



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101075515.

DE-RISK Project

D3.4: Financial schemes: funding the customer journey via traditional and innovative mechanisms

Project Coordinator: Melike Gulluoglu (WEGLOBAL)
Work Package Leader: Nadya Nikolova-Deme (SOFENA)
Deliverable Leader: Jordi Sole-Muntada (ECROWD)

With contributions from: all partners
Quality reviewer: Laura Pérez (R2M), Nadya Nikolova (SEA)



Document Information	
Project ID Number	HORIZON EUROPE - 101075515
Full Title	DE-RISK the adoption of Local Flexibility Markets to unlock the safe and reliable mass deployment of Renewable Energy Systems
Acronym	DE-RISK
Project URL	www.deriskproject.eu
EU Project Officer	Charles-André LEMARIE
Acknowledgement	The project has received funding from the European Union's Horizon Europe Framework programme under Grant Agreement No. 101075515.
Disclaimer	This document has been prepared within the scope of the DE-RISK project, funded by the European Union. Views and opinions expressed in this document are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Deliverable	Number	D3.4	Title	Financial schemes: funding the customer journey via traditional and innovative mechanisms
Work Package	Number	WP3	Title	Regulatory, Policy, Financial state of the art analysis

Author(s)	Jordi Sole-Muntada (ECROWD, Spain)
Contributor(s)	Nadya Nikolova-Deme (SOFENA, Bulgaria) Konstantinos Mamis (QUE Technologies, Greece) Yasser Alhelaly (NOVA IMS, Portugal) Laura Pérez (R2M, Spain) Juan Manuel Espeche (R2M, Spain) Miguel Miñano (MIW, Spain) Ana García Garre (MIW, Spain) Melike Güllüoğlu (WEglobal, Türkiye) Begüm Alpdoğan (WEglobal, Türkiye) Mehmet Koç (UEDAŞ, Türkiye) Çağatay Koçak (UEDAŞ, Türkiye)
Reviewer(s)	Laura Pérez (R2M, Spain) Lucas Porto (R2M, Spain) Iván Aranda (R2M, Spain)

Date of Delivery	Contractual	31.03.2024	Actual	30.04.2024
Status	E01		Final version submitted to European Commission (EC)	
Nature	R — Document, report			
Dissemination level	PU – Public			

Table of Content

List of abbreviations	6
EXECUTIVE SUMMARY	7
INTRODUCTION	8
Overview of the DE-RISK project	8
Description of the deliverable content, objectives and purpose	8
Relation to other activities.....	10
Part 1. Budget of a theoretical LFM pilot project targeted to be financed.	10
Assets related to LFM and legal entity to be financed	10
Average budget to finance for a LFM investment	11
Part 2. Traditional financial mechanisms available for LMS assets	11
Consumer finance loan	11
Unsecured bank loan	12
Leasing	13
Renting	14
Hire purchase agreement	15
On-Bill Recovery (OBR) - Instalment added to electricity bill.....	15
Public subsidies and zero or subsidised low rated public loans	17
Tax reductions.....	18
Property Assessed Clean Energy (PACE)	18
Other mechanisms that may not fit for funding our LFM target:.....	19
Assets or mortgage secured loan	19
Lease-back and Rent-back	19
Investment funds	20
VC Private Investors	20
Project Finance.....	20
Part 3. Innovative financial trends and mechanisms for LFM's assets	20
Crowdfunding and crowdlending	21
Crowdlending, Peer-to-peer lending or Debt crowdfunding.....	22
Equity crowdfunding or crowdequity	23
Debt-securities crowdfunding	23
Donation-based crowdfunding	24
Rewards-based crowdfunding	24
Energy Saving Certificates.....	24
Dutch GVR On-Property Tax or Betterment Tax.....	25

“MES Barcelona” PPP mechanism	26
Italian Superbonus and Ecobonus.....	28
Other innovative mechanisms that not fit for funding our LFM target:	28
Pay per savings and Energy Services Companies.....	28
Specific “green” investment funds	29
Green Bonds.....	29
CONCLUSIONS	29
Appendix.....	30

LIST OF ABBREVIATIONS

ABS	Asset-Backed Securities
CEE	Certificats d'Economies d'Energie
CSP	Crowdfunding Service Provider
D	Deliverable
EE	Energy Efficiency
EPC	Energy Performance Contracting
ESC	Energy Saving Certificates
ESCO	Energy Services Company
ESG	Environmental, Social and Governance
EU	European Union
GVR	Dutch On-Property Tax
GW	Gigawatt
IoT	Internet of Things
LFM	Local Flexibility Markets
M	Month
MES	Barcelona Sustainable Energy Mechanism
OBF	On-Bill Financing
OBR	On-Bill Recovery
OBS	On-Bill Schemes
OSS	One Stop Shop
P4P	Pay for Performance
PACE	Property Assessed Clean Energy
PPP	Public and Private Partnership
RES	Renewable Energy Systems
SPV	Special Purpose Vehicle
T	Task
USA	United States of America
VAT	Value Added Tax
VC	Venture Capital
WP	Work Package

EXECUTIVE SUMMARY

This report contains the deliverable **D3.4: Financial schemes: funding the customer journey via traditional and innovative mechanisms** of the Horizon Europe project DE-RISK — *DE-RISK the adoption of Local Flexibility Markets (LFM) to unlock the safe and reliable mass deployment of Renewable Energy Systems* (funded under Grant Agreement No. 101075515), showing results obtained from the task **T3.4: Financial schemes: funding the customers journey to participate in LFMs and democratising its access** (M1-M36), led by ECROWD. All the Consortium partners are contributing to this task.

This deliverable is a complementary resource related to many of the tasks along the DE-RISK project, since the deployment of Local Flexibility Markets (LFM) needs investments to be paid in various kinds of assets like metering devices, renewable energy systems (RES), energy saving devices, energy storage, and specific software related to all.

The real implementation of such investments for all those assets may depend on the availability of financial mechanisms for their promoter and buyer, whether it can be its final user directly, an energy community involved, or its energy supplier.

- In the first part of this deliverable we are targeting a theoretical LFM budget of a related investment to finance.
- In the second part of the deliverable we are listing and describing the so-called traditional financial mechanisms, most related to the traditional banking system, that can be quite known among some companies and families, and that are currently considered as a standard among all European countries.
- In the third part of the deliverable, we are talking in more detail about the identified non-banking or innovative financing instruments, like crowdlending, some not so known and some not completely available yet, but that are expected to play an important role in democratising the access to the investments related to LFM.

INTRODUCTION

Overview of the DE-RISK project

DE-RISK, whose acronym stands for “*DE-RISK the adoption of Local Flexibility Markets to unlock the safe and reliable mass deployment of Renewable Energy Systems*” is a project funded by the EU’s Horizon Europe programme under the Grant Agreement n° 101075515. DE-RISK aims to support the market uptake of Renewable Energy Systems (RES) by fostering the adoption of Local Flexibility Markets (LFMs) and unlocking up to 100 GW of flexibility in 2030 which will allow a safe and reliable integration of RES in the grid. DE-RISK will achieve this ambitious objective by minimising the investments and implementation risk through an innovative consumer behaviour change journey that will increase end-users' trust and willingness to participate in the LFMs.

Description of the deliverable content, objectives and purpose

Under the WP3 “Regulatory, Policy, Financial State of the Art Analysis” and the task T3.4 “Financial schemes: funding the customers journey to participate in LFMs and democratising its access”, the scope of this deliverable D 3.4 is first to describe a state-of-the-art of already available financial resources that can be used for raising funds for the investments needed to implement LFMs in real cases such as the four pilots included in the DE-RISK project, but also for energy communities related investments, as LFM are expected to be one of the future services offered by them.

As a concept-base, we will here accept that LFM investments are one kind of Energy Efficiency (EE) upgrade investments for households, and so they can increase the property value where they are implemented, while contributing to mitigate climate change by reducing their energy needs.

One important barrier for the access to financing for LFM asset investments is the traditional and mutual lack of understanding from the traditional financial institutions to the EE project owners or promoters. Moreover, this important barrier may be usually added to many existing others as the benefits from EE are not revenues but savings, its heterogeneous nature, the upfront costs, the management costs, the uncertainty about the outcomes or the resultant reduction of the energy bills and the increasing value of the property, the fact that

the household can be rented, or even the promoter's indebtedness, liquidity and creditworthiness.

In this deliverable we are focusing on listing the available financial options identified, but neither on analysing the credit risk decision process of the different types of lenders nor on comparing different lending mechanisms by their interest rates, terms or country in which it applies.

The gap among lenders and LFM investments is wider as usually the amount required to borrow is not always attractive or cost-efficient for financial institutions as they are commonly better suited to finance large-scale projects or a previously aggregated pipeline of retail projects that may meet that desired large-scale scope. For this reason, we have also identified and briefly described a list of financial resources that don't fit nowadays to the LFM needs, for instance equity financing resources that need the creation of a Special Purpose Vehicle (SPV) company that is offering a share in the ownership of the assets to another party who steps into its capital and takes part in the decision making.

Thus, we are focusing on debt financing sources, which are those that don't require a newborn SPV company to own the assets and also sell its own stocks for raising the funds needed to implement the project. With debt financing options the project owner or promoter borrows the funds from a lender or funder that will receive interests and commissions added to the capital reimbursement.

Finally, we are not describing in this deliverable those energy services that are also indirect financial mechanisms, like Energy Performance Contracting (EPC) or Pay for Performance (P4P) that have been fully detailed in the deliverable D3.3 "Analysis report on relevant smart LFMs energy services" of the DE-RISK project.

Methodology:

- Description of the budget of a theoretical LFM pilot project assets that need to be financed, focusing on three of the four project pilots of the DE-RISK project (the Turkish and the two in Spain) that are related to residential buildings.
- Identifying and describing the traditional financial mechanisms that are available as a standard way to be used for raising funds for LFM related investments across Europe.

- Identifying and describing in detail innovative financial trends or mechanisms that can be used now, or expected to be used in the near future, to raise funds for LFM related investments but also for democratising the role of the citizens as direct investors for EE related projects.

Relation to other activities

The financial mechanisms identified in this report (D3.4) can be used as a toolbox for boosting consumer engagement within tasks T2.3 and T2.4, and also for deploying community engagement and the implementation of the DE-RISK service along tasks T4.3, T4.4 and as an exploitable result within T5.2.

The deliverable D3.5 will relate in detail a specific real crowdlending campaign launched precisely for the Spanish pilot of the DE-RISK project in Murcia, and will include results from the survey included in D2.2 related to the user's willingness to invest in crowdlending campaigns for LFMs investments.

Part 1. Budget of a theoretical LFM pilot project targeted to be financed

Assets related to LFM and legal entity to be financed

The effective implementation of LFM needs investments in assets like smart metering devices, smart thermostats, smart plugs, other Internet of Things (IoT) devices, energy producing installations, energy saving devices, energy storage, and specific software or mobile applications related to any of them.

These investments are considered one by one in a household need relatively small amounts of funds for their acquisition so, in order to talk about financing a minimum amount of investment, we are focusing on those LFM investments that can involve a group of households' owners, and specifically those that are part of a legal entity that becomes the borrower of the funds needed, e.g. an energy community or a community of owners (in a residential building of condominiums).

Average budget to finance for a LFM investment

In the following parts of this deliverable we are taking into consideration a theoretical LFM investment, that could be one of the three residential pilots included in the DE-RISK project, and we are taking the hypothesis of a budget to be financed from €15,000 to €50,000 that may include a mix of assets (i.e., metering devices, energy producing installations, energy saving devices, other IoT devices, energy storage, and specific software related to all) and we are trying to see if the financial mechanisms identified can be useful for raising funds for it.

As a guide to determine this targeted budget, we took into consideration the DE-RISK Spanish pilot in Murcia (Joven Futura), where the metering devices implemented on each of the 18 dwellings involved are valued €755 (total €13,590), and also includes a 10KW collective self-consumption solar power installation with an estimated budget of €10,000, that does not include energy storage. Regarding the Turkish pilot, the budget for the metering devices is €13,500, and doesn't include FV or energy storage. For the case of the Spanish pilot in Barcelona (La Balma), the budget of the collective 8.84 kWp FV installation was €16,115, the 9.52 kWp FV installation linked to the common services of the building was €13,884 with a connected 11.1 kWh battery worth €6,200, although at this moment there is uncertainty

about the number of apartments involved, by now the concerned budget for the metering devices is €15,000.

Part 2. Traditional financial mechanisms available for LMS assets

Consumer finance loan

Consumer finance loans, also called consumer credits or commercial lending¹, are simple loans offered by consumer finance companies or by specific commercial lending subsidiaries from banks², acting as a creditor, to consumers that need to pay for a specific type of expenditures. Depending on the assets to finance, the consumer finance loans can be secured since the purchased assets of the borrowed, e.g. a car, are taken as collateral under the loan contract, but in the case of LFM that option doesn't seem to fit because of the relatively small amount of the investment and also because there are diverse assets included in the purchase.

These loans are recovered from the borrower not considering the performance of the financed assets in regard to the energy savings achieved, or even without checking the use of the funds lent, but under an ordinary monthly instalment procedure. Thus, the borrower maintains the payment obligation to the lender even if the LFM or EE didn't generate savings enough to improve the cash flow of the household at the same level, in annual average, as the amount of the instalments.

Unsecured bank loan

The use of unsecured bank loans in the framework of LFM or EE presents a useful financial mechanism³ that departs from the conventional secured loan model. Unlike most consumer finance loans, unsecured loans are not supported by assets as collateral. Rather, these loans are a riskier deal for lenders because they depend only on the borrower's creditworthiness. It's crucial to remember that banks may charge a higher interest rate to make up for the lack of collateral because unsecured loans carry a higher risk. But although unsecured bank loans

¹ EU rules on consumer credits and Consumer Credit Directive (CCD):

https://commission.europa.eu/business-economy-euro/banking-and-finance/consumer-finance-and-payments/retail-financial-services/credit/consumer-credit_en

² European federation of consumer credit providers' national associations (Eurofinas):

<https://www.eurofinas.org/about-us>

³ Overview of EU financial services legislation:

https://finance.ec.europa.eu/regulation-and-supervision/financial-services-legislation/overview-financial-services-legislation_en#banking-and-banking-union

don't necessarily need to be related to LFM or EE investments, more and more banks are offering lower "green" interest rates if that is said to be the destination of the funds.

Thus, under the LFM framework, projects like community-based energy projects may be supported by unsecured bank loans since they don't require any particular kind of collateral. Bank lenders⁴ can provide loans without attaching them to tangible assets by evaluating the creditworthiness of participants and stakeholders in these initiatives, which encourages creativity and community involvement around the LFM. On the other hand, banks aren't much willing to lend to communities, as they don't fit into their regular rating process for companies with standardised balance sheets.

Leasing

Leasing is a financial agreement between one specific financial institution (leasing company) and the user of the asset borrowed, who doesn't own them but has the option to purchase it at the end of the contract. The leasing company⁵ buys the assets needed, the rental agreement is signed, and the lessee uses the assets in exchange for rental payments. Leasing can apply both for movable and immovable property, and tax deductions can be obtained depending on the specific national tax regime.

In the context of EE and LFM investments, leasing appears as a practical financial arrangement that offers a flexible and useful means of obtaining assets necessary for the operation of the market. When an asset is leased, a legally binding agreement is formed; the lessor, who owns the asset, gives the lessee the right to use it for a fixed period of time in exchange for periodic payments, and the equipment is the collateral for the financing because it belongs to the lessor. The lease contract also may include labour and soft costs associated with the assets. Thus, the lessee just receives the right to utilise the item during the lease term; they do not actually become the owner of it, although the contract includes the right to own the asset at the end of the agreement period by paying a balance instalment. This finance approach provides a means of enabling community access without requiring an initial large capital investment—particularly in the case of assets like batteries or solar panels.

⁴ European Banking Federation (EBF): <https://www.ebf.eu/about-us/>

⁵ Leaseurope, the European Federation of Leasing Company Associations: <https://www.leaseurope.org/our-focus/facilitating-green-transition>

Leasing agreements, when used in conjunction with the LFM framework, can help renewable energy and energy storage solutions become widely adopted. Communities can rent assets such as solar panels or batteries through mid to long-term contracts, which allow them to take advantage of these technologies without having to pay for them up front. This strategy fits nicely with the decentralised, community-driven structure of LFMs, enabling several stakeholders to profit from energy assets without having separate ownership interests.

Leasing in LFMs has the important benefit of reducing the financial burden of maintenance and repair expenses. Lessors typically bear the task of maintaining the leased assets, relieving the lessee community of the obligation to set aside extra funds for continuous upkeep. For towns looking for sustainable energy options, this arrangement makes the integration of renewable energy infrastructure into the local grid more financially feasible.

Within LFMs, the leasing model also encourages flexibility and scalability. Communities may quickly replace or improve leased equipment as technology advances without having to deal with the hassles of asset ownership. Because of this flexibility, LFMs can keep up with developments in energy storage and renewable energy, guaranteeing that the community will continue to benefit from cutting-edge technology for the duration of the leasing agreement.

To sum up, leasing functions as a practical financial tool in Local Flexibility Markets, allowing households and communities to acquire and make use of necessary assets like solar panels or batteries without having to make huge upfront capital investments.

Renting

Renting is a financial agreement between one financial institution and the user of the assets borrowed, who doesn't own them in any case. Unlike leasing, there is no contractual purchase option for the borrower with the final or residual instalment of the agreement. The payments are a tax-deductible current expense for the lessee, so their financial management and planning control is simple, as a single fee covers both the renting of the assets and the associated services (e.g. comprehensive insurance, damage claims management or option to upgrade the equipment).

In the context of EE and LFM, renting can be a flexible and dynamic financial tactic that provides a temporary solution for obtaining necessary assets that may be critical to community energy dynamics management. Thus, renting differs from leasing in that it usually lasts for fewer months and in that the owner is typically more accountable for upkeep and repairs, which makes it an interesting option for communities inside LFMs looking for convenience and flexibility.

The temporary character of the agreement is one important benefit of renting in the context of LFM. This adaptability may fit in nicely with the evolution of energy efficiency devices, enabling communities to quickly adjust to shifting demand patterns and advances in technology, and thus easily avoiding technological obsolescence. For example, in order to maximise the utilisation of renewable energy resources, the community could access additional storage capacity during designated times without having to make a long-term investment in storage infrastructure.

Moreover, renting offers the lessee community in LFMs a hassle-free solution because maintenance and repairs are normally the owner's responsibility. Lessees can concentrate on using the devices for demand response or other community-driven projects because the owner has responsibility for the correct operation and maintenance of the devices.

Thus, the renting model turns into a useful instrument for LFMs trying to find a middle ground between immediate flexibility and efficient energy management. Communities may improve their energy resilience without being burdened by the long-term obligations and maintenance duties that come with ownership by utilising external assets through rental agreements. This strategy can encourage sustainable energy behaviours in the community and is consistent with the flexible and adaptable structure of LFMs.

Hire purchase agreement

A hire purchase agreement with late payment clauses presents a simple financial mechanism that combines the advantages of asset acquisition with the flexibility to control payment schedules under an instalment plan that avoids the buyer to pay as a lump sum. In this case, the seller -although not being a financial institution- must have the financial capacity and the licence legally required to sell the assets on credit. In a hire purchase agreement, an asset is gradually acquired; the user, referred to as the hirer, makes payments for the asset over time and becomes the owner at the end of the payment term. An initial instalment for a specific

percentage of the price, as a deposit, can also be part of the deal, and the balance of the price is repaid plus interest over an agreed period of time, usually in monthly equal instalments.

Though most hire purchase agreements may be said to be at “zero interest”, in these cases the interests are included in the price since the seller has to assume the financial cost of the late payment by its own resources, or by borrowing funds from a financial institution.

It's important to remember that while late payment clauses offer flexibility, they could also come with extra or hidden expenses, fees or interest. In order to make wise financial decisions, buyers must carefully review the terms and circumstances of the hire purchase agreement, including the consequences of late payments, before signing the late payment agreement.

In conclusion, the hire purchase model with late payment clauses provides a convenient financial approach in LFM, allowing communities to progressively take ownership of EE assets while managing the unpredictability of fluctuating financial circumstances.

On-Bill Recovery (OBR) - Instalment added to electricity bill

An easy and accessible way for households to finance and obtain necessary EE improvements or LFM assets is introduced with the addition of an instalment plan to their electricity bills. This mechanism is known as On-Bill Recovery (OBR), On-Bill Financing (OBF) or On-Bill Schemes (OBS)⁶. With the help of this financial resource, customers can ease their immediate financial strain, with no upfront payments, and keep their bills in line by spreading out the cost of acquiring assets, like LFM devices, energy storage systems or renewable energy technologies, over a number of long-term periodical repayments, but integrated into only one energy bill to pay. Ideally, the monthly amount to pay for the OBR should be inferior to the expected average monthly saving generated by the assets financed.

Moreover, since the electricity bill is tied to the property metre and not to the individual householder, this financial mechanism can be transferable in case of the household being sold.

⁶ The RENONBILL H2020 funded project deepened in these schemes: <https://www.renonbill.eu/>

This system requires agreements and close coordination between the electricity company administration and the supplier company of the assets being financed, and usually only a short set of options is given to the consumers to make the process simple and easy to understand by all the actors involved, and to avoid a tough bureaucratic process for the households. In addition, the supplier company by its side may easily ask banks for funding offering aggregated portfolios of these OBR projects from their clients.

From the side of the financier or seller, non-payment rates of these instalments are much lower since they are linked to electricity bills, whose default rates are small compared to all kinds of consumer loans, and using a previously existing electricity invoicing system can reduce their operating costs.

Thus, instalment plans within power bills offer a smooth way for community members to take part in and profit from the implementation of sustainable energy solutions within LFMs. This can be particularly helpful in situations where community members may have different financial means, encouraging accessibility and broad community involvement in the LFM programs.

It's crucial to remember that adding payment plans to your power account necessitates carefully reading the terms and circumstances, including any fees, expenses or interest that may apply. To enable them to make decisions that are in line with their financial and energy objectives, community members should be fully informed on the financial rewards and drawbacks of this method.

In summary, the integration of instalment plans added to electricity bills provides a practical financial model within LFMs and other EE investments. By allowing individuals to spread the cost of energy infrastructure over time, this approach supports widespread access to sustainable technologies, so it can contribute to the overall success and sustainability of LFMs.

The “Ren-on-bill”⁷ EU funded Horizon 2020 project, ending in April 2022, has deepened the study of the options of deploying the OBS mechanism across Europe, based on the cooperation between energy utilities and financial institutions, and using the wide experience of the use of these schemes in the USA and Canada.

⁷ “Ren-on-bill” Horizon 2020 project <https://renonbill.eu/about>

Public subsidies and zero or subsidised low rated public loans

Public subsidies are mechanisms of direct financial aid given by local, regional or national governments or public agencies to help defray the costs of certain projects or activities that fit to their energy policies.

On the other hand, subsidised low-rated public loans give households, companies and communities access to finance with low or zero interest rated long-term loans, increasing the profitability of investments in EE or sustainable energy.

There is a wide range of public financial and fiscal schemes across Europe to support EE in buildings, which are different in every country or region, and many of them have been launched as a part of the post Covid-19 EU recovery policy⁸.

However the strict and important bureaucracy associated with the application for these mechanisms of use of public funds can be an important barrier for its effective success. Moreover, in many cases, the beneficiary of the subsidy must pay upfront for the EE or the LFM assets, and then has to present all the invoices issued by the supplier, and also their proof of payment, to the public administration before they begin the bureaucratic process for completely accept the application, and that will eventually end on the payment of the subsidy. This bureaucratic barrier can be insurmountable unless the beneficiaries have enough monetary resources to advance the payment, and even the beneficiary can be forced to ask for a private financing to pay upfront the investment until the public funds of the subsidy arrive.

In the case of the subsidised low-rated public loans, bureaucratic tramits usually make the process of its application much longer than can be for any kind of private debt.

Tax reductions

Tax reductions refer to the lowering or removal of specific taxes for households or organisations who carry out particular actions that fit with some of the public environmental policies that could be making investments in EE or LFMs infrastructure, in renewable energy

⁸ Economidou, Marina & Della Valle, Nives & Melica, Giulia & Valentini, Ottavia & Bertoldi, Paolo. (2021). Financing energy renovations at local and regional levels: European status and good practices. 10.2760/52526. https://www.researchgate.net/publication/356541853_Financing_energy_renovations_at_local_and_regional_levels_European_status_and_good_practices

assets, taking part in demand response programs, or bolstering the resilience of the regional energy system.

Tax reductions suffer from the same bureaucratic barriers commented over the public subsidies and the zero or subsidised low-rated public loans. Additionally, tax reductions can be perceived as a weaker incentive to invest in EE or LFM's since they don't provide a money-in for its applicant, but a reduction in their fiscal obligations.

Tax breaks could be used wisely by LFM's to encourage neighbourhood-based initiatives that improve energy sustainability and flexibility. Aspects of sustainable energy development such as the installation of solar panels, the use of energy storage devices, or the application of energy-efficient technology may all be the focus of these reductions.

From the known experiences, the most powerful tax reduction is probably the permanent lowering of the Value Added Tax (VAT) for the purchase of EE and LFM's related products, as that strategy provides a clear, immediate and secure incentive. One of the most known examples of this kind of policy was the Norwegian exemption of the previous 25% VAT percentage for the acquisition of electric cars, which led Norway to the top in the world ranking of annual percentage sales of electrical vehicles.

Property Assessed Clean Energy (PACE)

Property Assessed Clean Energy (PACE)⁹ is a financing mechanism widely used in the United States of America (USA) for energy retrofitting of buildings, based on a repayment system of the loans by an additional instalment added to the property tax bills.

The PACE financial mechanism, which is overseen by the US Department of Energy, began in 2008 in California, and successfully implements a previously used concept for financing infrastructure upgrades such as sewers but applied to enable long-term affordable funding for energy efficiency improvements or renewable energy installations for residential and commercial buildings.

PACE EE loans may cover up to 100% of the retrofitting upfront payments, and the refund can be spread over a period up to 30 years.

⁹ PACE organisation in the USA explained: <https://www.pacenation.org/what-is-pace/>

PACE mechanism is required to be enabled by the local regulatory authority where it may be implemented, as the default on attending the instalments will be legally treated just like a property tax debt, which may finally lead to a seizure of the involved building.

PACE loans are financed in the USA by the issuance of Asset-Backed Securities (ABS) bonds, that are secured on the loan receivables.

The possibility of the implementation of the PACE mechanisms among the European countries will depend on the specific national regulations regarding the possibility of using the public property tax to vehicle the private instalments of these retrofit or EE financing. The EuroPACE¹⁰ H2020 project has been a first approach to face the challenges for the development of this on-tax financing mechanism across Europe.

Other mechanisms that may not fit for funding our LFM target:

Assets or mortgage secured loan

In a mortgage loan, a building or property is put up as collateral for the lender, who will take possession of it in case of default of the borrower in the payment of the agreed instalments. The putting up of a real estate collateral involves many associated costs (property valuation, taxes, intermediaries...) that only make sense if the amount to be financed is far higher than our target.

Lease-back and Rent-back

As Lease-back and Rent-back refers to previously owned assets by the consumer that are sold to the Leasing or Renting specific company, we aren't taking them into consideration.

Investment funds

Investment funds are set up for amounts of millions of euros, due to the high structuring and management costs they entail. Only if a large portfolio of investments of our targeted LFMs premises has previously been aggregated would it make sense to end up using this mechanism.

¹⁰ EuroPACE H2020 project: <https://cordis.europa.eu/project/id/785057>

VC Private Investors

Venture Capital (VC) private investors are individuals or family-offices of high income and wealth. In the same way as investment funds, although for smaller amounts, there are also important structuring and management costs associated. Again, only if an important portfolio of investments in our targeted LFMs assets has previously been aggregated would it make sense to use this mechanism.

Project Finance

Project finance is the financing of long-term big infrastructure, industrial projects and public services through a non-recourse or resource-limited financial structure, as the debt and equity used to finance the project is solely repaid with the cash flow generated by the project itself. It usually requires the set up of a specific SPV company, and the managing amounts are millions of euros.

Part 3. Innovative financial trends and mechanisms for LFM assets

Crowdfunding and crowdlending

Crowdfunding or crowdlending may be a good way to raise funds in an alternative way to the traditional banking system mechanisms¹¹. Crowdfunding or crowdlending means that the legal entity that is willing to raise funds for its LFM assets to be financed will collect the money from a large number of people or legal entities that consciously act as lenders, and will do so using the services of the platform of an online Crowdfunding Service Provider (CSP).

Within the LFM environment, adopting cutting-edge financial practices like crowdlending and crowdfunding presents a fresh method of financing community-driven energy assets. By utilising the potential of group financial participation, these collective mechanisms allow communities to jointly invest in and gain from the development of sustainable energy projects.

Thus, crowdfunding entails gathering money from a sizable number of community members, each of whom voluntarily contributes a tiny sum to support a particular energy project. This could involve undertaking a community in funding LFM metering devices, solar panel installations, or putting energy storage systems in place. In addition to being a tool for acquiring finance, crowdfunding also promotes community ownership and involvement in the energy transition.

On the flip side, crowdlending entails the community lending money collectively to assist local or even regional energy projects. Under this concept, members of the community take on the role of lenders, giving out loans that are eventually repaid. As a result, a financial ecosystem is created in which the community directly finances the assets required for LFMs and gets interests in return.

Crowdlending and crowdfunding both help to democratise energy financing by giving members of the community the ability to actively influence the state of the local energy market. These mechanisms enable community people to directly participate in the development, ownership, and success of energy assets, which is in line with the decentralised and participatory nature of LFMs.

¹¹ European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Crowdfunding explained – A guide for small and medium enterprises on crowdfunding and how to use it, Publications Office, 2015, <https://data.europa.eu/doi/10.2873/313319>

Furthermore, these participatory lending mechanisms might be useful strategies for getting around traditional financing obstacles, especially when trying to raise money for novel and still experimental energy initiatives, such as energy communities.

Establishing open lines of communication, well-defined project objectives, and accountability procedures within the frameworks of crowdlending are essential for successful execution. It is imperative that members of the community possess comprehensive knowledge about the projects they endorse, and that there exist systems to guarantee the fiscal responsibility of each actor, and the effective implementation of the energy-related investments funded.

In conclusion, crowdlending is a cutting edge financial practice that has the potential to boost the LFM funding scene. This mechanism creates a sense of shared ownership, involvement, and responsibility within the community's journey towards a more sustainable and resilient energy future by encouraging community participation in addition to providing financing for energy projects.

Moreover, as there are different types of mechanisms under the global definition of “crowdfunding”, and it’s important to distinguish them, the main are as follows:

Crowdlending, Peer-to-peer lending or Debt crowdfunding

The crowd lends money as a debt to a company or other legal entity with the understanding that the money will be repaid with interest under the terms of a collective loan contract. It can look similar to traditional borrowing from a bank, but the legal entity borrows funds from lots of investors that can be both individuals or even legal entities. But indeed, the main difference is that crowdlending offers **financial traceability of the money** consciously lent by the investors and received by the borrower's legal entity. Thus, the borrower will know exactly the procedence of the funds received, which is not possible at all among banking mechanisms.

After the fundraising campaign successfully ends and the targeted funds are collected, the loan contract is signed by both the borrower and the crowdlending service provider that owns the platform and acts as the legal representative of the investors. Then the platform transfers the funds to the borrower in the agreed timeframe. After that, the borrower has to pay back the loan and the interests on regular instalments to the platform, and the platform will then manage every repayment back to all the investors that lent money to that collective loan.

In most crowdlending platforms the offering of the campaign is made at a fixed interest rate, but there are others where lenders bid a selected amount of money at a desired interest rate, and the final interest rate of the collective loan contract will depend on the final result of the bidding process.

Crowdlending service providers are nowadays authorised in the EU under the regulation 2020/1503¹².

As this modality of debt crowdfunding fits with our targeted LFM investments to finance, the deliverable D3.5 of this DE-RISK project called “Democratising the RES investments: DE-RISK crowdfunding campaign” will be focused on a real crowdlending campaign for the assets of the Murcia-located Spanish LFM pilot of the project. D3.5 (due on M24) will summarise the whole crowdfunding campaign process and its results.

Equity crowdfunding or crowdequity

It consists in a sale to the crowd of a stake in a business, usually a new SPV company, a start-up or a company willing to expand its activity. The investors become stakeholders in return for their investment. The concept is similar to how common stocks are bought or sold on a stock exchange, but not in regulated markets. Since this mechanism usually requires the creation of a new company, it does not usually fit with our targeted LFM investments because of its relatively small amount.

Equity crowdfunding service providers are authorised in the EU under the regulation 2020/1503.

Debt-securities crowdfunding

It is a mechanism quite similar to equity crowdfunding, but the lenders invest in a debt security issued by the company, such as a bond, but the bond can't be sold or bought in a regulated market. This mechanism may also fit with LFM investments as legally there's no minimum amounts expected to deal.

Debt-securities crowdfunding service providers are also authorised in the EU under the regulation 2020/1503.

¹² REGULATION (EU) 2020/1503 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 7 October 2020 on European crowdfunding service providers for business, and amending Regulation (EU) 2017/1129 and Directive (EU) 2019/1937, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32020R1503>

Donation-based crowdfunding

Individuals donate small amounts through a platform to meet the larger funding aim of a specific charitable project while receiving no financial or material return. This is a charity but not a financial mechanism since the amount donated is not expected to be returned to the donors, but it may eventually fit with LFM in the case of households under energy poverty that receive the funds as a donation in order to reduce their energy bills.

Rewards-based crowdfunding

In this case, individuals donate to a project or business with expectations of receiving in return a non-financial reward, such as goods or services, at a later stage in exchange of their contribution. This is not a financial mechanism since the amount donated is not expected to be returned to the donors and it can't eventually with LFM like we commented with plain donations for fighting energy poverty, as there aren't non-financial rewards to give back.

Energy Saving Certificates

The European Directive on Energy Efficiency, which entered into force in December 2012, required Member States to set certain targets on energy consumption reduction in order to reduce the EU's energy consumption by 20% by 2020. The Directive was later revised, setting a new target of reducing primary and final energy consumption by 32.5% by 2030 at EU level. In order to achieve the energy consumption reduction target established in the Directive on Energy Efficiency, Member States were urged to establish mechanisms to allocate annual energy saving quotas to gas and electricity marketing companies, wholesale oil product operators and wholesale liquefied petroleum gas operators.

Previously, the mechanism of Energy Savings Certificates (ESC) or "*Certificats d'Economies d'Énergie*" (CEE) was created in France in 2005 as one of the key tools of the country's energy demand management policy in the context of European objectives. It promotes and stimulates investments in energy efficiency through a market mechanism.

The government determines a multi-year global goal of energy savings (generally for 3 or 4 years) in updated accumulated MWh (Cumac). This target is then carried by all energy suppliers, also called "*Obligés*", according to their share of the total supply. To comply with their obligation, they must promote energy saving projects to consumers (households, companies or local authorities) or face financial penalties.

"Obligés" energy suppliers incentivize end customers to save energy through various energy efficiency investments, such as insulation projects or condensing boilers. These projects are eligible to receive certificates accredited by government agencies in a registry.

Other actors (local authorities, brokers...), can also participate in the process and ask for these transferable certificates (and then sell them to energy suppliers) or have an intermediary activity, depending on their state, so a market mechanism is created around the CEEs as far as they became a tradeable monetised financial asset for the promoter of the EE investment. Within the framework of LFM, in case of Energy Saving Certificates related to LFM could be eligible according to every country's regulation, they may become an useful financial tool for promoting sustainability and energy efficiency in decentralised energy systems. But, on the other hand, the promoter still has to pay upfront for the EE or LFM assets and, after a bureaucratic procedure, the income from the selling of the ESCs will be received.

Dutch GVR On-Property Tax or Betterment Tax

The Dutch Municipal Sustainability Plan (GVR), also known as the betterment-tax or the Municipal Retrofitting Scheme, is a mechanism inspired in the American PACE model and created within the FITHOME¹³ project for the repayment of energy efficiency investments in the Netherlands, where payments are recovered through an existing monthly tax linked to the property for a maximum of 30 years. Fithome uses the betterment tax to repay the municipality for the home retrofitting.

In the Netherlands, several municipalities already offer the GVR. Homeowners can sign up to make their home more sustainable without making an initial investment. The City Council provides financial support in this, and the investment is returned to it over 30 years through a municipal tax.

Interested households can apply to the existing local One Stop Shops (OSS) and will be notified by the municipality itself when the GVR program applies to their district, and will be contacted to schedule an inspection. The inspection will determine which sustainability measures can be applied to that home, and the potential savings will be calculated. Finally, the amount of the municipal tax necessary to implement the measures will be determined. The homeowner repays the up-front investment monthly, over a fixed period of time up to 30 years. This

¹³ The FITHOME project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 892214. <https://www.fithomeproject.com/>

repayment is a voluntary tax paid to the municipality that never exceeds the savings achieved by the retrofit. GVR makes energy retrofit affordable for all levels of household income and it will also be a useful tool against energy poverty.

The money to pay for these measures comes from the BNG Bank (Bank of Dutch Municipalities), which is committed to supporting the municipality and the owners in making housing more sustainable. BNG Bank receives funds from the European institutions and the Foundation Guarantee GVR is the guarantee fund for the municipalities in case of uncollectible benefit taxes.

It is clear that LFM investments could be eligible in the future for similar GVR plans that may be implemented as another sustainability measure that can be applied to households and other non-residential buildings.

The success of GVR implementing a PACE mechanism for the very first time in Europe comes from the circumstance that there was a previous and specific On-Property Tax regulation in the Netherlands. The deployment of such mechanisms across other European Countries will depend on the domestic adoption of legal frameworks inspired in the Dutch case.



“MES Barcelona” PPP mechanism

The Barcelona Sustainable Energy Mechanism (MES)¹⁴ is a financial Public and Private Partnership (PPP) tool promoted by the Barcelona City Council since 2021 under their 2030 agenda, that is willing to support and accelerate the city’s path to sustainability of its buildings. They plan to do so with the contributions of previously selected private investing companies alongside with a €50-million fund from the town hall itself that co-invests in every project¹⁵.

This plan is currently focused on the objective of supporting private initiatives for implementing solar energy roofs and also energy retrofiting of buildings, ideally with zero upfront investment from their owners as the investments are expected to be paid by the sale of the surplus energy or by the energy savings. Other possible listed investments to be funded are electric vehicle charging stations and energy communities.

The main goal is to boost the production of solar electricity and the energy renewal in all kinds of buildings in the city, but especially in those non-residential with the most elevated energy needs.

Since the scope of the MES programme PPP is open to EE investments in buildings, it may eventually fit to some LFM investments such as the “La Bauma” Barcelona residential LFM pilot included in the DE-RISK project.

Genera la teva pròpia
energia solar.

Aprèn-ne més i suma-t'hi.



MES Barcelona mechanism advertisement

¹⁴ Barcelona Sustainable Energy Mechanism (MES):

<https://ajuntament.barcelona.cat/agenda2030/en/mesbarcelona>

¹⁵ PPP for cities case study. October 2023. MES Barcelona: Driving the energy transition through public-private partnership. IESE.

<https://media.iese.edu/research/pdfs/ST-0645-E>

Italian Superbonus and Ecobonus

Since 2020, the Italian government has annually been launching some diverse funding schemes¹⁶ to help homeowners afford energetic renovation works and improve the energy rating of their buildings.

The Ecobonus mechanism is focused on boosting energy rating upgrades for households and condominiums.

The Superbonus scheme can provide public subsidies for energy efficiency works, efficient heating systems, thermal insulation, smart and home automation devices, and solar panels, among others. It began deducting up to 100% of the cost in 2020 for individual houses and condominiums, but the maximum percentage has been progressively lowered to 70% in 2024. Under these schemes, if the owner pays upfront for the investments, the reimbursement will come back in periodical instalments from the government during five years. Additionally, there is the possibility to get a line credit from banks cooperating with the government, since they finance the work and get the capital paid from the bonus, so the borrower only pays interest over the due capital.

Unlike their bureaucratic process and the issues faced since the lack of quality control, Superbonus and Ecobonus concepts are interesting options that could be applied to foster the adoption of LFM.

Other innovative mechanisms that not fit for funding our LFM target:

Pay per savings and Energy Services Companies

Pay per savings or Pay for Performance (P4P) schemes is an energy service already explained in detail in the deliverable D3.3 of this project, in which the investment is made by an Energy Services Company (ESCO) and where the user of the assets pays as the expected energy and economic savings are effective. This service avoids the user from paying for the upfront investment, as the assets are owned by the ESCO, but also the ESCO itself requires amounts of investment that exceed our target to make these activities profitable enough.

¹⁶ <https://www.energiaenergetica.enea.it/detrazioni-fiscali.html>

Specific “green” investment funds

In the same line as has been already commented in the Part 2 of this deliverable, investment funds are only set up for a portfolio of € millions. Unless the new concept of “sustainable” or “green” is growing among the investment funds willing to structure the so-called Environmental, Social and Governance (ESG) portfolios of investment, the amounts required for their profitability again makes them not suitable for fitting with our targeted LFMs projects.

Green Bonds

Green bonds are debt titles or fixed income instruments specifically designed for the funding or refunding of big amounts of “green” projects, usually tagged as ESG, that can be issued both by private or public institutions. As the amount they require are of € millions, thus they are also very far from our targeted LFMs projects.

CONCLUSIONS

There are still limited options for the effective financing of LFM related investments, caused both by the relatively small amount of funds needed for each individual project and by the several known barriers associated with the low willingness of the traditional banks to enter in the financing of EE assets, especially regarding energy communities.

In addition, as the faster deployment of LFMs will need the help from external financing, in this deliverable we have first listed the available financial or tax mechanisms that are currently used to mobilise funds in an effective way for the kind of EE and RES investments related with the four DE-RISK pilot projects.

Moreover, the scope of this deliverable is to focus on listing other innovative or not-so-known alternative financial mechanisms in order to widen the number of available options for financing LFM investments. As one of these innovative available mechanisms identified is crowdlending, afterwards in the D.3.5 of the DE-RISK project we are describing a real crowdlending campaign launched for raising funds for one of the pilots of the project.

Appendix

Official launch of the European Energy Efficiency Financing Coalition

On April 22th 2024, the official launch event of the European Energy Efficiency Financing Coalition¹⁷ will be held in Brussels. This coalition provides a framework for dialogue and action between the European Commission, EU countries and stakeholders in the energy efficiency financing sector.



European Energy Efficiency Financing Coalition logo

In accordance with Article 30(7) of the recast Energy Efficiency Directive (EU/2023/1791), the European Energy Efficiency Financing Coalition is established with a view to creating a framework for cooperation for action between institutions, financial institutions, the EU Member States and the Commission.

The objective of the Coalition is to create a favourable market environment for investments in energy efficiency and facilitate the mobilisation of private finance in support of the EU's energy and climate goals for 2030 and 2050. Its work includes facilitating the implementation of instruments and energy efficiency financial plans within the framework of EU financing programs and promoting that these programs encourage or facilitate greater private investment in energy efficiency projects.

The Coalition will align its work with the ambition of the Energy Efficiency Directive and the Energy Efficiency of Buildings Directive, thereby helping EU countries to implement these directives at national level.

¹⁷ European Energy Efficiency Financing Coalition:
https://energy.ec.europa.eu/topics/energy-efficiency/financing/european-energy-efficiency-financing-coalition_en



The project has received funding from the
European Union's Horizon EUROPE Programme
under grant agreement No. 101075515



DE-RISK