services to local government units, municipal and private enterprises, housing cooperatives and associations, churches and religious associations. It also serves as the special purpose vehicle developing strategies for SFEPWM and realised by selected EU related programmes. RFE deals with, among others, counselling and documentation regarding energy and improving energy efficiency, strategic and planning consultancy and documentation on the preparation and implementation of investments, in particular including obtaining external funds, investment (pre-) feasibility studies as well as training to housing cooperatives and associations. RFE has evolved throughout its existence and has worked on energy efficiency projects and programmes with participation of different stakeholders: state administration, regional and local authorities, financing institutions, business organizations as well as housing management companies, housing associations, housing cooperatives and private households. Co-operation in environmentally friendly projects with municipalities, their associations and other non-governmental organizations or branch associations is also one of RFE's priority. RFE offers a wide range of services enabling comprehensive implementation of investment projects for energy efficiency and renewable energies, including those financed from external or private funds. These services include helping in choosing the optimal investment solution, preparation of complete project-estimate documentation, assistance in obtaining external funds (private, domestic and EU), including preparation of complete application documentation required by managing authorities, settlement of investments in accordance with the funding institution's requirements. Yet, RFE at present, cannot deliver a one-stop-shop solution to the investors.

Against the background of these developments and considerations, FEWE developed the following (theoretical) model:

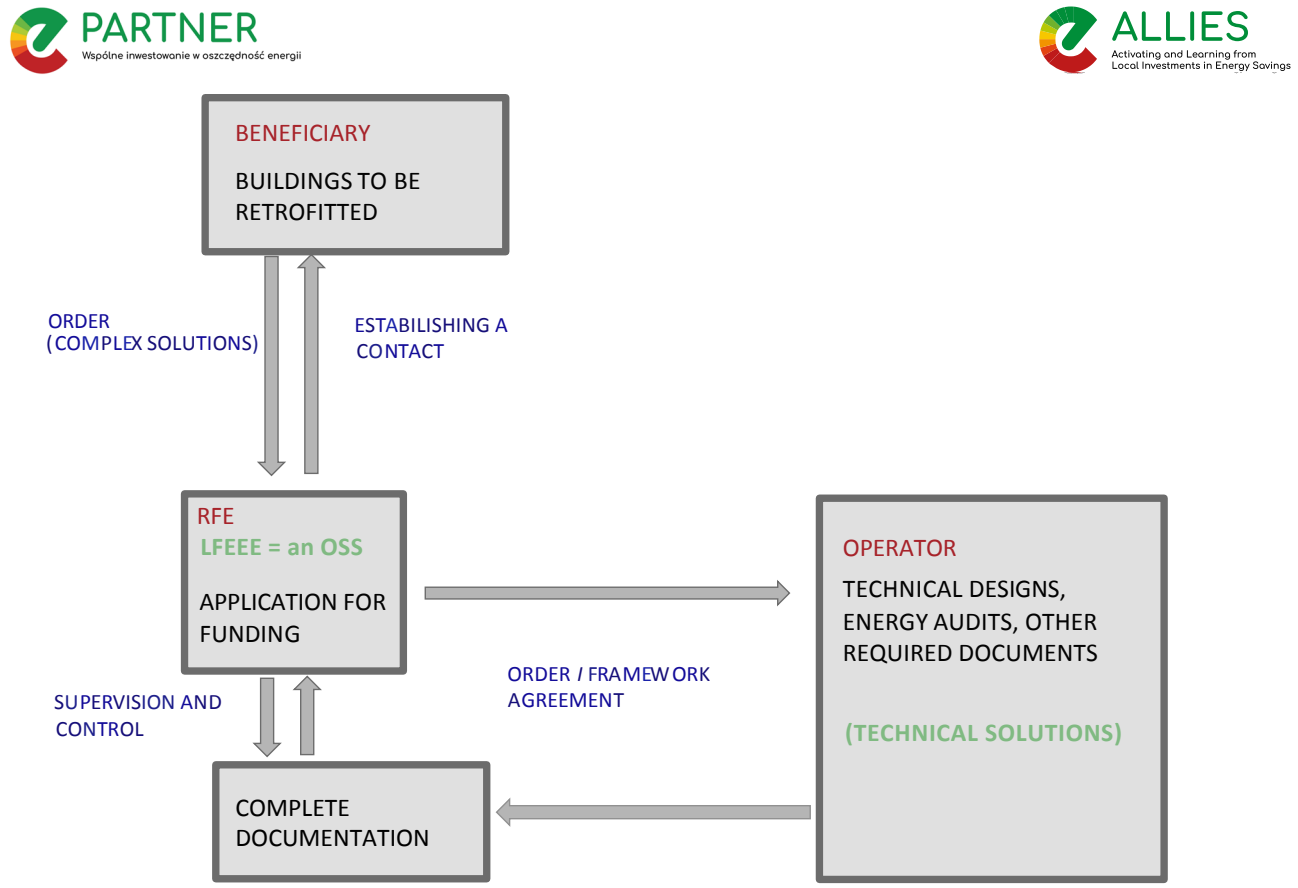

Figure 20: Polish theoretical Model

In February 2020 the strategic documents "Wieloletnia strategia działania Regionalnego Funduszu Ekorozwoju S.A. na lata 2020-2023 wraz z planem działalności spółki na rok 2020" („Long-term strategy of operation of the RFE for 2020-2023 with the company's business plan for 2020") was adopted by RFE's statutory bodies. It refers to the results of the cooperation within the PARTNER-ALLIES programme: developing the concept of the one-stop–shopping for consulting on the development and financing of energy efficiency measures.

Moreover, the document also refers to the company's strategy in the perspective of 2020 and three subsequent years. The strategy entails business diversification through:

- Participation in investment projects related to environmental protection and energy efficiency
- Implementation of the ELENA Project

FEWE prepared a concept for adapting the structure of RFE to become a one-stop-shop as conceptualized in ALLIES.

Regarding financial schemes, the OSS-1 should consider national (thermo-renovation fund, White Certificates) regional ROP (Regional Operation Funds) if available, programmes of NFEPWM or PFEPWM and municipal grants and/or preferential loans. Financial schemes will be constantly updated to adjust to the currently available financial opportunities. Regarding other mechanisms. RFE considers the possibility to aggregate the purchase of materials, equipment and services.

The RFElena Programme is to support beneficiaries with technical support and coordination of the whole investment process related to energy efficiency in buildings focusing on the quality of provided documentation and its unification. RFElena shall cover the whole or large part of the customer chain modules from information, technical assistance, structuring and provision of financial support, to the quality assurance and the monitoring of achieved energy savings. The list of recommended contractors will be published. However, the choice of the investors will not be limited /constrained. Therefore, RFElena should connect the different stakeholders and sectors in the different phases to enable the holistic, one-stop-shop approach. Moreover, all the investors and decision influencers (property managers) will be offered the additional energy-saving-oriented-post-investment-services. Those services – like thermography (ex post), energy management services based on data analysis (statistical and on-line acquired) shall be an increasingly important driver. Thermography would ensure a satisfying quality of renovation and insulation works while energy management service should help with the detection of any further anomalies.

An RFElena service transforms a cumbersome and complex set of decision-making/actions by non-experts into a single, customer-friendly offer. The RFElena concept means moving away from the classic set-up where asset owners directly face every entry point of a complex renovation value chain with a number of interlocutors, and where the asset owner – who is a non-expert – has to find the best combination of the parts of a complex solution, to a situation where project promoters can benefit from a customer-centred service offer establishing a bridge between the fragmented supply side and the equally fragmented demand side while ensuring optimizing the available financial engineering.

With ELENA assistance it is planned to accelerate investments in more than 300 multifamily buildings.

Steps

The following steps are relevant in the Polish ALLIES/PARTNER development process:

1 Willingness of an existing cooperative to be involved in the EPC business area

Despite the changes within the Managing Board the consecutive Presidents of RFE had been interested in developing new activities either in form of a new entity or new business models.

Unfortunately, some decisions needed to be verified or confirmed by its Supervisory Board or submitted to the General Meeting of Shareholders. This was time consuming and needed to be repeated due to changes in upper organizational structures.

2 Amendment to the articles of association

The changes in the articles of the RFE had not been necessary but consecutive Supervisory Boards had to adopt the strategies of the Managing Board. The issue of the bank (financial) guarantees. required from the RFE recognized as a "private sector" entity had to be disputed with the participants of the General Meeting of Shareholders.

3 Adding energy efficiency to the business plan

RFE considered the possibility to aggregate the purchases of materials, equipment and services and to offer enhanced energy services or support to the municipalities' EPC in PPP projects.

Energy efficiency and proven monetary (energy) savings shall create an added value of the RFElena programme.

4 Entering the amendment to the articles of association into the Register of Cooperatives (if necessary)

As mentioned earlier the RFE was established in 1998 as the name Beskidzki Sustainable Development Fund. Therefore, there was no need to change the articles of associations but support the management with up to dated information about new business opportunities.

5.4.3 Operating the LFEEE

Support the development of the decarbonisation of the economy (Low Carbon Economy Plan) as well as the low emission mitigation (PONE) strategy plans was followed by signing the one-year agreement of cooperation in support of the ALLIES concept. The outcome was the creation of the following small-scale projects:

Project 1 – Liquidation of furnace heating and connecting buildings to the municipal network in the framework of the low emission mitigation programme of Czechowice-Dziedzice. Three buildings have already been renovated. The remaining 3 of 6 (3+3) shall be modernized by September 2020.

Project 2 – Preparation of a micro-cogeneration project (72 kW). Financing was obtained through the ROP programme. When the project is completed, it is expected that emissions will be reduced by 230t CO2 per year. The tender has already been carried out and the final contract has been signed. The work should be completed by November 2020.

Table 9: Project overview in Poland

Project 1	
Type of energy effiency measure	Energy efficiency measures in the housing industry
Category	Housing industry
Sector	Multi-family house
Optimization measures	Liquidation of furnace heating and connecting buildings to the higly efficient district heating
Percentage energy savings per year	39%
Reduction of energy consumption per year	5154,16G J/a
CO2 reduction per year	870,06 t
Investment costs	354519 EUR
Cost savings per year	44749 EUR
Amortisation period via ALLIES	7.9 years

Project 2	
Type of energy efficiency measure	Energy management
Category	Mini Cogeneration
Sector	Sport centre /Services
Optimization measures	Preparation of a micro-cogeneration project
Percentage energy savings per year	0% (final energy) 3% (primary energy)
Reduction of energy consumption per year	103851 kWh/a
CO2 reduction per year	230,4 t
Investment costs	314580 EUR
Cost savings per year	5970 EUR
Amortisation period via ALLIES	9.2 years

5.4.4 The Polish Experience: Dos and Don'ts

Do this ...

- In the preliminary phase, plan a lot of time for talking with stakeholders and convincing them of the idea. This is especially time costly when the upper decision-makers need to be convinced
- Find appropriate managers (of e.g. housing associations) who can connect with house/flat owners because they already have a relationship of trust
- When it comes to the second phase of closure concentrate only on the most promising next step in order to finalize the setup of the model.

Don’t do that ...

- Keep all options and opportunities open until the final model is chosen and decided upon and lastly, implemented
- Don’t follow up on too many threads in the second phase. Grasp windows of opportunity as they pop up

6. Creating an LFEEE: a step-by-step checklist

✓	Activity	Notes
	1. Defining and implementing a Development Process	
○	Form a core group	
○	Prepare information material	
○	Setup a campaign	
○	Decide on the right model	
○	Create good examples	
	2. Setting up a New Organizational and Financial Entity (LFEEE)	
○	Select the right enterprise model (e. g. cooperative, limited, crowd-funding)	
○	Develop appropriate by-laws	
○	Develop contractual model for concrete investments	
○	Develop a business plan	
○	Implement an organizational model	
○	Register the new LFEEE	
	3. Extending an Existing Entity to become an LFEEE	
○	Identify an existing institution to be involved in the energy efficiency business area	
○	Amend the articles of the institution as needed	
○	Add energy efficiency to the business plan	
○	Enter the amendment to the articles into the Register of companies or cooperatives	
	4. Operating the LFEEE	
○	Phase 0: Continuously activate partners, generate leads and get proposals	
○	Phase 1: Do feasibility reviews to proposal in 2 steps: raw and fine assessment	
○	Phase 2: Prepare an offer to beneficiaries or customers	
○	Phase 3: close contract for the investment and implementation	
○	Phase 4: implement project and supervise operation	

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7. Bibliography

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