



ReDREAM
change your energy

D6.4: Portfolios of funding and financing schemes (Demo 3) [M16]

Identification, presentation and selection of funding
and financing schemes

[31st of May 2022]

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PU = Public

PP = Restricted to other programme participants (including the Commission Services)

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V2	15-01-2022	Angelo Giordano	Second draft elaborated after the 1 st round of meetings with ZEZ for data collection
V3	29-02-2022	Angelo Giordano	Third draft elaborated after the 2 nd round of meetings with ZEZ
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Summary

ReDREAM Project

The energy market is rapidly transforming and so is the role of the consumer. Yesterday's passive consumers are central actors in today's energy markets. As new prosumers, energy markets can benefit from their generation, consumption, and storage capabilities. The EU-funded ReDREAM project will enable the effective participation of consumers and prosumers in the energy market. The project will develop a strategy for the creation of a value generation chain based on a revolutionary service-dominant logic in which services are exchanged. The project will foster the demand response tools and energy/non-energy services that enable consumers to participate in the energy market. This will lead to the establishment of a new concept: a connected user-centred energy ecosystem.

Executive summary

Deliverable 6.4 has the aim of illustrating how the application of a series of pre-selected innovative business models could impact the already settled ZELENA ENERGETSKA ZADRUGA ZA USLUGE (ZEZ) energy community.

Starting by the foundations of REDREAM project, which is the REDREAM Business Model user centric-ecosystem for consumers, D6.4 resumes how all the key players are involved into the REDREAM demonstrations in ZEZ and what are their respective expertise and expectations from the project outcome. The Service Dominant Logic (SDL) approach is at the base of all demonstrations of REDREAM project and all the applicable business models, already mapped in D6.1 Library of Bankable Business Models.

D6.5, then, illustrates the methodology that has been followed by CIVI, as Deliverable leader, in elaborating the content of this deliverable: a methodical process has been followed for identifying the applicable Business Models, always considering the individual business strategy, the local value chains and the local eco-system and partnerships, already present in the BWCE.

Following the process of screening, selection, application of the selected business model selected by ZEZ, namely the Energy Community Solar Fields or extra services, D6.4 roughly shows the economic impacts of those applications, always taking into account the REDREAM Business Model ecosystem and the estimations of the technology costs not yet in the market.

Finally, D6.4 concludes with a selection of funding and financial mechanisms as well as financing tools that can be supporting the expansion plans of ZEZ through the application of those new models, establishing the link with Task 6.3 on the Scalability and Replicability Analysis, that will give all the necessary instruments for allowing both ZEZ and technological partners to exploit their plans of respectively growth and market entry.





The selected funding opts related to task 6.2

1. Investment Disposal Strategy exploiting and securitizing the Energy Performance Contract
2. Crowded schemes: funding and lending
3. Other suitable funding and financing mechanisms
4. EU ETS carbon emission trading systems
5. Sustainability-linked bond
6. **Equity loans**



Table of acronyms

Acronyms	Description
RED	Renewable energy directive
DR	Demand Response
EPC	Energy Performance Contract
ESCO	Energy Service Company
TSO	Transmission System Operator
DSO	Distribution System Operator
IRENA	International Renewable Energy Agency
PSF	Power System Flexibility
VRE	Variable Renewable Energy
MVP	Minimum Viable Product
3PF	Third Party Financing
IEA	International Energy Agency
BRP	Balance Responsible Parties
DER	Distributed Energy Resource
EE	Energy Efficiency
EV	Electric Vehicle
RES	Renewable Energy Sources
BESS	Battery Energy Storage Systems
CaPex	Capital Expenditure
Opex	Operational Expenditure
PED	Positive Energy District
V1G	Vehicle To Grid – unidirectional
V2G	Vehicle To Grid – bidirectional
V2L	Vehicle To Load
SES	Smart Energy System
SMES	Smart Multi-Energy Systems
ESS	Energy storage system
IoT	Internet of Things
DLT	Distributed Ledgers Technology
IP	Intellectual Property
SPV	Special Purpose Vehicle
EMP	E-Mobility Provider
SDG	Sustainable Development Goals
ESG	Environmental, Social and Governance
mSMEs	micro, Small and Medium Enterprises
AI	Artificial Intelligence
O&M	Operation and Maintenance
EIB	European Investment Bank

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1 Introduction

The current Deliverable D6.2-5 is a technical document that is associated with the development of a methodology to identify, present and select business models that supports the delivery of the energy services. Therefore, the content of Deliverable D6.2-5 is strongly related to the content of the D6.1 and how to implement in the Demos.

Aim of this deliverable is to explain (1) how to craft business models adapted to the features and ecosystem from demos blueprint, and (2) how to build a library of business models of affordable funding disposal strategies, for each demo to EU scale. The first objective is covered in Section 2, whereas the latter is addressed in Section 3.

1.1 What is REDREAM Business Model user centric-ecosystem for consumers?

Based on set of the exploitable results identified in REDREAM, an innovative business model (BM) has been defined that focus on the commercialisation of the REDREAM ecosystem:

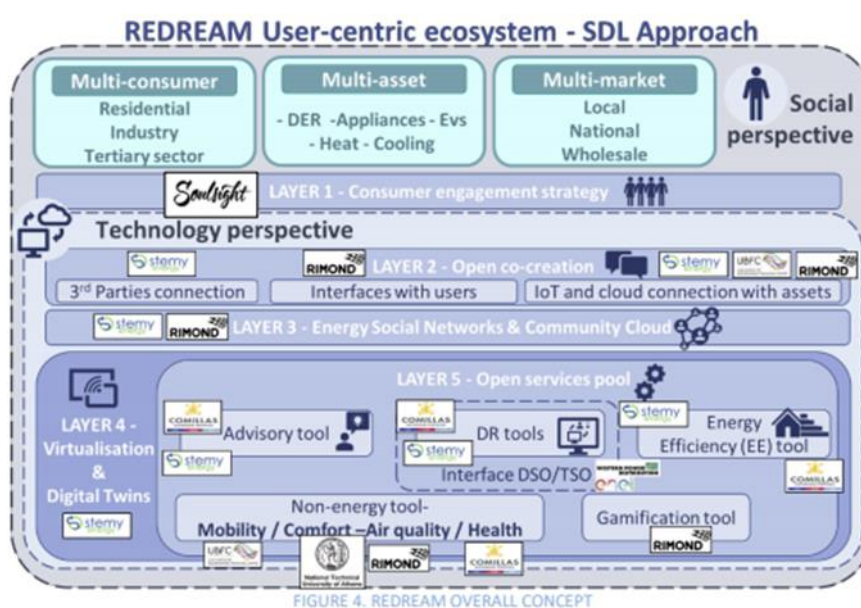


FIGURE 4. REDREAM OVERALL CONCEPT

Figure 1 REDREAM User-centric ecosystem

The REDREAM user centric ecosystem for consumers with a settle ecosystem running around a portfolio of smart devices embedded to the DR interoperable platforms. As such, all partners will benefit from the sale through direct fees from the clients (users) or through internal fees among the partners under an exploitation agreement. The SDL approach will act as umbrella enabling several scalable business models as showcased in the D6.1 and here refined in the chapter 2.

The commercialisation envisioned relies on a portfolio of functionalities that can be layered upon one another to produce incremental service packs that match each target user's requirements, needs and investment potential. STEMY, RIMOND and SOULSIGHT oversee the commercialisation of the



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technology, creating a joint task force, by the exploitation of a SaaS business model, chosen as the most suitable model for revenue maximisation.

In a nutshell:

- STEMY a start-up, supported by a financial plan certified in the due diligence carried out by the European institution KIC-Innoenergy, in the start-up boost program, and it is in advanced conversations with committed Venture Capital (VC) funds to attract a second round of investment. Additionally, they are considered an innovative SME by the Spanish government (NEOTEC 2019).
- RIMOND is already present worldwide with special emphasis on European market commercialising ICT solutions.
- SOULSIGHT is a Strategic Creative Agency, with a solid background with the industry: banking (BBVA, ABN Amro), automotive (VW, Audi, BMW), technology (Square, Diebold Nixdorf, Siemens). Its expansion to energy sector will be smooth taking advantage of these previous experiences.

The strategy for this new jointly distribution is principally based on Partners' commercialisation channels:

- Business Development Department: sales teams offer a tailored customer service, as well as a post-sale service, considering both its direct and final customers as key actors for an exponential future company growth.
- International Distribution Network: As previously remarked, REDREAM's target market is clearly international. That is why, international distribution sales teams is involved to easily place its service within the market.

The rest of partners involved with the solution development (COMILLAS, TIMELEX, NTUA, OMIE and OLIVO) receive fees from STEMY, RIMOND and SOULSIGHT for each contract involving REDREAM ecosystem, upon the signature of an exploitation agreement.

1.2 Brief description of the deliverable

T6.2. Identification, presentation and selection of funding and financing schemes (L: CIVI; P: COMILLAS, ENER, BIO, GALLESE, ZEZ, BWCE) (M7 - M20)

The task will work in order to deliver innovative funding and financing schemes supporting the scalability and replicability strategy of the project. The methodology will adopt as a key driver the exploitation of the revenue schemes as a proper underlying. In that way, the project proposition of business models will comply with the investors' expectation in terms of "capital requirements". This rationale, by leveraging the prosumers' empowerment, will ensure a holistic financial planning framework: all stakeholders could access and use the schemes for fund or finance the project follow-up or ramp-up phase in a de-risky way. This financial planning framework will pave the way for the design of new economic models as viewed by utilities, regulators and policymakers, as well as the end-user investors themselves. In this sense, innovative financial schemes for investment will be investigated based on promising forthcoming trends: ESCo hybrid models, Energy Performance Contracts and Power Purchase Agreements, crowdfunding/crowdlending cases, cooperative initiatives with centred revenue sharing mechanisms. Expected result: The set of schemes assessed will be defined for each demo. According to the different features, tailored economic and financial KPIs will be settled for each demo.

Set of deliverables



D6.2: Portfolio of funding and financing schemes (Demo1)

D6.3: Portfolio of funding and financing schemes (Demo2)

D6.4: Portfolio of funding and financing schemes (Demo3)

D6.5: Portfolio of funding and financing schemes (Demo4)

The set of schemes assessed will be defined for each demo. According to the different features, tailored economic and financial KPIs will be settled for each demo.

1.3 Market Status: how does the capital flows?

“Green financing is to increase level of financial flows (from banking, micro-credit, insurance and investment) from the public, private and not-for-profit sectors to sustainable development priorities. A key part..... is to better manage..... both a decent rate of return and environmental benefit and deliver greater accountability”.¹

The question mark is how to enable the green financing and how to promote it thanks to the game-changing rules given by new regulatory frameworks, new public financial incentives schemes, increased investment in clean and green technologies.

As indicated by the Q1 2022 report issued by the AFME², there is a long-lasting trend on the rapidly growing Sustainable Finance market in Europe. Indeed, even if in 2022 the market conditions have been unfavourable for ESG bonds, Global ESG and Carbon Emission prices, the EU and UK forward curves continue to anticipate long-term increase. In addition, the favourable EU regulatory update and high volatility of the energy-as-a-commodity price would determine the Green Finance to be mainstream into the financial system. This means in brief that the Market status is turning more and more toward the green financing aims to mobilize private capital flows in green investments.

As well, taking a look at the Global investment Market through Crowdfunding it could be noted there is the same trend of ESG Investment.

1.4 The Collaborative intra-project activities

Starting from the results of the D6.1 related to “Library of bankable business models. Identification, presentation and selection of business models”, the report has underpinned the proposed BMs to Demos. As such, it is useful to explore the matrix co-designed with demo partners: compared to the previous deliverable, the matrix has been focused only on demo cases. Indeed, the methodology adopted for the matrix has followed the co-design and the co-decision process. At the beginning more than twelve relevant business models exploiting the energy efficiency, the flexibility, the demand-response, the blockchain and the crypto assets were presented to demos. The comprehensive list has

¹ The United Nations Environment Programme (UNEP), the global authority promoting the environmental agenda, its coherent implementation for the sustainable development within the United Nations system declares the Green Financing in this way.

² The Association for Financial Markets in Europe (AFME) is the voice of Europe’s wholesale financial markets, providing expertise across a broad range of regulatory and capital markets issues. We represent the leading global and European banks and other significant capital market players. AFME’s members are the lead underwriters of 89% of European corporate and sovereign debt, and 75% of European listed equity capital issuances.



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been redefined with demos according to the most relevant business models, as such the following matrix has been created to map the six selected BMs to match with each Redream Partners, including non-demo partners.

During the first physical Consortium meeting in Madrid it has been done a workshop with all partner to fine-tune the matrix and to match each BM with each involved partner. Beside the first two business models concerning non-core activities, it has been asked to demo to evaluate each proposed BM taking care of their:

- individual business strategy
- local value-chain
- local eco-systems and partnership.

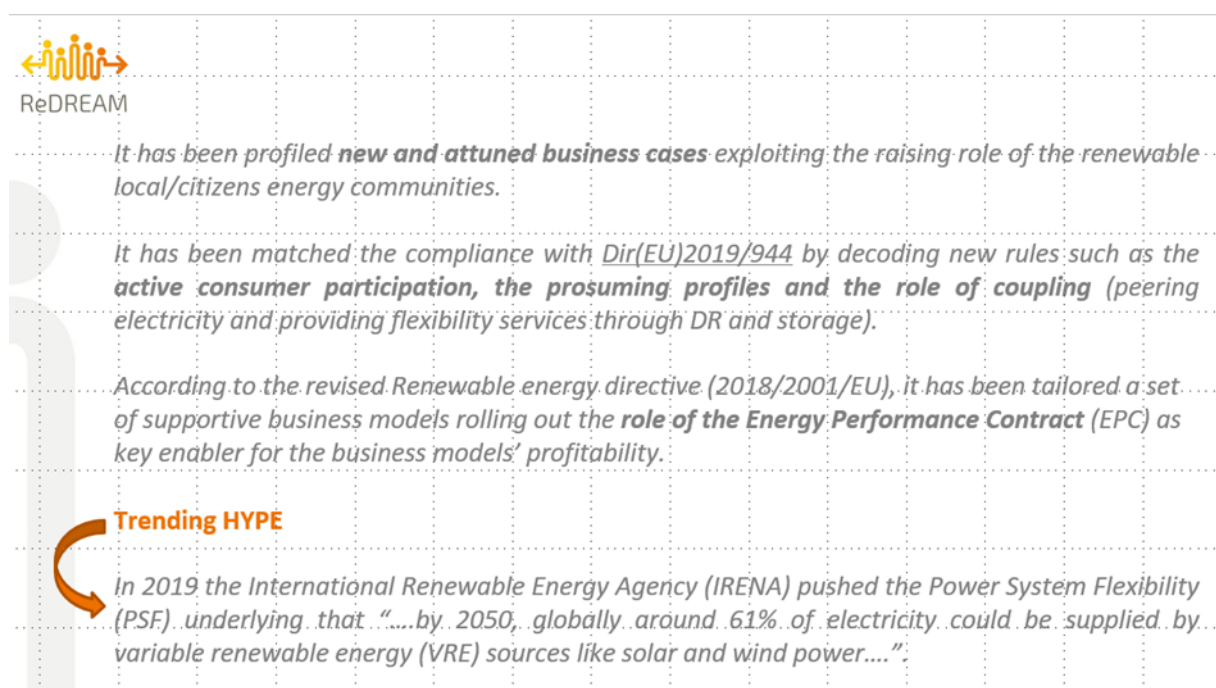


Figure 2 Focus on topics discussed during the Workshop on Business Modelling organized in Madrid



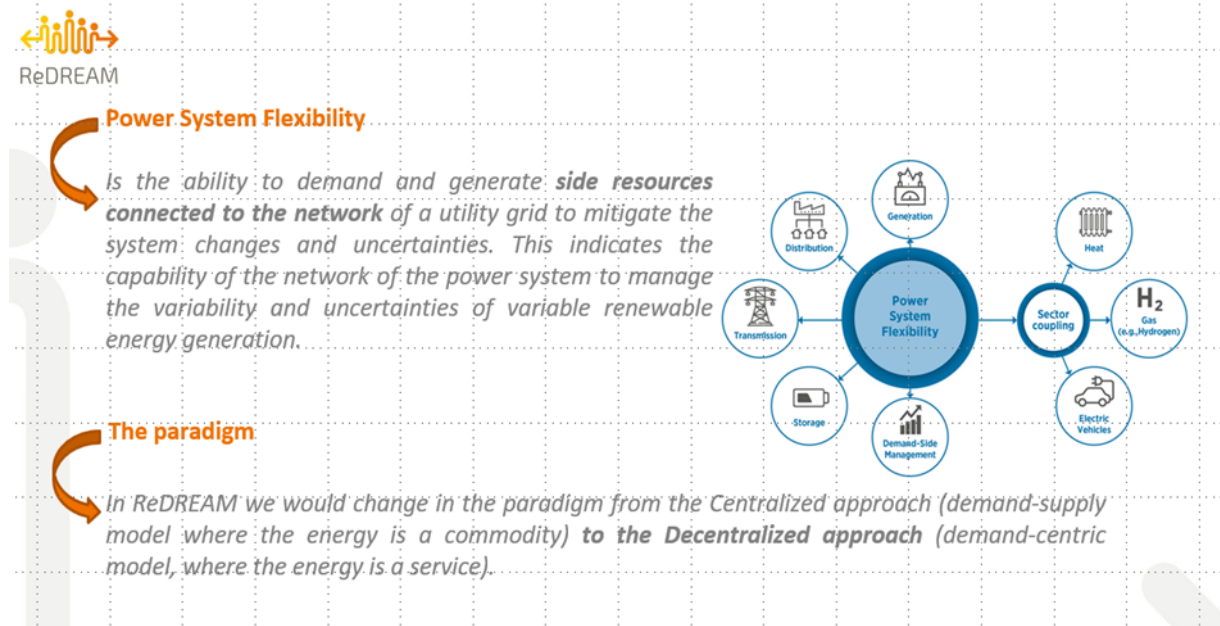


Figure 3 Focus on topics discussed during the Workshop on Business Modelling organized in Madrid

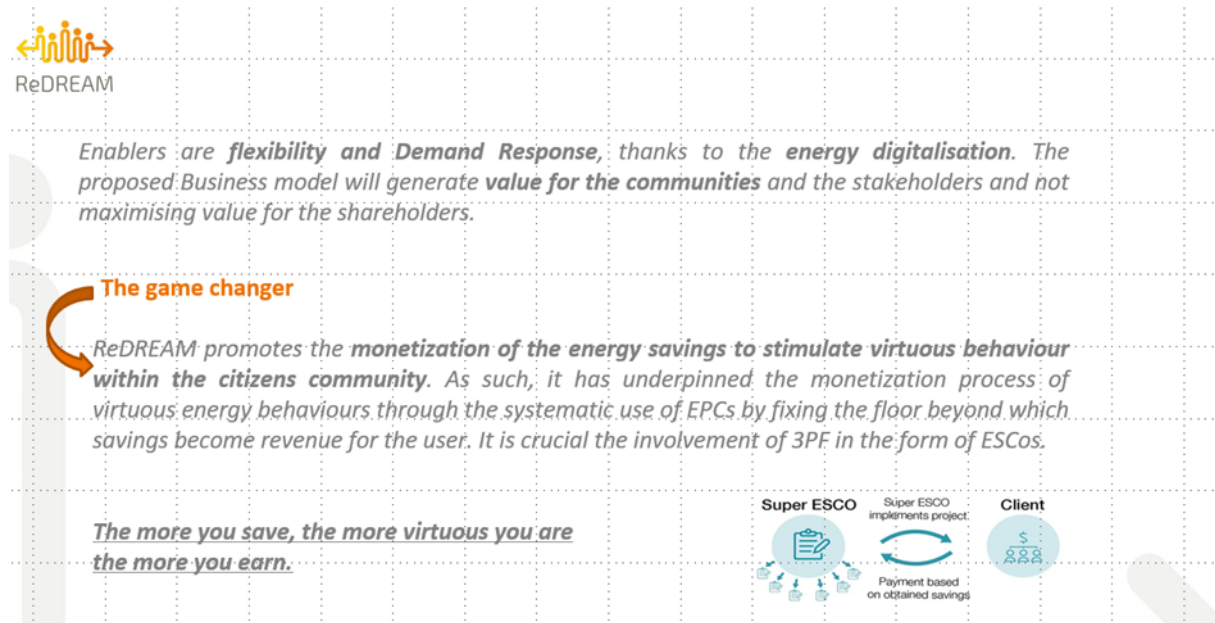


Figure 4 Focus on topics discussed during the Workshop on Business Modelling organized in Madrid

The results are in the D6.1, while for the purpose of this deliverable, it has been looked at the emerging trends and defined a set of viable and sustainable business models pointing out that they should be from the one side coupled with innovative public/private funding schemes and from the other side adapted to the four ReDREAM demonstration sites.



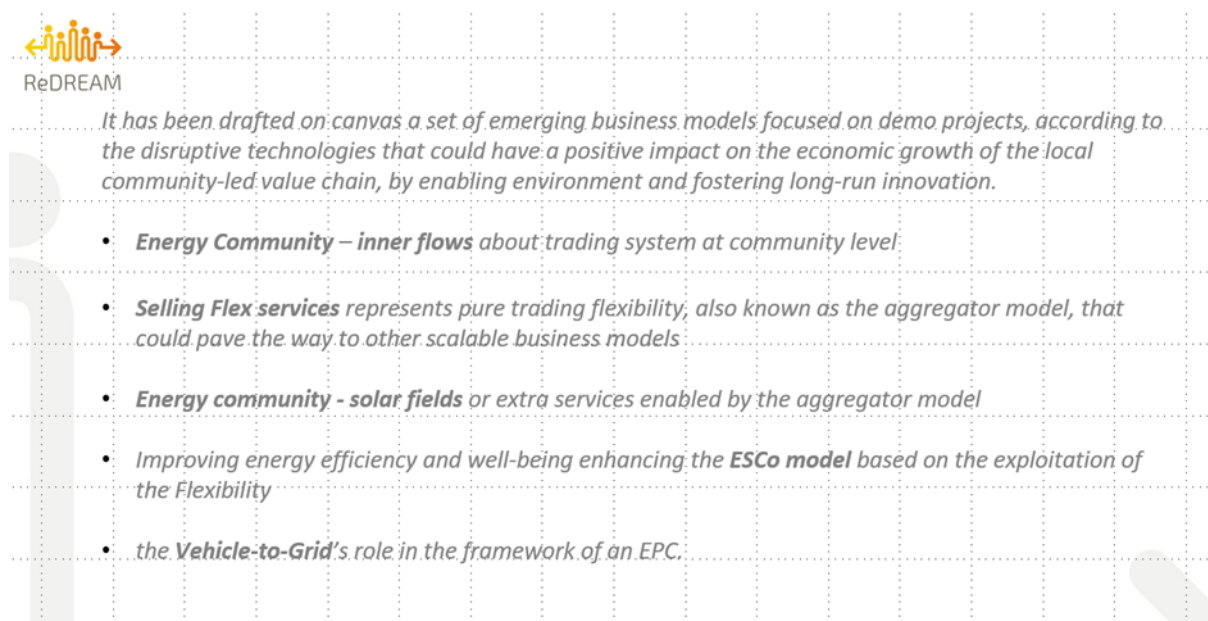


Figure 5 Focus on topics discussed during the Workshop on Business Modelling organized in Madrid

The report has looked at the emerging trends and defined a set of viable and sustainable business models pointing out that they should be from the one side coupled with innovative public/private funding schemes and from the other side adapted to the four ReDREAM demonstration sites.

Being in the ReDREAM second and third steps of a stepped methodology, and in the middle of an iterative and shared path, this report is considering the second chapter of fourth, being integrated with the funding side, the assessment side (task 6.3), and the exploitation strategy (task 6.4).

Indeed, this deliverable is focused on the business intelligence activities for market up-scaling: it will be coupled with a catalogue of viable and proper funding and financing scheme (Task 6.2 and deliverables 6.2, 6.3, 6.4 and 6.5). Afterwards, the Work Package will perform in the task 6.3 the scalability and replicability analysis of DR solutions deployed: if they could be scaled-up and replicate, and what if in case of different use cases. In a nutshell, there will be space for gathering real data on the assumptions and on the business model structure and verify whether the funding disposal strategies could comply with the economic assessment of each single use case. In addition, In addition, the Blueprint model will host a template used with demos to create assumptive dataset to populate each selected BM and to be verified, the consistency and the profitability, during the forthcoming months. As such, the data has been gathered from the demo partners based on the guidelines provided by Stemy in terms of Capex and mostly Opex.





Figure 6 Exploitation Strategy Roadmap



2 Demo blueprint model: features and ecosystem

The Croatian demo decided to focus on possibly exploit the business model **Energy Community – solar fields or extra services**, as described in the D6.1.

This BM would be based on the current services which ZEZ is providing to citizens. ZEZ developed the service which is providing support for citizens interested to invest in solar PV system for self-consumption. Currently, the service is mostly done by direct communication with citizens and solar service providers (email, phone). Due increasing price of electricity, ZEZ is experiencing higher public demand and interest for the solar PV, but is unable to scale-up the support without digital tools/platform.

ZEZ will thus test and possibly exploit ReDREAM platform for scaling up and expanding scope of services. This will make the process of installing solar faster and more efficient for homeowners, and the journey more interactive and educational. The service would include following elements:

- Registered users will be able to submit a non-binding expression of interest for rooftop solar PV for self-consumption in their homes. The expression of interest survey provides details for a preliminary feasibility check for each user.
- Platform as a matchmaking tool for homeowners and registered installers (to assure quality, technical requirements and best value-for-money) available in their city or region. It also facilitates bulk discounts in buying pre-selected components from local and regional manufacturers and by negotiating lower rates for system installation. Installers in turn can avoid time-consuming sales, marketing efforts and working timetable.
- Platform customer support team continuously assist the customer in the permitting and installation process of solar PV, and presents insurance, maintenance, remote optimization and system upgrade options according to the customer's preferences.
- After installation of solar PV, users remain part of the network (platform), which enables ZEZ to offer additional post-installation support and services to members.
- Offering users to be part of the "Flex Community", supporting them through the onboarding process (explaining the process, registering and filling in the surveys, choosing suitable plans and devices, installation of Stemy devices, etc.). This would provide benefits for the flex community members in economic terms (using devices in a more efficient way, potentially selling their flexibility). This service could also be offered to commercial or industrial users, but also to energy communities.
- Providing additional tools and training opportunities to solar installers and other stakeholders from the ecosystem. This implies providing networking and training opportunities, and methodology (systematic approach) for gathering and disseminating feedback from citizens who already installed roof-top solar.



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In addition, based on user feedback, market and regulatory conditions, ZEZ would explore the possibility to offer members joining energy community, which can be supported by ReDREAM platform.

2.1 Features of the Business model: Croatia

Overview

Electricity for households is priced at 0.14 EUR/ kWh in Croatia, including all taxes and fees, well below the 0.22 EUR/ kWh for EU 27.³ There is a massive potential for expanding solar energy in Croatia and ZEZ taps exactly this opportunity. Croatia has currently only about 130 MW solar installed with the soft goal of reaching 1.200 MW by 2030. There is a soft 300 MW prosumer target for 2030 with a number of support measures expected to reach this goal.

The current ZEZ service offers following benefits:

- Lower search costs for hardware and installer
- Cost savings through bulk ordering of materials and framework agreements with installers (cost savings in case studies in the USA are in the range of 10-15%)⁴
- Reduced research costs for permitting and grid connection
- offering a network of peers and of experts to exchange real life experience and advice (becoming part of a solar community)

Homeowners will benefit from a very low overhead in the nonprofit cooperative which relies on a lot of volunteer effort and foregoes a profit margin. Any for profit competitor will have to at least earn sufficient markups to compensate its owners and any creditors, hence adding to the total costs.

It can be expected that the market for rooftop solar will grow considerably. Even in a low-development future as planned by the government, over 67 MW of solar need to be added per year in the remainder of the decade of which almost 50% have to come from homeowners to be in line with the 300 MW prosumer target. At 3kW per home and a goal of 30 MW per year, this would translate to 10,000 new homes per year. This is a sufficient amount of business to attract new market entrants. It will be essential to remain cost leader and quality leader in order to not jeopardize the first mover advantage.

Building horizontal and vertical networks of partnerships will be crucial in order to be able to scale up operations: vertical or upstream with installers and distributors to ensure quality and availability of capacity; horizontally with brand ambassadors and marketing partners, cities and municipalities to ensure visibility and trust among potential customers.

Resilience of operations can be improved through branching out into other markets such as farmers, commercial buildings, municipal buildings and multi-family homes.

An average 3 to 5 kW solar PV system has the potential to meet the energy (electricity) needs of an average household in Croatia. developed 3 scenarios in our outlook and calculations:

³ <https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-3c.html>

⁴ Based on interviews with United Solar Neighborhoods



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Low scenario with 200 rooftop systems of 5kW each installed in the first 12 months, followed by 400 systems in the next 12 months, 600 in year 3, 800 in year 4 and 1,000 in year 5.

Mid scenario with 600 rooftop systems of 5kW each installed in the first 12 months, followed by 1,200 systems in the next 12 months, 1,800 in year 3, 2,400 in year 4 and 3,000 in year 5.

High scenario with 1,200 rooftop systems of 5kW each installed in the first 12 months, followed by 2,400 systems in the next 12 months, 3,600 in year 3, 4,800 in year 4 and 6,000 in year 5.

The high scenario can also result from expanding into other countries in Southeast Europe.

Key stakeholders and resources

The business model relies on key stakeholders for its success:

1. Prosumers (households, industry, public institutions)
2. Users with potential to offer flexibility services
3. Market stakeholders (electricity suppliers, solar installers, equipment manufacturers)
4. Strategic partners (cities, municipalities, educational institutions)

The brand character of ZEZ being a nonprofit cooperative adds to the trust and reputation of the platform. It will be essential to keep this first mover advantage by being equal or better in terms of scope of services and quality of services.

Staff

A main feature of the business mode is that it can be scaled up without a linear increase of personnel, thanks to the utilization of digital platform. The team ideally consist of the following roles:

- marketing expert for new online and offline marketing
- social media manager to respond to requests and moderate conversations
- recruiter for new installers, also negotiating rates and scope of work
- bulk equipment purchasing manager, negotiating bulk pricing
- person providing training for installers and verifying quality and consistency
- web developer for the user interface of the platform
- sales agent, bringing homeowners from an initial expression of interest to signing up
- case worker, managing each project from inception to completion, including after sales care
- office manager / accountant
- manager

These functions can be grouped and combined to reflect the level of financial resources available and the expected business volume. Productivity and performance are not entirely linear as there are certain minimum work loads, however we will assume a quasi-linear work output, i.e.:

1 FTE = 0.5 users per day, 100 users per year, 0.5 MW installed capacity

We assume that labor intensity decreases with higher volumes:

In the low scenario, the team would start with 2 FTE in year 1, followed by 4 FTE in year 2 etc.

In the mid scenario, the team starts with 5 FTE, followed by 10 FTE in year 2, then 15, 20 and 25.

In the high scenario, the team starts with 10 FTE, followed by 20 FTE in year 2, then 30, 40 and 50.



Cost components

Starting capital is estimated as follows:

- IT equipment: laptop and ancillary equipment such as extra screens, keyboards, headsets, plus possibly a projector or a large screen: 1,000 EUR per 1 FTE
- Office furniture: desks and office chairs plus an optional whiteboard: 500 EUR per 1 FTE
- Office space rental 200 EUR per month per 1 FTE
- Salaries including all costs, taxes and business insurance: 2,500 EUR per 1 FTE / month
- Marketing costs for direct mail / text messages / email campaigns, also including workshops and travel costs: 2,500 EUR / month
- IT tool to be developed in year three in the high scenario: 15,000 EUR one time
- Legal fees for setting up the legal entity: 3,000 EUR one time
- Platform and website maintenance: 250 EUR / month
- Subcontracting for construction supervision: 200 EUR per unit

Estimated starting capital covering a 6 month window for all fixed and variable costs:

- Low scenario: 75,000 EUR
- Mid scenario: 100,000 EUR
- High scenario: 150,000 EUR

Revenue streams

The revenue amount is purely hypothetical and depends on a number of factors, such as when operations begin. We assume that interest in rooftop solar will be higher during spring and early summer and that interest will diminish during the summer break, i.e. July and August. Early fall is potentially a good time for solar sales, i.e. September and October. November and December and also the first two months of the year will be less advantageous. Depending on expiration dates for incentives or tax-related incentives, an end-of-year rush is also possible.

Revenue can be generated from different streams:

- A government or utility subsidy or payout per installed kW
- A commission on each installation contract, paid by the installer
- A commission on each installed equipment, paid by the manufacturer or retailer
- A fee paid by the homeowner
- Requiring homeowners to join the cooperative with a one-time payment
- Requiring installers and manufacturers to join the cooperative as non-voting members

We will explore the various options available and will also discuss a mixed revenue stream.

A government or utility subsidy payable to the platform is currently not expected and is not a viable option.

A commission on each installation, paid by the installer, could be either a flat fee or a percentage of the total contract value. The payment will require negotiations as installers are already offering a discounted service as part of the certification process. It will depend on the cost structure of the installer if they can afford to add a payment to the platform. The second question is then, how high this payment would have to be.

We calculate the following costs per installed system:

- Low scenario: 444 EUR
- Mid scenario: 317.50 EUR



- High scenario: 300 EUR

If we assume the average solar installation to be 5 kW and about 6,000 EUR, then 444 EUR would correspond to 7.4 % of the gross sales price. We aim to negotiate a 5% commission from installers which will be paid one month after signature of contracts. We assume that 50% of the final price are so-called soft costs linked to the installer.

A commission on equipment by the manufacturer or retailer would require their willingness to not only lower equipment costs as part of the bulk purchasing agreement but also add a payment to the platform. Taking into account the decreasing costs in the solar industry and the tight competition, we believe (based also on interaction with PV entrepreneurs during the business model validation) that there is some willingness to share with the platform, especially if this sales channel ends up generating significant growth in sales.

A prudent approach - to be substantiated via focus groups with installers and interviews with retailers and manufacturers - is a split between installers and manufacturers or retailers with the following rates based on the full project costs:

- 5% fee paid by installers on their service costs, expected to be paid after signing the contract with the homeowner
- 5% fee paid by manufacturers and retailers on their equipment costs, to be paid at the end of the year for the full past year

This results in a total of 5% which will not yet cover the running costs. Once the subscription costs for smart home and maintenance services come in, we see sufficient revenue including a margin to contribute to the recovery of equipment costs and other one-time expenses.

Proposed revenue mix in the low scenario:

100 EUR x 200 homeowners = 20,000 EUR capital injected in the first year (but not available at the start of the year)

5% x 6,000 EUR x 200 homes = 60,000 EUR revenue in the first year

2 installers paying membership fees (we assume one installer per 100 roofs) = 2,000 EUR

1 manufacturer paying membership fees = 5,000 EUR

Yielding a total revenue of 87,000 EUR in year 1.

Compared to 107,800 EUR costs, this would leave a funding shortfall of 20,800 EUR. This gap can be covered through:

- Additional EU grants
- Foundation grants
- Introducing additional revenue streams such as co-sponsoring with other brands (ideas range from e-mobility to organic living, vacation rentals (climate friendly vacation homes will be a new trend in the coming years), home insurance, home improvement stores etc.)
- Introducing new smart home and maintenance service fees earlier than in year 3.



low scenario

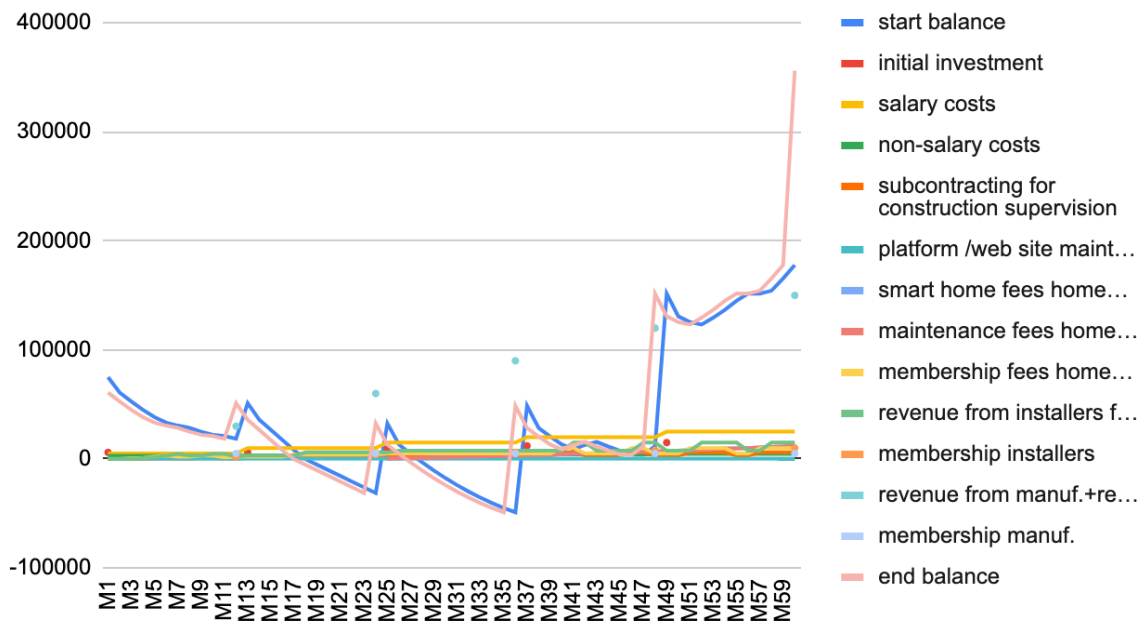


Figure 7 Scenario no.1 ZEZ business case

The low scenario is running a deficit until revenue from subscription services are introduced in year 3.

mid scenario

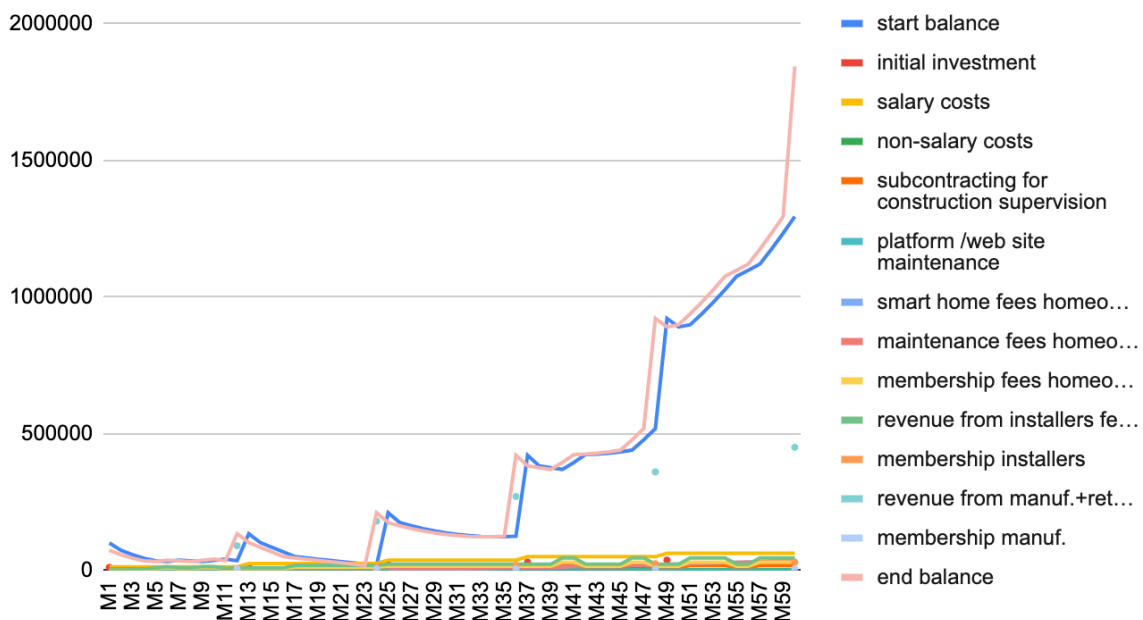


Figure 8 Scenario no.2 ZEZ business case

The mid scenario does not run a deficit, but runs on very slim reserves in the first year.



high scenario

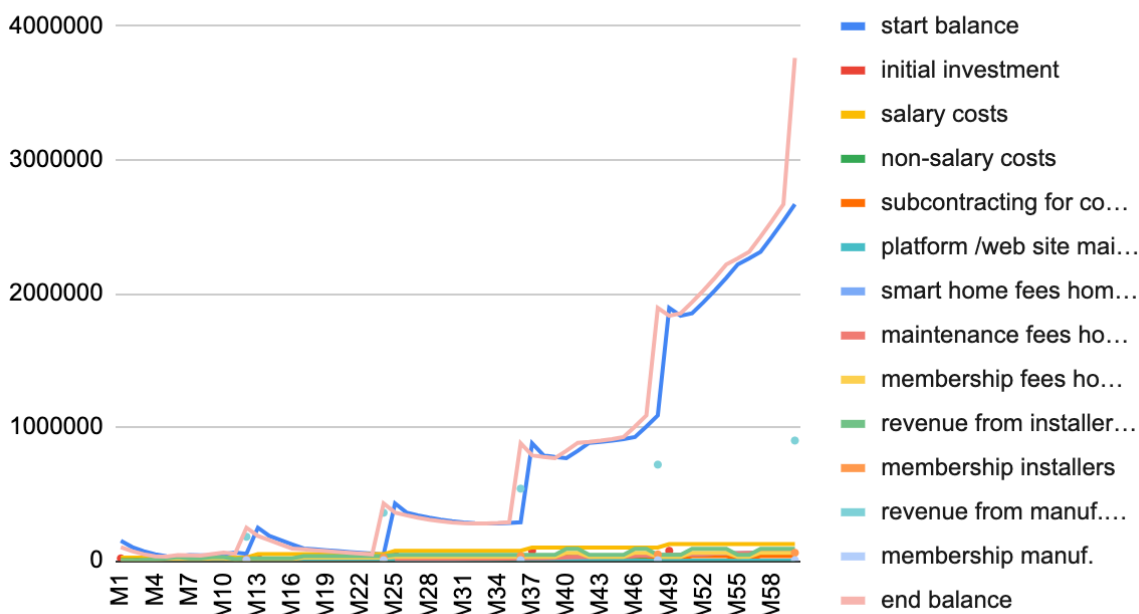


Figure 9 Scenario no.2 ZEZ business case

The high scenario runs on a very slim safety margin until year 3 and becomes very sustainable after year 3.

Green power generated

While actual power generation is hard to predict without knowing the roof direction and inclination, it is assumed that roof systems cover about 80% of ca. 4,000 kWh⁵ = 3,200 kWh per system per year.

kWh per scenario	low	mid	high
Y1	640000	1,920,000	3,840,000
Y2	1,920,000	5,760,000	11,520,000
Y3	3,840,000	11,520,000	23,040,000
Y4	6,400,000	19,200,000	38,400,000
Y5	9,600,000	28,800,000	57,600,000
accumulated	22,400,000	67,200,000	134,400,000

⁵[https://www.enerdata.net/estore/energy-market/croatia/#:~:text=Energy%20consumption%20per%20capita%20is,4%20100%20kWh%20\(2018\).](https://www.enerdata.net/estore/energy-market/croatia/#:~:text=Energy%20consumption%20per%20capita%20is,4%20100%20kWh%20(2018).)



Financial incentives to support development of the business model:

- Environmental Protection and Energy Efficiency Fund (FZOEU) Incentives
- Croatian Bank for Reconstruction and Development (HBOR) Loans
- Local authorities (various support mechanisms)



3 Library of affordable funding disposal strategies

3.1 The funding strategy rationale

Given the Energy Service Company (owned by a joint stock bank) experience, it has been underpinned some concerns on the banking system side. As such, it has been proposed a powerful approach developed the energy efficiency and the renewable energy systems applied in private and public projects through the Energy Performance Contract. Thus, to enable the banking system to figure out the role and the value of the energy savings.

Having assess the possible business cases, it is strongly suggested to divide the development project in two stepped phases:

- The funding scheme (harmonization of three main sources: non-refundable rewards, loans and equity) and the implementation
- The long-term securitization of Energy Performance Contract.

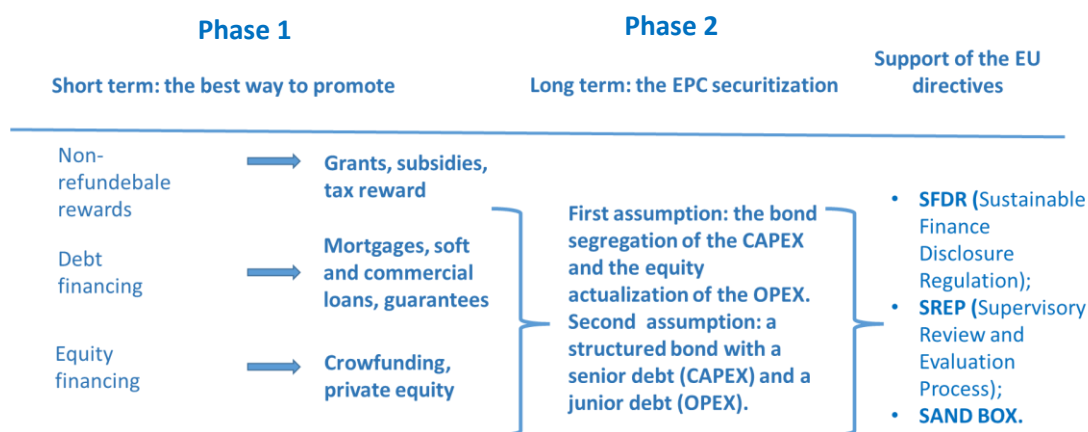


Figure 10 Funding Strategy Rationale

The second step is the capstone because it will "strip" the contract clearly distinguish CAPEX from OPEX. This scheme represents a game changer while reducing the cost of funding compared with a possible larger scheme, such as a green bond emission. In this sense the latest legislative novelties the SFDR⁶ directive and the ESG SREP⁷ by EBA, are following the green transition pathway. Indeed, thanks

⁶ Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (Text with EEA relevance) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019R2088>

⁷ The European Banking Authority (EBA) published today its final revised Guidelines on common procedures and methodologies for the supervisory review and evaluation process (SREP) and supervisory stress testing. The revisions aim at implementing the amendments to the Capital Requirements Directive (CRD V) and Capital Requirements Regulation (CRR II) and promoting convergence towards best supervisory practices.

https://www.eba.europa.eu/sites/default/documents/files/document_library/News%20and%20Press/Communication%20materials/Infographics/ESG%20disclosure/1026178/EBA%20summary%20of%20ESG%20disclosures%20-%20Pillar%203.jpg



to enter into force of the Taxonomy and to the introduction of the European directive SFDR (Sustainable Finance Disclosure Regulation) the financial originators are asked to declare in their financial product whether ESG principles are present and in which percentage. This is a first step against “greenwashing”. As well, EBA (European Banking Authority) will introduce the ESG principles in the SREP (Supervisory Review and Evaluation Process).

3.2 Investment Disposal Strategy

As such, it has been created an investment disposal strategy, capitalizing what it has been already profiled for the complex Positive Energy Districts development under the Smart City scenario⁸. It has been assumed that despite of the overall amount of the gross investment, the rationale could be sized according to the 4 demo needs.

A derivate part of the retail investments should be able to finance the equity in phase one, after that the securitization of the debt in phase two ends with the segregation of the assets in a long-term investment product, like in a pension plan scheme.

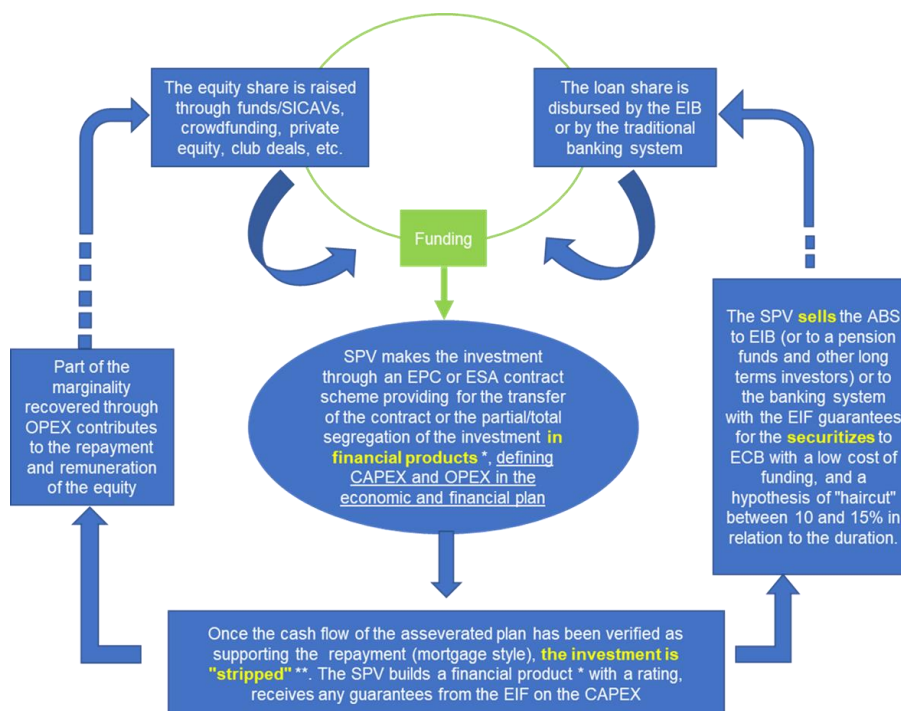


Figure 11 Investment Disposal Strategy

As explained in the following sub chapter, the turnkey for ReDREAM is to leverage the so called “fixed coupon”: a floating premium based on savings and a capital fully protected at maturity. Indeed, the envisaged funding scheme gives the investor, thanks to the creation of a solid community for which energy is the pivotal element, the possibility to fully exploit the regulatory innovation, given by the EU Directive 2001/2018 (RED II) on energy communities.

⁸ https://www.sparcs.info/sites/default/files/2020-11/D7.1_BusinessModelsAndFinancingMechanismsForWideUptake.pdf



The prospect to monetize energy savings aims to stimulate virtuous behavior within the community. In the proposed architecture, and in relation to the monetization process of virtuous energy behaviors, the systematic use of EPC (Energy Performance Contracting) contracts that fix the floor beyond which savings become revenue for the user is crucial, through the involvement of 3PF (third party financing) in the form of ESCos (Energy Service Companies).

3.3 Crowdfunding⁹

Over the past years, and especially during the pandemic period, the public sector finance has been stressed without possibility to Fund and Finance any “low income or long-term returns project”. Nevertheless, crowdfunding has the potential to offer a new model of finance via an investment-based business model that generates social, environmental and economic returns. Indeed, on 10 November 2020, The European Commission issued the new Regulation on European Crowdfunding Service Providers (ECSP)¹⁰ for business, creating uniform rules across the EU for the provision of investment-based and lending-based crowdfunding services related to business financing. It is addressed to the growing market of Investment Crowded platforms with an EU passport based and it allows them to offer their services across the EU with a single authorisation.

Two financial considerations for equity crowdfunding:

- Risk differences between equity and loan. If it will be used a strict process of evaluation, the difference is only on the lasting side
- Whether the above assumption is basically true, it should be possible to give guarantees on the equity crowdfunding through the platforms, when related to the rating systems

If we look at the energy demand response and the flexibility investment projects, those based on crowdfunding schemes shows several features:

- citizens/households/consumers (they will become Prosumers) invest in their own social dimensioned district, even with a focus on renewable energy sources and low pollutant activities
- new financially viable business cases generating green local jobs
- new use of abandoned and brown field public and private spaces

For ReDREAM it has benchmarked the crowdfunding instruments for deploying energy community or more generally local equity projects. Apart from the result that the crowdfunding would be a new tool of civic engagement with local residents and service users, it has been investigated the average size of several crowdfunding campaign for projects deployment.

⁹ The assumption is that new use cases can be covered, in financial coverage terms, through crowdfunding or fintech closing the loop of the capex with investors, who could cover the opex needs. For instance, the adoption of decentralized ledger technology (DLT) for green bonds can lower the costs for municipal green bond issuance and increase investors' confidence in investing in green projects for their local communities. Considering how sensitive millennials and generation Z are to climate and environmental issues and how eagerly they use digital devices, there is an opportunity to foster sustainable investing through digital channels.

¹⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R1503>



It must be underlined that the sector is yet to make the most of crowdfunding and to realise the financial and non-financial benefits it has been shown to generate. When looking at the 4 ReDREAM demo cases the possible cap for their demo district demonstration is around 350k € for each of the district.

The commitment will be addressed, according to the benchmark, to the Institutional public investors/authorities for the 45% and to the private investors for the 55% equally split between Institutional Private Investors and small-retail-crowded investors. Below three best practices.

Aruka Midway ¹¹ , USA	An investment opportunity in the Aruka East Baltimore Midway revitalization project. Urban revival. Investing in the community, block by block.	213.500 \$ raised open to everyone, with 100% of 100,000 \$ goal raised and with 21% of 1.000.000 \$ goal raised. 66 investors. Ongoing campaign.
De Nieuwe Meent ¹² , The Netherlands	de Nieuwe Meent organised around the principles of communing. Combining affordable housing, shared living, social care and solidarity economy, we intend to contribute to a sustainable, inclusive and fair society.	Closed campaign with 450.000 € of Funding Goal of which 439.609 € of Funds Raised 97.69%
Homes4all ¹³ , Italy	A programme with the aim of reducing the housing emergency through a process of urban regeneration that combines demand and supply of properties on the market by providing services and financial and social tools aimed at reducing the rental risk.	Two rounds of raising, the first has collected 399.500€ the second 300.00€. Campaign closed

When the objective is to increase private/citizens contributions in energy efficiency, it should be considered that embracing the paradigm from commodity to service, the financial “bottom up” should be surfed: the renewable energy systems are more efficient when producers/prosumers are closed to consumers: that means talking about small amounts. As such, and considering the demos’ size, a green bond emission could not be the best/optimal idea to accelerate the energy efficiency transition.

Especially now, because the interest rates are negative or near to zero but as soon as the inflation increases, the interest rate curve will be steeper than now, and the financial costs will be unsustainable, or the amortization period will be so long to be very expensive.

¹¹ <https://www.smallchange.co/projects/aruka-midway>

¹² <https://nieuwemeent.nl/en/crowdfunding/dashboard/>

¹³ <https://homes4all.it/>



To ping-pong this strategy, it must be considered the impact in the reduction of the Greenhouse Gas Emissions in the financial revenues: as such, the ETS system is necessary, better if more like the Italian White Certificates for financing the no direct revenues and the role of crowdfunding paves the share of the targets in a community and the closure of the cleavage between finance and economy.

3.4 Other suitable Funding and Financing mechanisms

The EU Commission and the EIB group settled a “Coordinated economic response to the Covid-19 outbreak” and additional EIB measures. The financial impact and the budgetary effort amounts €40bn of additional support to SMEs and mid-caps and €2.5bn from the EU budget (repurposing of the EFSI guarantee). The support to companies is for:

- 3.4.1 expansion and improvement of conditions of existing EIF loan guarantee schemes for SMEs (COSME LGF and InnovFIN SMEG) with additional €1bn from EFSI to support COSME LFG and InnovFin SMEG. The risk coverage is up to 80% (as opposed to standard 50 %), while the minimum guaranteed cap rate (COSME) increased from 20 to 25%. The novelty is represented by a simplified and fast approval process by the EIF Board, a more flexible terms, including postponement, rescheduling or payment holidays
- 3.4.2 €5bn from EIB own resource to expand existing EIB framework loans and lending facilities to banks. Goal is to expand liquidity of banks to ensure €10bn additional working capital support for SMEs and mid-caps
- 3.4.3 €1.5bn of EFSI guarantee to the purchase of asset-backed securities from banks. The aim is to allow banks to transfer risk of existing SME loans to the EIB, freeing up €10bn for new SME loans.

Following this approach, the national development banks of Italy (Cassa Depositi e Prestiti) and Spain (Instituto de Crédito Oficial) mobilized several guarantee schemes. Apart from them, even the national development bank of Croatia (HBOR) expanded the credit guarantees with a risk coverage of up to 90% for SMEs, but also to larger companies. These are financial schemes targeted for the so called green transition.

3.5 ETS:

Emissions trading system is a market-based approach to controlling pollution by providing economic incentives for reducing the emissions of pollutants. The EU emissions trading system (EU ETS) is a cornerstone of the European Union's policy to combat climate change and its key tool for reducing industrial greenhouse gas emissions cost-effectively. During the first months of Q2'22, spot prices have increased EuA prices have recovered from €55 in March 2022 to €82 in mid-May 2022. A similar volatility was observed in the UK.

3.6 Sustainability-linked bond - SLBs

Looking at the development of mid cap demo development and quite in line with the accountability of the energy saving and of the flexibility, the Sustainability-linked bonds are bonds whose financial and structural characteristics (the coupon) are linked to pre-established sustainability objectives. These



objectives are measured through the definition of Key Performance Indicators (KPIs) and evaluated against predefined Sustainability Performance Targets (SPTs).

The demo leaders mostly have not a single project to deploy but an overall energy transition strategy. Indeed, the SLBs are not tied to the implementation of a single energy/sustainable project. The proceeds from the issue of the security can in fact be used for more general purposes, linked to an entire strategy centred on the Sustainable Development Goals of the UN 2030 Agenda, with measurable targets from year to year. As such, Green Bonds has been discarded due to their size, too big for demo purposes.

More in detail, SLBs are recognized at the monetary policy level: as such, ECB established (since Jan 2021) SLBs with coupons linked to sustainability objectives can be used as collateral in Eurosystem credit operations; and they are suitable for securities purchase programs, including the extraordinary one related to the pandemic response.

Operationally, the International Capital Market Association drawn up non-binding guidelines for the issuance of financial instruments that incorporate the achievement of future sustainability objectives for Sustainability-linked bonds.

The principles (SLBPs) are best practices focused on clarity and transparency, which investors can use to understand the financial and structural characteristics of a given product. These are five:

- Selection of Key Performance Indicators (KPIs)
- Calibration of Sustainability Performance Targets (SPTs)
- Characteristics of the bond
- Reporting
- Verify.

3.7 Equity loans

This scheme is used to be adopted by private companies of all sizes, especially those expanding their market status or entering a foreign market. As such, the classical example of Stemy in the ReDREAM consortium: being a partner of each demo would mean enter in four different markets with the possibility to activate local territorial debt partner for the Capex needs. But the equity loan could enable companies in providing resources for the Opex, for example.

It is an instrument that works via national development or commercial banks: they provide direct equity partnership, with a medium-long term. The stake could be settled in the constitution phase (greenfield initiatives) (by sharing capital increase) or in M&A transactions. This scheme is compatible with additional financial resources by granting loans.



4 Conclusion

The assumption drafted in the docs must be verified and to be implemented more in detail in the Scalability and Replicability related task. Indeed, once the estimation will turn in to consistent data, it will be possible to avoid the granularity and to populate the business plan. This could give the operational revenues a push-up and could settle the dimension of the Capex and Opex, as well.

The theoretical assumptions drafted in three scenarios are quite good in terms of overall investments and possible revenue streams. As considered before, the estimated business plan drafted for the selected business model is a mid-size but with high impacts on the consumers.

As such, and standing for the finetuning in task 6.3, the most adaptable financing method to be adopted by the ZEZ is a blend of equity loans (opt 3.6) with injection of funds coming from the local financial incentives listed in the chapter 2 such as:

- Environmental Protection and Energy Efficiency Fund (FZOEU) Incentives
- Croatian Bank for Reconstruction and Development (HBOR) Loans
- Local authorities (various support mechanisms)

Nevertheless, ZEZB after the real dimension of the demo to be performed in task 6.3, could reconsider the volume of the investment and the value of the possible revenue stream. It means that ZEZ should be able to exploit the equity loan and establish a settled Revolving Fund scheme by funding interventions in equity. The added value of the scheme will allow the revolving equity to be repaid sooner and activate the loop of the iterative process.



The selected funding opts related to task 6.2

1. Investment Disposal Strategy exploiting and securitizing the Energy Performance Contract
2. Crowded schemes: funding and lending
3. Other suitable funding and financing mechanisms
4. EU ETS carbon emission trading systems
5. Sustainability-linked bond
6. **Equity loans (Optimal case)**

Best case - funding opt related to Croatian demo after the full Scalability and Replicability Analysis

1. **Equity loans**

