



# Monitoring and evaluation of investments

## Categorization and typology financing schemes

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# 1. Categorization of the Pilot Regions

## 1.1. Categorization analysis

The table below gives a synthesis of the pilot regions model categorization. The categorization is based on the review of the financing schemes operated in the WP2 and detailed in the final report 'Increasing capacities in Cities for innovating financing in energy Efficiency' (deliverable D2.4). The detailed description sheet of the pilot regions is provided in section 2 of this document.

Table 1. Pilot Regions categorization

	<b>Liège Province (BE)</b>	<b>Murcia Region (ES)</b>	<b>Rhodope Region (BG)</b>
Program Authority	GRE Liège	Government of Region of Murcia	Association of Rhodope Municipalities (ARM)
Program Delivery Unit	Renowatt+	DGEAIM/DGP	Rhodoshop
Operational model	Integration	Integration	Facilitation
Implementation model	Energy Performance Contracting (EPC)	Energy Performance Contracting (EPC) Separate Based Contracting (SBC)	Energy Performance Contracting (EPC) Separate Based Contracting (SBC)
Beneficiaries	Municipalities, Hospitals & Elderly Care Institutions in the Province of Liège and Hainaut	All public regional administrations of the Region of Murcia	Municipalities in the Rhodope Region
Operating Services	Marketer Aggregator Integrator Financial advisor Assessor	Aggregator Integrator Assessor	Marketer Aggregator Facilitator Financial advisor Assessor
Projects Financed	Energy Efficiency (Building retrofits) Renewable Energy	Energy Efficiency (Building retrofits) Renewable Energy	Energy Efficiency (Building retrofits) Renewable Energy Street Lighting
Ambition/targets	Market based (up to 35%)	Market based (up to 35%)	50% energy savings
Investment volume targeted	104, M€	71,8 M€	13,2 M€
PDU Funding requirements	Moderate 5 million €	Low 886 k€	Low 470 k€
Staff requirements	Moderate to high 10 FTE	Low 4 FTE	Low 3 FTE

Financing Vehicle	Property owners Financial institutions	Property owners ESCOs	Property owners Financial institutions Investment funds ESCOs
Financial instruments	Equity/Own funds Loans Grants	Equity/Own funds Loans Grants EPC Financing	Equity/Own funds Loans Grants EPC Financing

Two of the pilot regions (Liège Province and Murcia Region) have chosen for the integration model to operate their programs while the Rhodope Region opted for the facilitator model. The integration model is yet more demanding, both in terms of resources requirements (financial and human) and in risks exposure for the public authority. The main reasons for these choices are the following:

- Renowatt+ (Liège Province) capitalizes on the experience gained with the existing one-stop-shop facility Renowatt which has developed its services on the basis of the facilitation model. The limitation of the facilitation model to control the entire chain of the project delivery and ensure risk management, quality and performance of the projects, notably the ability to ensure a smooth progress of the works, to follow the energetic KPIs, to take corrective actions when necessary – has convinced GRE Liège to ramp up and opt for the development of a central procurement service able to deliver a full service to its beneficiaries. Another reason is the fact that Renowatt+ operates exclusively with Energy Performance Contracting for which municipalities have rarely the required expertise and resources, as showed in the qualitative survey.
- Murcia Region is by definition “integrated” as the beneficiaries of the program are the regional administrations of the Region of Murcia Region. The Region has naturally chosen to capitalize on the existing administrations and departments experienced and staffed for the project delivery preparation (DGEIAM) and the procurement execution (DGP). This explain why the funding and staff requirements for the Murcia PDU are barely low (less than a million €) in comparison with other PDUs operating under the integration model.

In the case of Rhodope Region, the main reason of the facilitation model lies in the lack of expertise and the limitation of financial and human resources of the Public Authority (PA). They opted to develop their program with an easier operational model based on the initial one-stop-shop facility of Renowatt and the support of GRE Liège in the skills and experience capacity building.

It is notable that none of the pilot regions has engaged in a more sophisticated financing scheme such as PDU Financing, investment fund or citizen funding. They all rely mainly on financial institutions and/or property owners to fund the projects, and plan to use ESCO financing on a case-by-case basis. The main reasons for these choices are the following:

- ESCO Financing does not yet allow public debt deconsolidation and does not give an incentive to use this financing scheme that remains more expensive. The situation could change in a near future with the new EUROSTAT note on EPC published end of 2017, as mentioned by the pilot regions.
- For two of the pilot regions, Murcia and Rhodope, the supplier’s context is not yet mature enough to rely mainly on Energy Performance Contracting (EPC) and ESCO Financing to execute their program.

- The learning curve for developing a funding program is not to be neglected. Scaling up to more sophisticated funding models can occur when a solid and stable PDU is already operational and can support business growth.

## 1.2. Timeframe of development

The timeframe of development of the three pilot regions is described in the table below.

Table 2. Pilot Regions timeframe of development

Stage of development	Liège Province (BE) Renowatt+	Murcia Region (ES)	Rhodope Region (BG) Rhodoshop
Action plan development	Delivered in June 2016 (16 months).	Delivered in Nov. 2016 (21 months)	Delivered in May 2016 (15 months)
Commitment of the PA	Obtained in Sep. 2016 (Executive Board of GRE Liège)	Obtained in October 2015 (mandate of the Regional Government, Energy Plan 2016-2020)	Obtained in July 2016 (General Assembly of the Association of Rhodope Municipalities)
Funding of the PDU	Still pending (Elena PDA in negotiation)	Funded by the Region of Murcia's budget	Funded by a H2020 PDA (GA signed in July 2017)
Operationalization of the PDU	Still pending (first projects executed by the existing Renowatt facility)	In process (learning curve with EPC contracting)	In process (started in Sep. 2017)
Contractualization with the beneficiaries	Partially executed (letters of intention of about 30 municipalities)	Executed (mandate of the Regional Government, Energy Plan 2016-2020)	Executed (6 municipalities engaged the program)
Project delivery proceeding	Partially in process (started in April 2015 with the support of the existing Renowatt facility, 1 project implemented, 2 projects under implementation)	In process (started in January 2017, 3 projects under implementation)	In process (started in Sep. 2017)

Despite the assistance of the CITYnvest team and resources, it is notable to mention that none of the three pilot regions was able to fully implement its program over the three years duration of the

CITYinvest project. This is not a surprise for us as the feedback received from many similar programs developed elsewhere in Europe and abroad shows that a timeframe of 5 years is more frequent to set-up an operational PDU and deliver its first projects. Nevertheless, the pilot regions are not to blame with almost 39% of the investment targets (188 million €) having reached the tendering phase of project delivery proceeding while one project (CHRH Hospital from Liège Province Pilot) has been fully implemented.

We describe below the main obstacles encountered by pilot projects at each stage of development.

### 1.2.1. Action plan development

The three pilot regions were able to count on the support and supervision of project partners and feedback from the Renowatt project led by GRE Liège. This assistance accelerated the process of developing the action plans and when it was appropriate to better guide the choices made by the pilot regions. Nevertheless, feedback from the pilot regions shows that it can take more than a year to develop a mature action plan (up to 21 months for Murcia Region). The action plan requires the time and necessary resources to develop a strong program/PDU Business case and business plan in order to convince stakeholders and political decision makers to support the program and allocate the necessary financial and human resources. One of the key issues include the precise definition of the mandate the PDU should get from the Program Authority (PA), the required resources to fulfil the role of the PDU and the funding required for PDU set-up and operations.

Another key issue at the stage of the action plan development is the availability of reliable and accurate data on the building stock. Getting data consumption has been the longest and most laborious part of the project for Murcia Region for example, that explains partially the 21 months to finalize the action plan.

### 1.2.2. Commitment of the PA

Commitment of the Public Authority (PA) has not been a critical issue for the three pilot regions as seen in the qualitative analysis, they all get the PA approval when an action plan was mature enough. Nevertheless, the commitment process can negatively impact the planning, especially when the action plan development is spread out among several contributors. This was the case of Murcia Region pilot where the cooperation between the various administrations involved in the action plan development, linked with the local political context (regional election with new government) led to an extensive duration to finalize it and get the final Public Authority (PA) commitment.

### 1.2.3. Funding of the PDU

Funding of the PDU has been the biggest hurdle faced by two of the pilot regions: Liège Province and Rhodope Region. Both pilot regions have faced difficulties to get a full PDU funding from the Public Authority (PA) and have lacked structural funding to operate their program. For both pilot regions, the inability to raise structural funding has led them to turn to EU funding for Project Development Assistance grants (i.e. Elena PDA, Hoorizon2020 PDA). If Rhodope Region has successfully obtained an Horizon2020 PDA funding to execute its program, Liège Province is still negotiating its funding with the EIB Elena Facility and the Regional Government (Wallonia).

## 1.2.4. Operationalization of the PDU

Operationalization of the PDU has not been an issue for the pilot regions except for the Rhodope Region which faces difficulties to enhance know-how and expertise of the project team.

## 1.2.5. Contractualization with the beneficiaries

Contractualization with the beneficiaries can be a serious issue in the development of the program and deeply impact its implementation schedule, depending the chosen operational model of the PDU. This is the case for Rhodope Region and Liège Province where several local Program Authorities need to be convinced to join the program.

## 1.2.6. Project delivery proceeding

As a very few investment projects have been delivered by the pilot regions within the timeframe of the CITYinvest project, it is difficult to draw conclusions. Nevertheless, two main issues have been identified from the qualitative survey:

- The beneficiary context, as mention above: difficulties to enhance capabilities, know-how and expertise of the beneficiaries and the stakeholders to get on board. This issue is even more critic when applying Energy Performance Contracting (EPC) for which municipalities faced a lack of understanding and trust in the contracting scheme. This was the case for Rhodope Region and Liège Province.
- The need to improve the reliability and accuracy of data in the preparation phase of project delivery proceeding: there are significant variations in the investments and savings estimates between the assessment/preparation phases of the project delivery proceeding and the tendering results that lead to discussions and potential conflicts with the beneficiaries when awarding the tenders.

## 2. Pilot Region Description

### 2.1. Rhodope Region – Bulgaria (Rhodoshop)

OWNERSHIP	PUBLIC
<b>Program authority</b>	Association of Rhodope Municipalities (ARM)
<b>Program Delivery unit</b>	Rhodoshop
<b>Implementation Model</b>	Energy Performance Contracting (EPC) Separate Based Contracting (SBC)
<b>Operating Services</b>	Marketer Aggregator Facilitator Financial advisor Assessor
<b>Projects Financed</b>	Energy Efficiency (building retrofits) Renewable energy Street Lighting
<b>Ambition/targets</b>	50% energy savings
<b>Beneficiaries</b>	Public sector (municipalities)
<b>Funding Vehicle</b>	Financial institutions Investment funds ESCOs
<b>Financial Instruments</b>	Equity/Own funds Loans Grants

#### 2.1.1. Summary

The Rhodoshop program aims at assisting Rhodope local authorities to build technical, economic, legal and administrative expertise for a wider implementation of energy efficiency in small sized rural municipalities.

It is based on 6 major objectives:

Objective 1): Increase the capacities, skills and knowledge of Rhodope local authorities by creating of Rhodoshop – a One-Stop-Shop for energy efficiency initiatives in the Region based on the successful experience of the GRE-Liege financial model RENOWATT. Rhodoshop will be a procurement agency, acting on behalf of public authorities that undertakes energy retrofitting works in their own existing buildings and in street lighting.

Objective 2): Develop a pipeline of sustainable energy investment projects allowing for project aggregation and financing solutions minimizing transaction costs;

Objective 3): Come up with suitable financing solutions for the realization of energy savings in the Rhodope Region (e.g. EPC, Energy efficiency funds, bank loans, national funding sources, etc.).

Objective 4): Launch concrete sustainable investment projects in Rhodope municipalities amounting to 13,2 M€ within its 36-month project duration.

Objective 5): Ensure long-term impacts of the Rhodoshop efforts after the life-time of the project by engaging in a dissemination program within Bulgaria and within EU for project results multiplication.

The main sectorial focus of the Rhodoshop proposal is on existing public buildings and street lighting. At a later stage, it will be considered also focusing on private buildings through supporting the implementation of a National Program for Energy Efficiency in Bulgarian Homes (Bulgarian governmental initiative providing funding for private households). The target of 8,8 GWh/year energy savings by the end of the project will be carefully monitored during its lifetime, together with the investment pipelines developed within the project.

The program initially involves 6 municipalities, all members of the Association of Rhodope Municipalities (ARM), which has 16 members in total. The 6 pioneering members are Banite, Chepelare, Devin, Nedelino, Smolyan and Zlatograd, of which 5 are engaged within the Covenant of Mayors. This joint undertaking is substantiated by the fact that these municipalities are neighboring each other and have had previous collaboration.

The program is co-managed by the Sofia Energy Centre (SEC).

The program is funded under the Horizon2020 PDA initiative. Training on the set-up and management of a One-stop-shop Program Delivery Unit (PDU) is provided by GRE Liège.

The proposed initiative builds upon the outputs of H2020 CITYinvest project ([www.cityinvest.eu](http://www.cityinvest.eu)) following the prepared Action Plan for the Rhodope Region which foresees the creation of the suitable infrastructure that will help Rhodope municipalities in securing funding, while taking into account organizational, administrative, legal and financial aspects. Rhodoshop proposal coordinating organization SEC is a partner in CITYinvest Project while ARM is a supporting organization in CITYinvest activities in Rhodope Region. GRE-Liege, the partner providing its innovative financial experience as part of CITYinvest, is collaborating with SEC and ARM for Rhodoshop establishment and making it operational, and will provide on-going consulting on practical issues during Rhodoshop implementation phase (via Skype and e-mail).

## 2.1.2. How does it work?

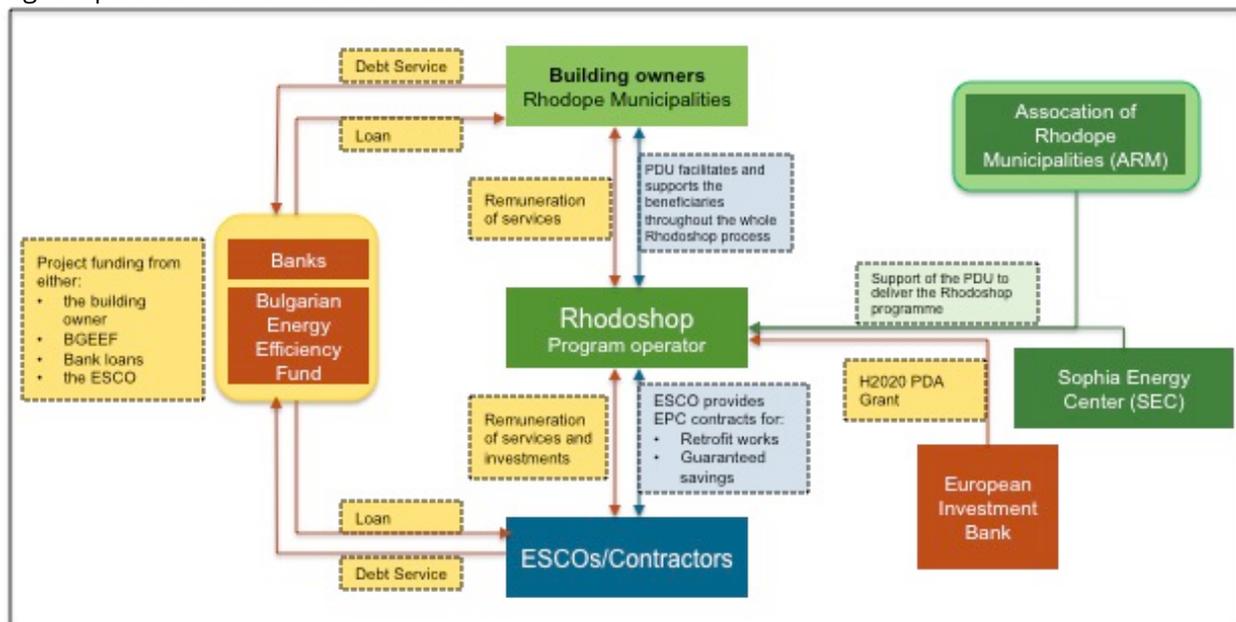
The Rhodoshop project aims at the implementation of an innovative financial model through the creation of a One-Stop-Shop to serve as central procurement agency thus enabling:

- to bundle projects from several small municipalities to gain critical mass;
- to focus on the public procurement of energy efficiency measures on the principles of Green Public Procurement in order to make the best choice of environmentally friendly, energy efficient and cost-effective products and services. The idea of “Green Procurement” is to compare the qualities and performances of different solutions during their whole life-cycle, and to give preference to the solution that shows the best ratio cost/performance. Green procurement is also a tool for wider market penetration of innovative solutions for

improvement of the energy characteristics of products and services, for the use of recycled materials and decrease of CO2 emissions.

The Rhodoshop project will ensure EU added value by replicating the innovative experiences of GRE-Liege for project aggregation and project bundling and financing solutions minimizing transaction costs on the Bulgarian market, and further disseminating this approach within Bulgarian local communities and at EU level.

Fig 1. Operational and financial model



In order to maximize the impact of the initiative on boosting sustainable energy investments in the region it is envisaged to involve the following main target groups:

- Municipalities from Rhodope Region. They will be involved through their membership to ARM which is a partner in Rhodoshop project that will accommodate the One-Stop-Shop structure and is therefore in a position to spread all available not confidential information to its remaining members;
- The rest of municipalities of Bulgaria – they will be targeted for project results multiplication efforts through the support of the National Association of Municipalities in the Republic of Bulgaria (NAMRB) which comprises of all 265 existing municipalities in the country and whose involvement is ensured by a Letter of Support;
- Europe-wide local authorities and other local actors – through the support of Climate Alliance, a European Network of 1713 municipalities from 26 European countries.

Other key project actors include:

- Association of Rhodope Municipalities (ARM) representing the 16 municipalities from Rhodope Region (including the six Rhodoshop pioneers) – project partner as Rhodoshop host organization;
- Sofia Energy Centre (SEC) – project partner providing management and coordination support to Rhodoshop structure through its vast experience in sustainable energy project execution at EU and national level, gained during its 22-year activity as a consultancy organization;

- GRE-Liege – subcontractor with unique expertise in One-Stop-Shop creation providing training on the site through its involvement in the study tour of Rhodoshop staff to exchange practical experience on One-Stop-Shop function and on-going support during the Rhodoshop operational phase.

The overall approach is to set-up a dedicated Program Delivery Unit (PDU) that will undertake all functions of participating municipalities related to the whole development and implementation cycle of sustainable energy investments at the same time providing the opportunity to bundle and package smaller projects together in order to increase projects financial viability and get better terms from project financiers. The unit will be staffed with a dedicated team with respective competences and additional training will be provided on specific topics relevant to the program sectors and themes.

### 2.1.3. The program delivery unit

Rhodoshop will legally be part of ARM, with clearly defined objectives and principles of function stated in its Founding Act and with a dedicated team of five persons working full time on the Rhodoshop pilot program. The main provisions of the Rhodoshop Founding Act will cover neutrality of the structure which is important for local authorities and other stakeholders, its not-for-profit status being legally accommodated within ARM, its intermediary role as a facilitator and a procurement agency for subscribed municipalities. It sets the main rules of functioning and defines several aspects of the collaboration between the beneficiaries contracting authorities and the central procurement agency, as follows:

- The object and the role of the central procurement agency;
- The memberships conditions to the central procurement agency;
- The beneficiaries contracting authorities' commitments towards the central procurement agency;
- The beneficiaries contracting authorities' commitments in an EPC;
- Responsibilities of the central procurement agency;
- Distribution of roles regarding the contract notice;
- Distribution of roles regarding the execution of the contract;

The main roles and responsibilities of Rhodoshop as a procurement agency will be as follows:

Role	Facilitator role
Functioning/mechanism	It concludes public works, supplies or services contracts or framework agreements on behalf of the contracting authorities/entities or public institutions. Its role is in principle limited to launching the procedure and awarding the contract
Responsibilities	Once the contract is notified, each beneficiary is responsible for the completion of the procedure. There is a contractual relation between the tenderer and each beneficiary (each beneficiary who has acceded to the agreement).
Activities	<ul style="list-style-type: none"> <li>• acts as an Assistant to the Contracting Authority for the client</li> </ul>

	<ul style="list-style-type: none"> <li>• the contracts are concluded between the client and the ESCO's</li> <li>• acts as a facilitator: selection of the buildings, draft of the specifications, selection of the financiers (ESCO's and others) and negotiations with them</li> <li>• searches for financing for the cities and municipalities;</li> <li>• may offer management of EPC's services to the municipalities</li> </ul>
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The Rhodoshop PDU will have the following operating services:

- Marketing and communication: to inform the beneficiaries of the types of offerings available to them.
- Facilitation and client support:
  - Acts as a central procurement agency on behalf of the subscribed municipalities - the facilitator who concludes public works, supplies or services contracts or framework agreements on behalf of the contracting authorities/entities or public institutions;
  - Act as a knowledge center;
  - Gather competences and resources in one place (audits, works to be realized, financial viability calculations, define tendering specifications and assess received offers against pre-defined criteria).
  - Helps identify financing solutions applicable to different municipalities/clients – as Rhodope municipalities are of different size they are eligible for financing under different schemes. The PDU will investigate the opportunities and will identify suitable financing sources depending on client's profile.
  - Assist in finding and negotiates the terms and conditions with ESCOs and other financiers;
  - Monitor project results
- Project Bundling
  - Bundle projects across different clients / municipalities which allows to diversify the risks, get better financing mechanisms, makes synergies across the retrofit projects and attract professional companies
  - Increase the size of the projects and the investment size
  - Create more attractive investment opportunities for building contractors, ESCOs, maintenance companies, financial Sector

The staff is composed of the following people:

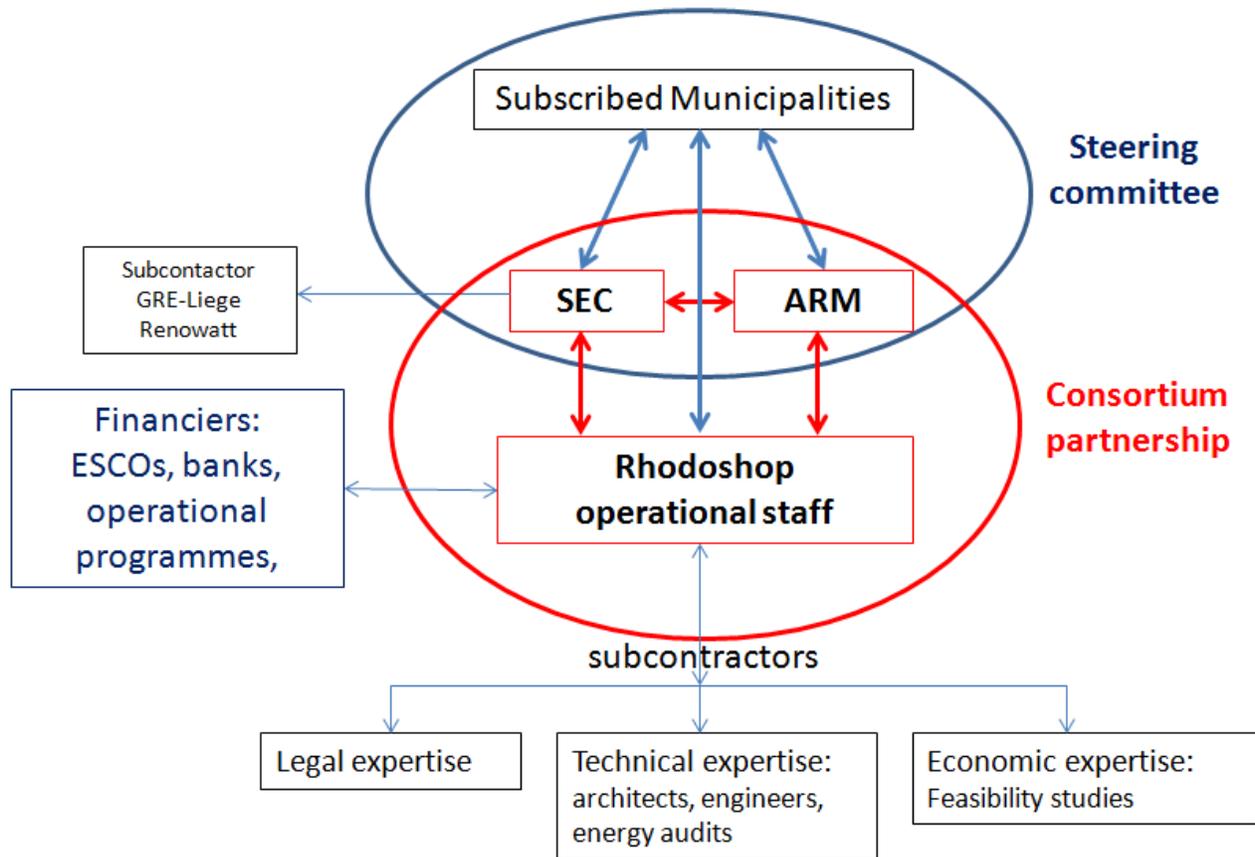
- Rhodoshop Manager
- Rhodoshop technical expert
- Rhodoshop economic/financial expert

<b>Legal structure</b>	Integrated in ARM
<b>Shareholder description</b>	N/A
<b>Equity</b>	N/A
<b>Shareholders</b>	ARM

<b>Program dedicated staff</b>	Low - < 5 FTE
<b>Program operational costs</b>	Moderate

## 2.1.4. Organization and partnerships

The organizational scheme is as follows:



Partners include the National Association of Municipalities in Republic of Bulgaria (NAMRB) and Climate Alliance.

## 2.1.5. Beneficiaries

<b>Beneficiaries</b>	Municipalities in the Rhodope region
<b>Type of projects</b>	Energy Efficiency (building retrofits) Street lighting projects
<b>Operational support</b>	Project facilitation through the Project Delivery Unit
<b>Financial support</b>	Project facilitation costs free of charge for 3 years

## 2.1.6. Funding mechanism

### PDU Funding

The PDU and initial program coordination and communication is funded through a Horizon 2020 Project Development Assistance (PDA) grant for a total amount of 470 k€.

Staff requirements	# FTP	Cost (EUR)
Management & project management	1	85.000 €
Technical	1	68.000 €
Administrative	1	42.500 €
Legal	0	0 €
Financial	0	0 €
<b>TOTAL</b>	<b>3</b>	<b>195.500 €</b>
External experts/subcontracts		Cost (EUR)
Training		31.250 €
Management & project management		150.000 €
Technical		25.000 €
Administrative		0 €
Legal		16.000 €
Financial		35.000 €
Other costs		17.800 €
<b>TOTAL</b>		<b>275.050 €</b>
Funding		(EUR)
Funding requirements		470.550 €
Own funding (PA/PDU)		0 €
European Grants		470.550 €
Others		0 €

### Project Funding

One of the main responsibilities of Rhodoshop structure is to assemble an investment scheme for the developed project pipelines. It will play a facilitator role in securing funding by searching for suitable financiers matching the specific project requirements, contacts and negotiations with them on behalf of subscribed local authorities and securing the best possible terms for agreement with the funding body selected.

The following options have been considered for the elaboration of investment projects financial plan:

- Third party financing (TPFs) and ESCOs
  - For street lighting: Ulichno osvetlenie EAD (Street Lighting Ltd.) – private shareholder company performing an ESCO contract for street lighting refurbishment, maintenance and operation with Sapareva Banya Municipality since October 2015.
  - For public buildings: ENEMONA Ltd. (for measures to improve building shell), Erato Company (for biomass heated boilers in public buildings), Dalkia Veolia Energy Varna (only for building energy management contracts, not investing in retrofits),

- Bulgarian Energy Efficiency Fund (BGEEF)

Bulgarian Energy Efficiency Fund combines the functions of financing/guaranteeing institution and a consultancy center. The fund offers soft loans, partial credit guarantees (PCGs) and ESCO portfolio guarantees opportunities for municipalities and can be used in combination with ESCO funding and bank loans. Eligible for financing are (among others) public buildings and street lighting refurbishments.

- Loans

BGEEF provides loans to municipalities with maximal tenor of 7 years, interest rates within the range of 4,5-8 % and minimal equity contribution of 10 to 25 % depending on co-financing source. The minimum equity contribution from the Project Developer for the proposed project shall be, as follows:

- At least 10% for co-financing mode "BGEEF - commercial bank"
- At least 25% for EERSF (BGEEF) stand-alone financing.

There are no additional credit conditions (taxes) and the repayment schedule is structured according to the needs of the Project Developer. The conditions are the same for BEEF direct financing and for co-financing with a commercial bank.

- Partial Credit Guarantees (PCGs)

PCGs against an annual fee of 0,5-2 %, while individual project guarantee commitments shall not exceed 400 000 Euro with a maturity of maximum 7 years.

- ESCO portfolio guarantees.

The fund can be used in combination with ESCO involvement as it provides ESCO portfolio guarantees in this scheme ESCOs would bid for a project and then go to a bank to secure finance for it, or have a line of financing ready and fill it in with projects. The shortcoming of this approach is that typical ESCOs rely heavily on raising debt to fund their performance contracts. This requires that the cash flow of their business is very accurately timed and budgeted. Delayed payments from clients, or defaulting clients may severely disrupt the servicing of the debts of the ESCO itself. With its ESCO portfolio guarantee, BGEEF undertakes some of the risk of the ESCO and guarantees that it will cover such disruptions in the flow of receivables of the ESCO. BEEF has had several project cooperation under this scheme with the Bulgarian ESCO ENEMONA.

- Public subsidies and revolving funds

Energy retrofitting is currently financed mainly through national operational programs that comprise of EU Funds plus national co-funding. The general policy in the next program period 2014-2020, though, is to shift the balance towards more schemes of revolving funds (i.e. loans) and less direct subsidies (stated on page 12 of the new program Regions in Growth) which reflects the general EU policy is to redirect the efforts of local authorities towards securing commercial funding for their sustainable energy actions

<b>Program delivery unit funding</b>	Rhodoshop got funding from H2020 PDA (470 k€)
<b>Projects Funding</b>	Projects are being funded through third party financing, loans and grants
<b>Funding Vehicle</b>	Financial Institutions ESCOs Energy Efficiency funds
<b>Fund size</b>	Not applicable
<b>Fund type</b>	Not applicable
<b>Fund sources</b>	Unknown
<b>Financial Instruments</b>	Own funds Loans Grants

## 2.1.7. Achievements (Targets)

The initial program targets 11,5 Million € of investment in 42 buildings, for a total surface of 85.429 m<sup>2</sup> and 1,7 M€ in street lighting networks. It aims to achieve 8.800 MWh/year of energy saving and 544 MWh/year of renewable energy production.

In addition, the program foresees 1,7 Million € of investment in street lighting systems, aiming at 1.356 MWh/year energy savings and 14,8 tons of CO<sub>2</sub> savings. Average payback is 14,8 years.

### Achievements within CITYinvest project

The following table detailed the achievements at the end of the CITYinvest project (31/01/2018).

Rhodope Region (BG)	Assessment	Preparation	Tendering	Awarded
# of beneficiaries served	6	0	0	0
# of buildings served	79	0	0	0
Cumulative Investment (euros)	13.173.000 €	0 €	0 €	0 €
Energy Consumption (kWh/annum)	18.703.883	0	0	0
Energy Savings (kWh/annum)	8.766.000	0	0	0
Renewable Energy (kWh/annum)	554.000	0	0	0
Energy Savings (%)	47%	n/a	n/a	n/a

## 2.1.8. Factsheet

### General Info

Country	Bulgaria
Model Name	Rhodoshop
Date of creation	Ongoing

### Model Description

Ownership	Public
Program authority	Association of Rhodope Municipalities (ARM)
Program delivery unit	Rhodoshop

Operating services	Marketer Aggregator Facilitator Financial advisor Assessor
Implementation model	Energy Performance Contracting (EPC) Separate Based Contracting (SBC)
Types of projects financed	Energy Efficiency (Buildings retrofit) Renewable Energy projects Street lighting projects
Beneficiaries	Municipalities in the Rhodope region
Geographical coverage	Regional

### Financial Model Description

Project funding	Public/Private
Project funding vehicle	Property owners Financial institutions Energy Efficiency funds ESCOs
Financial instruments	Loans Grants Own funds EPC Financing
Repayment model	Guaranteed savings agreement (for EPC)

### Project risk Profile

Performance risk	ESCOs (for EPC)
Recourse	n/a
Financial risk	Property owners Financial institutions

### Model Requirements

Staff Requirements	Low < 5 FTE
Equity Requirements	n/a
Funding Requirements	Low Less than 1M €

### Model Key indicators

Investment volume targeted	13,2 M€
Size of project (or project portfolio)	0,06 M€ to 6,6 M€
Level of average energy savings	25% - 85%

### Development maturity

Development/implementation stage	Start-up
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Operational development maturity	Start-up
Financial development maturity	Start-up

### Model Qualification

Level of establishment	Well established
Growth potential	Large
Scalability of the model	High
Replicability of the model	High
Impact on public balance sheet	High

## 2.2. Liège/Hainaut-Wallonia – Belgium (Renowatt+)

OWNERSHIP	PUBLIC
<b>Program authority</b>	Walloon Region
<b>Program Delivery unit</b>	Renowatt+
<b>Implementation Model</b>	Energy Performance Contracting (EPC)
<b>Operating Services</b>	Marketer Aggregator Integrator Financial advisor Assessor
<b>Projects Financed</b>	Energy Efficiency (building retrofits) Renewable energy
<b>Ambition/targets</b>	Market based
<b>Beneficiaries</b>	Public sector (municipalities and public entities)
<b>Funding Vehicle</b>	Financial institutions Property owners
<b>Financial Instruments</b>	Equity/Own funds Loans Grants

### 2.2.1. Summary

The Renowatt+ program is a program for energy efficiency and renewable energy in public buildings, building on the original Renowatt program. The program was originally managed by the GRE Liège (Groupement pour le Redéploiement Economique – Grouping for the Economic Deployment – of the Province of Liège in Belgium (Walloon Region).

The GRE Liège was created in 2004 following the announcement of the closure of the Arcelor Mittal steel factories and focuses on creating the conditions for sustainable job creation in the Province of Liège (84 municipalities and 1.1 million inhabitants).

The original Renowatt program was launched in 2014 and concerned a pilot project, financially supported by the European Energy Efficiency Fund (EEEF), with the aim of creating a One-Stop-Shop

facility for EPC projects targeting municipalities and hospitals in the Liège Province area. Under this initial program, 5 EPC were launched covering 59 million euros in 134 buildings for an overall savings objective of 34%.

The Renowatt+ program involves the creation of a new cooperative company (SCRL – Société Coopérative à Responsabilité Limitée) of the same name and is supposed to be supported by an ELENA grant of 4 million euros (currently under negotiation). Renowatt+ is defined to act as a public facilitator of EPC projects to be concluded between its customers (municipalities) and private ESCOs. Unlike Renowatt, which covered only the Liège Province area, Renowatt+ is offering its services to other public entities in Wallonia, outside of the Liège Province. In particular, in addition to GRE Liège, 3 other intermunicipal companies in the Hainaut Province area, IDEA, IDETA and IGRETEC, covering 68 municipalities, will participate in Renowatt+.

In addition to assisting municipalities in selecting the buildings and launching public tenders, Renowatt+ will also assist them in securing financing of the investments.

### 2.2.2. How does it work?

Renowatt+ will assist public authorities in Wallonia to launch energy renovation programs, following 3 main axes:

- Launch Energy Performance Contracts (EPC), between the public authority and private ESCOs. The EPC will aim at guaranteeing energy savings in the buildings and will include renovation works, installation and possibly energy supply.
- Pooling of buildings according to technical and geographical characteristics, possibly across different public authorities. The purpose is to create pools that are more bankable, create economies of scale, reduce the number of contracts and transaction costs and diversify the risks.
- Act as Central Purchasing Unit, managing all aspects of the public tendering procedure.

Practically, Renowatt+ will:

- Coordinate the activities
- Manage the ELENA grant
- Negotiate with and lobby towards the Walloon Region
- Define the strategic orientations
- Develop auditing tools and technical inventory tools, as well as public tendering tools and documents
- Put in place a data management platform and collect and share data from the municipalities
- Write technical tendering documents
- Follow the actual energy performance
- Coach local partners
- Develop financial tools and execute financial audits
- Perform communication activities

Local activities, in particular contacts with the public entities, are managed by the local entities, i.e. the intermunicipal organizations and GRE Liège.

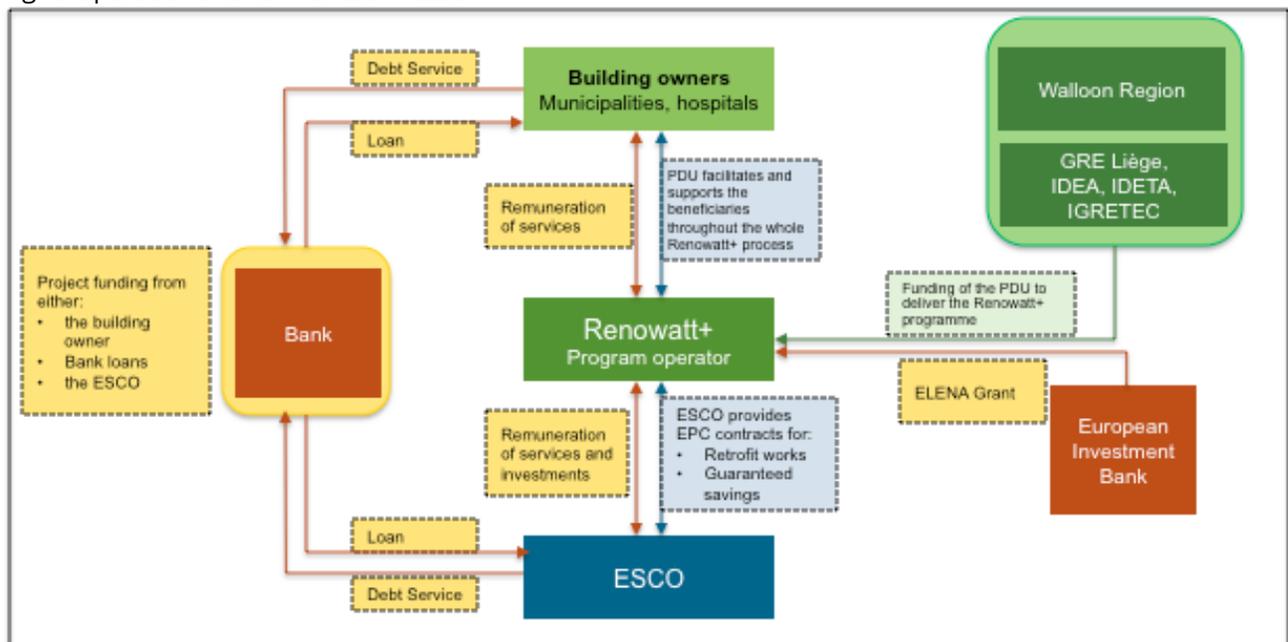
The process that Renowatt+ manages involves 8 steps:

1. Adhesion to the central purchasing unit
2. Selection of buildings and creation of tendering documents
3. Publication of the selection guideline
4. Selection of the candidates (ESCOs)
5. Sharing of the tender documents
6. Negotiations and contract award
7. Signature of the contract
8. Follow-up of the EPC

The Energy Performance Actions that Renowatt+ will put in place are:

- Building envelop insulation (roofs, walls, floors, etc.)
- Replacement of single glazing windows into double glazing windows
- Improvement of air tightness
- Relighting or relamping
- Improvement of ventilation, sanitary warm water and heating through boiler, ventilation unit, distribution system and emission system replacements
- Installation of energy management systems, BMS, thermostatic valves, etc.
- Installation of PV solar panels
- Installation of CHP units
- User behavioral campaigns

Fig 2. Operational and financial model



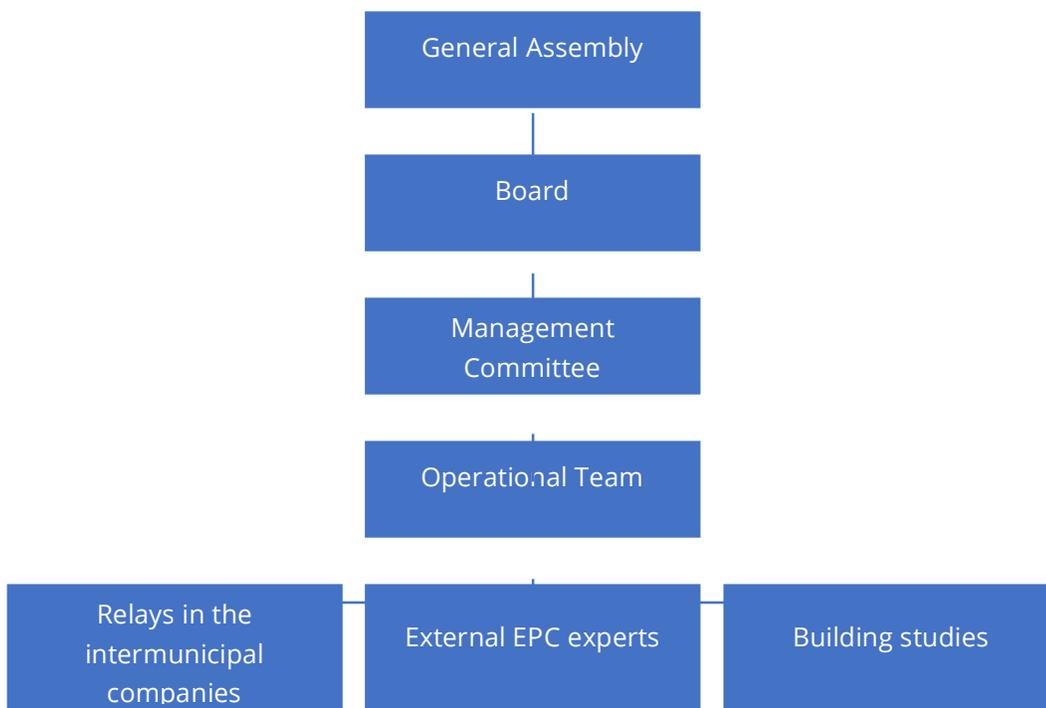
### 2.2.3. The program delivery unit

Renowatt+ is the program delivery vehicle of the energy retrofitting program Renowatt+ in the Provinces of Liège and Hainaut. It acts as the permanent energy efficiency management office of the program under supervision of its shareholders GRE Liège, IDEA, IDETA, IGRETEC and the Walloon Region.

The role of the PDU is to manage the Renowatt+ framework, to support Renowatt+ users throughout the entire process (from management buy-in to service delivery and performance monitoring), to drive and facilitate the uptake by Walloon based public sector entities and to develop best practice approaches, templates and standards. It acts as projects aggregator, facilitator, marketer and financial advisor.

The Renowatt+ PDU will have 10 FTE staff and employ 16 external consultants.

The organization structure is as follows:



<b>Legal structure</b>	Cooperative limited liability company
<b>Shareholder description</b>	N/A
<b>Equity</b>	Unknown
<b>Shareholders</b>	GRE Liège IDEA, IDETA, IGRETEC
<b>Program dedicated staff</b>	10 FTE
<b>Program operational costs</b>	5.098.404 €

## 2.2.4. Organization and partnerships

**Unknown.**

## 2.2.5. Beneficiaries

<b>Beneficiaries</b>	Municipalities, hospitals and elderly care institutions in the Liège and Hainaut Provinces
<b>Type of projects</b>	Energy Efficiency (building retrofits)
<b>Operational support</b>	Project facilitation/integration through the Project Delivery Unit
<b>Financial support</b>	Project facilitation/integration costs free of charge for 3 years

## 2.2.6. Funding mechanism

### PDU Funding

The PDU and initial program coordination and communication (5.1 M€) is expected to be funded through an Elena Project Development Assistance (PDA) grant for a total amount of 4 M€ and additional sources (1,1 M€).

<b>Staff requirements</b>	<b># FTP</b>	<b>Cost (EUR)</b>
Management & project management	1	357.344 €
Technical	6	1.688.400 €
Administrative	1	289.440 €
Legal	1	289.440 €
Financial	1	257.280 €
<b>TOTAL</b>	<b>10</b>	<b>2.881.904 €</b>
<b>External experts/subcontracts</b>		<b>Cost (EUR)</b>
Training		0 €
Management & project management		102.000 €
Technical		1.922.500 €
Administrative		0 €
Legal		158.000 €
Financial		34.000 €
Other costs		0 €
<b>TOTAL</b>		<b>2.216.500 €</b>
<b>Funding</b>		<b>(EUR)</b>
Funding requirements		5.098.404 €
Own funding (PA/PDU)		938.404 €
European Grants*		4.000.000 €
Others		160.000 €

The funding of the PDU still remains an issue for Renowatt+. Despite the strength of the Renowatt+ shareholders, a structural financing has not been possible and GRE Liège is still negotiating with the EIB Elena Facility and the Regional Government (Wallonia) the funding of the Renowatt+ program.

## Project Funding

The 105 million € necessary to fund the investments of the Renowatt+ program come from 4 sources:

- Own funds from the municipality. This option is rarely going to be used.
- Zero interest loan. The Walloon Region is currently putting in place a fund to finance the energetic renovation of public buildings at a 0% interest rate.
- Financing by a Smart Cities loan by the public bank Belfius as part of a new credit loan at the EIB, managed by Belfius as part of the Smart Cities & Sustainable Development Fund
- Traditional bank loans from financial institutions.

Beneficiaries are eligible for 3 types of regional grants for certain measures.

- UREBA exceptional, to be launched in 2017 to subsidize 30% of investments related to heating and SWW systems, based on renewable energy.
- UREBA classic which will be extended for the period 2017-2020 to subsidize energy saving measures up to 30%. However, the amount is limited and cannot be combined with zero interest loans or UREBA exceptional.
- Infrasport, covering 30% of improving sports infrastructure, including energy saving measures. This could apply to swimming pools and sports centers.

At this stage, it is not sure that EPC projects will be eligible. In addition, the annual amounts being limited they will only cover a part of the investments.

<b>Program delivery unit funding</b>	Renowatt+ is expected to get funding from ELENA (4 M€) and other sources (1,1 M€)
<b>Projects Funding</b>	Projects are being funded through loans.
<b>Funding Vehicle</b>	Financial Institutions
<b>Fund size</b>	Not applicable
<b>Fund type</b>	Not applicable
<b>Fund sources</b>	Unknown
<b>Financial Instruments</b>	Own funds Loans Grants

## 2.2.7. Achievements (Targets)

### Municipalities

Renowatt+ aims to renovate 500 buildings out of a total of 2000 buildings for a total surface of 650.000 m<sup>2</sup>. The types of buildings are:

<b>Types of buildings</b>	<b># of buildings</b>
Swimming pools	12
Sports centers	35
Schools	340
Other buildings	113
<b>Total</b>	<b>500</b>

75% of the consumption concerned is heat related, 14 % is related to lighting. 790 boilers should be replaced for a total (new) capacity of 109.000 kW. Renowatt+ aims to install 30.400 m2 of PV panels for an installed power of 3.800 kWc. In addition to the EPC projects, Renowatt+ will accompany 2 municipalities with the construction of 2 new NZEB schools. An additional 1.900 kWc of PV panels will also be installed in buildings that are not covered by the EPC projects.

The estimated amounts of investments per type of measure are:

Type of measure	Amount in thousands of €	Percentage
HVAC	31.494.000	33%
Electricity	1.073.000	1%
Building envelope	49.098.000	52%
Renewable	13.377.000	14%
<b>TOTAL</b>	<b>95.042.000</b>	<b>100%</b>

The purpose is to save 65,975 GWh/year or 19.310 tons CO2/year (35%) and to reach 3,154 GWh/year of renewable energy. At date, the program for municipalities is not yet implemented as Renowatt+ is still in negotiation with the EIB Elena Facility and the Regional Government (Wallonia) the full funding of the PDU.

## Hospitals

In addition to the Municipalities, Renowatt+ offers also its services to hospitals and elderly care institutions in the provinces of Liège and Hainaut. Three projects have been engaged at date (CHRH, CHRSM, ISPPC), for a total of 13 buildings, 342.000 m2, 9.312.219 € of investment and 19.285.944 kWh of energy savings. One of the project (CHRH) has been fully implemented during the CITYinvest project, with a final investment of 1.396.686 € and 4.054.559 kWh of energy savings (28%), while the two other ones are at the stage of preparation (ISPPC) and tendering (CHRSM).

## Achievements within CITYinvest project

The following table detailed the achievements at the end of the CITYinvest project (31/01/2018).

Liège Province (BE)	Assessment	Preparation	Tendering	Awarded
# of beneficiaries served	33	2	2	1
# of buildings served	513	2	2	1
Cumulative Investment (euros)	104.354.129 €	2.239.129 €	2.239.129 €	1.396.686 €
Energy Consumption (kWh/annum)	395.644.176	66.291.571	66.291.571	14.548.855
Energy Savings (kWh/annum)	85.260.944	7.780.944	7.780.944	4.054.559
Renewable Energy (kWh/annum)	3.434.568	155.568	155.568	0
Energy Savings (%)	22%	12%	12%	28%

## 2.2.8. Factsheet

### General Info

Country	Belgium
Model Name	Renowatt+
Date of creation	Ongoing

### Model Description

Ownership	Public
Program authority	GRE Liège, IDEA, IDETA, IGRETEC
Program delivery unit	Renowatt+ scrl (PDU)
Operating services	Marketer Integrator Financial Advisor Assessor
Implementation model	Energy Performance Contracting (EPC)
Types of projects financed	Energy Efficiency (Buildings retrofit)
Beneficiaries	Municipalities, hospitals and elderly care institutions in the Liège and Hainaut Provinces
Geographical coverage	Regional 2,3 million inhabitants

### Financial Model Description

Project funding	Public
Project funding vehicle	Property owners Financial institutions
Financial instruments	Loans Grants Own funds
Repayment model	Guaranteed savings agreement

### Project risk Profile

Performance risk	ESCOs
Recourse	n/a
Financial risk	Property owners Financial institutions

### Model Requirements

Staff Requirements	Moderate to high 10 FTE
Equity Requirements	n/a
Funding Requirements	Moderate 5,1 M €

### Model Key indicators

Investment volume targeted	105 M€
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Size of project (or project portfolio)	0,1 M€ to +2,5 M€
Level of average energy savings	30% - 35%

#### Development maturity

Development/implementation stage	Start-up
Operational development maturity	Start-up
Financial development maturity	Start-up

#### Model Qualification

Level of establishment	Well established
Growth potential	Large
Scalability of the model	High
Replicability of the model	High
Impact on public balance sheet	High

## 2.3. Region of Murcia – Spain

OWNERSHIP	PUBLIC
<b>Program authority</b>	Government of Region of Murcia
<b>Program Delivery unit</b>	Collaboration structure composed of DGEAIM (Directorate General for Energy, Industrial and Mining Activities) and DGP (Directorate General of Heritage)
<b>Implementation Model</b>	Energy Performance Contracting (EPC) Separate Based Contracting
<b>Operating Services</b>	Assessor Aggregator Integrator
<b>Projects Financed</b>	Energy Efficiency (building retrofits) Renewable Energy Resources
<b>Ambition/targets</b>	Savings 17 MWh/year (23% of the total energy consumed by the 392 buildings of the Plan)
<b>Beneficiaries</b>	All public regional administrations of the Region of Murcia
<b>Funding Vehicle</b>	Own Funding ESCOs
<b>Financial Instruments</b>	EPC Financing Own funds

### 2.3.1. Summary

The retrofitting of the Region of Murcia's regional administration buildings is one of the defined actions in the Region of Murcia's Energy Plan 2016-2020. With this energy plan, which has gone

through a large participation process with many regional stakeholders including the citizens, the Region of Murcia engages in its transition towards a new energy model.

The regional Energy Plan 2016-2020 has three strategic objectives: to guarantee a qualitative and secure energy supply, to boost energy savings and energy efficiency in all areas and to foster the use of sustainable energy sources while ensuring competitiveness.

The political commitment to the retrofitting of the regional administration buildings crystallized when the Regional Parliament of Murcia (*Asamblea General de Murcia*) urged, in October 2015, the Regional Government Council, the Executive body, to:

- Proceed to the carrying out of an energy audit of all buildings and installations owned by the Region;
- Elaborate a plan of efficient energy use of these buildings and installations for the period 2016-2020 which needs to include concrete objectives, an action calendar and related financial plan (business plan).

To that end the *Dirección General de Energía y de Actividad Industrial y Minera* (DGEAIM) -the Directorate General for Energy, Industrial and Mining Activity- was mandated to elaborate the Energy Efficiency Plan for the regional administration buildings.

The Energy Efficiency plan was approved by the Government Council of the Region of Murcia in March 2017 and is intended to be implemented taking into consideration the following specific objectives:

- To comply with the European Directives
- Decrease of the energy consumption of 23%
- Increase awareness at societal level
- Serve as an example
- Foster nearly zero energy buildings

In this context, the Energy Efficiency plan envisages the energy retrofit of the almost 400 buildings owned by the regional administration and addresses the full scale of energy efficiency measures related to the improvement of the energy performance of those buildings. The program targets administrative buildings, landmark buildings and the education sector (schools).

For the preparation of the plan a collaborative structure has been set-up between the three regional public entities **DGEAIM** (Directorate General for Energy, Industrial and Mining Activity), the **DGP** *Dirección General de Patrimonio* or Directorate General of (Regional Administration) Properties and **INFO Murcia** (*Instituto de fomento de la Región de Murcia* or the Development Agency of the Region of Murcia) each with their own role, function and responsibilities.

This collaborative structure, which is actually the Program Delivery Unit (PDU), manages the whole implementation program, from analysis and assessment of the savings potential of the buildings to public tendering, contract negotiation and works implementation and follow up. It acts thus as assessor, aggregator and integrator.

Roughly the objectives of energy saving and emission reduction for the 392 buildings contained in the Energy Efficiency Plan are the following:

- Savings final energy: 16.906.283 kWh / year
- Savings primary Energy Foreseen: 36.503.397 kWh / year
- Avoided CO2 emissions 11,913,181 kg CO2 / year

For the year 2018 the region is considering two financial schemes to fund the energy efficiency investments that could contribute to the success of the project if they materialize:

1. **Operational program: 2014E516RFOP019 - FEDER 2014-2020 OF THE REGION OF MURCIA**

- Investment priority: 4c. The promotion of energy efficiency, of management smart energy and the use of renewable energy in infrastructure public, including public buildings, and in housing;
- Specific objective: SO.4.3.1. Improve energy efficiency and reduction of CO2 emissions in the building and in the infrastructures and public services
- Action: Energy efficiency in public schools.

Within this line there is budgeted, for the year 2018, 2.400.000 € for the realization of energy assessments in public schools.

2. **ESCO financing:** in January 2018, DGEAIM/DGP was in the stage of finalizing the drafting of the technical specifications to tender, award and sign a first EPC contract for a pool of 23 administrative buildings for which energy audits and diagnoses have already been executed. This project comes along with an investment value 67.097.642 € (Maximum bidding budget calculated in January 2018) and savings of 4.270.329 kWh/year of final energy, 8.875.257 kWh/year of final energy, and 2.937.710 kgCO<sub>2</sub>/year.

## 2.3.2. How does it work?

The Region of Murcia's retrofitting program is based on the principle of aggregation of selected buildings owned by the regional administration and targets all types of energy efficiency measures including heating, air-conditioning and ventilation, relighting, thermal insulation, the design and the installation of IT-tools based smart energy monitoring systems aiming at improving the whole process of energy management of the owned buildings.

The execution of the program is basically being carried out by the PDU along two principal activities or workflows:

- One activity focuses on the carrying out of energy diagnosis, energy audits and the energy performance certification of the owned buildings as well as on the implementation of a monitoring system,
- And the other is oriented towards the conclusion of contracts with energy services companies for the energy management of selected buildings or with other contractors for the implementation of the energy conservation measures.

Both principal activities of the PDU rely on the information included in the General Building Inventory of the building stock of the regional administration that is being compiled and managed by DGEAIM with the effective help of INFO Murcia and DGP. This inventory of the building stock is a continuous

work-in-progress effort and as of September 2017 it included 392 buildings for which typology, relevant general information and indicators had been gathered.

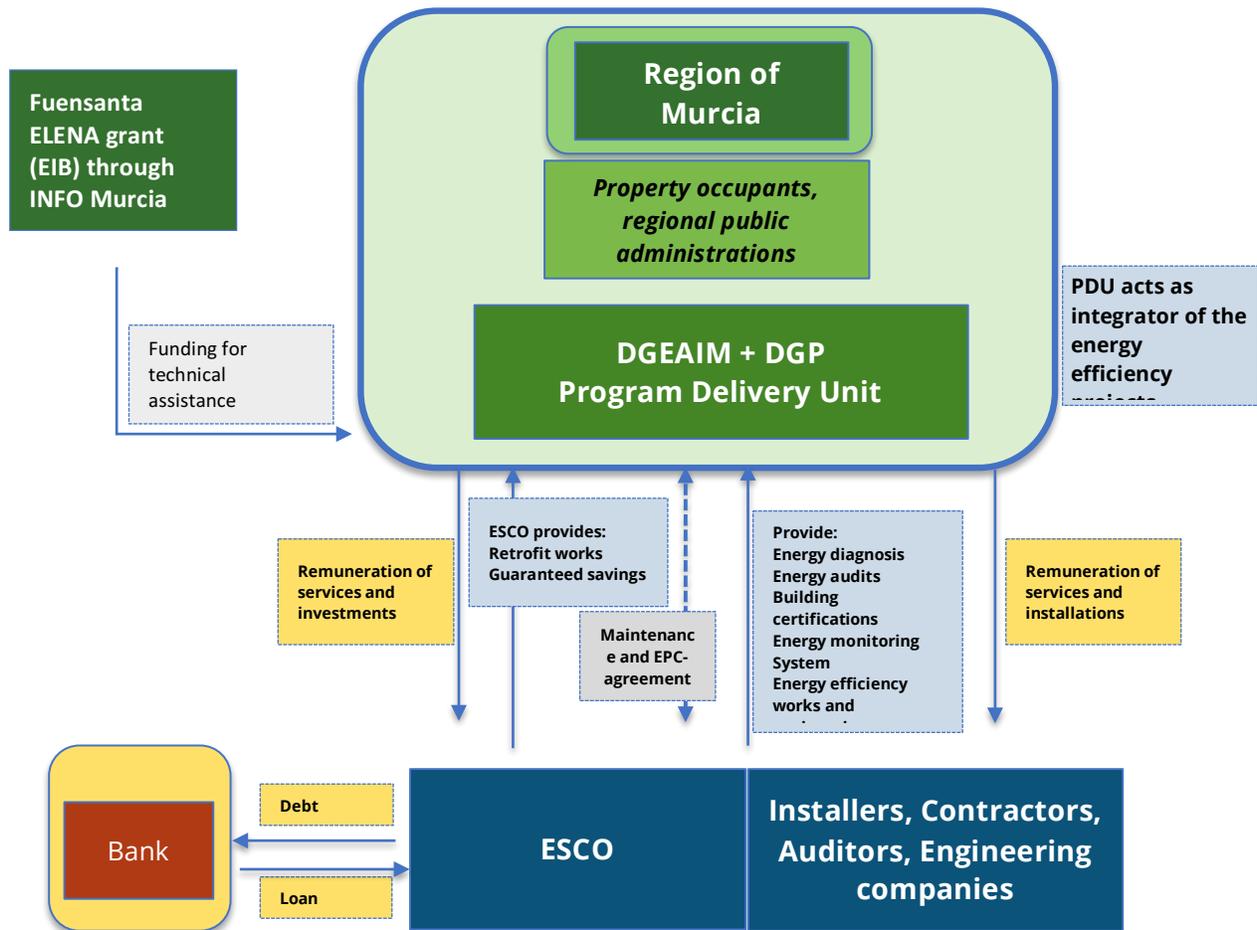
The purpose of the **first principal activity** is to gather all relevant information on the owned buildings in order to be able to assess the energy performance of the buildings and the factors influencing the energy consumption and to identify and value the possible energy efficiency measures to be implemented in the light of their technical and economic viability.

- DGEAIM is accountable for the energy diagnosis, for the technical assessment of the building, the electrical equipment and the thermal installations, for the energy performance certification, for the execution of the energy audits and for the review of current maintenance contracts and the technical and administrative information of the technical installations in the buildings.
- To this end DGEAIM initiates a public tender process for the execution of the energy audits, energy diagnosis and energy performance certifications (for the buildings that have no Energy Performance Certificate yet) and for the implementation of an energy monitoring and invoicing system. As purchasing body, it represents in fact the beneficiaries or the occupants of the buildings in the tendering process and consequently acts as an integrator.
- The selected auditors, contractors or service companies perform the energy audits and provide the energy performance certifications.
- Installation and commissioning of the Energy monitoring system is being done by the selected system provider.
- DGEAIM updates the building inventory system with all gathered relevant information.

The **second activity** encompasses the tendering process of preparation, licensing and implementation of the energy efficiency works basically based on Energy Performance Contracting (EPC).

- Based on the information obtained in the previous phase which is complemented by real current energy consumption and maintenance information, DGEAIM advises DGP on the buildings to be retrofitted. Buildings are being aggregated in order to obtain sufficient volume and economies of scale.
- DGEAIM drafts the agreement to be used to contract the ESCOs. During this task DGEAIM is supported by INFO. Standard public procurement rules apply in the designation of an ESCO and to this end the DGP, in its capacity of central purchasing body, initiates a tender process for the execution of the energy efficiency works.
- The selected ESCO installs the guaranteed energy efficiency measures, delivers the service and carries out measurement and verification during the agreed contract period.
- Although the Region of Murcia has chosen to implement the first pilot project of 23 buildings based on the EPC concept of financing, i.e. the investments are being financed by the ESCO it has not discarded the implementation of energy efficiency measures on a separate contractor based. This type of investments will then be financed with the Region's own funds or by classic third-party financing (financial institutions and similar).
- In this second activity, the PDU acts again as an integrator.

Fig 3. Operational and financial model



### 2.3.3. The program delivery unit

A collaboration structure between three administrative departments of the Region of Murcia acts as the program delivery vehicle of the Energy Efficiency plan.

It consists of the following regional administrative departments or public entities:

- DGEAIM, *Dirección General de Energía y de Actividad Industrial y Minera* or Directorate General for Energy, Industrial and Mining Activity,
- DGP, *Dirección General de Patrimonio* or Directorate General for Patrimony, and
- INFO Murcia, *Instituto de Fomento de la Región de Murcia* or Development Agency of the Region of Murcia (In the preparation stage of the Plan)

DGEAIM has the lead in the Program Delivery Unit as it has been designated to handle and facilitate the program execution with the support of DGP and INFO Murcia

This department provides engineers, administrative and other supporting staff.

It is accountable for the carrying out of energy diagnosis, energy audits and the building performance certifications. It provides to this end the technical specifications for the contracts related to the energy audits and the energy assessments and is the contracting authority for the execution of those audits, diagnosis and certifications by third party contractors.

It prepares and facilitates the projects pipeline. This encompasses economic and technical assessments to define the scope of works to be executed within the selected projects or buildings, the organization of the phases of execution (pool of works and/or buildings) and the timeframe of implementation.

DGEAIM also advises DGP in the EPC procurement process and provides the technical specifications required for the tendering of the energy efficiency works based on EPC...

DGP is in charge of the tender execution up to the contract awarding (through a Centralized Purchasing Office) and the monitoring, supervision and acceptance of the energy efficiency works. DGP acts as the Contracting Authority.

INFO provides technical advice to DGEAIM and DGP mainly in the field of technical requirements of EPC-contracts and support in the preparation of EPC contracts. It is also responsible for monitoring and reporting progress of implementation of Pilot Murcia within the CITYinvest project.

The PDU as a whole operates as an integrator of services, program promotor, assessor, aggregator, facilitator and as contracting authority for the energy retrofit of the regional administrative buildings.

The working of the PDU will normally be assured as all staff involved are public servants employed by the Region of Murcia. The technical assistance provided by INFO Murcia has been funded by the ELENA Fuensanta grant from the EIB.

The PDU strives at increasing its skills and knowledge in the field of energy efficiency and innovative energy efficiency financing through its participation in the Horizon 2020 project CITYinvest (INFO Murcia) and the Interreg Sudoce Program Rehabilitate project (DGEAIM).

<b>Legal structure</b>	None
<b>Shareholder description</b>	N/A
<b>Equity</b>	N/A
<b>Shareholders</b>	N/A
<b>Program dedicated staff</b>	4
<b>Program operational costs</b>	886.000 €

### 2.3.4. Organization and partnerships

**Comunidad Autónoma de la Región de Murcia (MUI):** The autonomous Region of Murcia is the program owner and political initiator of the Energy Efficiency Plan for the regional administration buildings.

**Dirección General de Energía y de Actividad Industrial y Minera (DGEAIM), Directorate General for Energy, Industrial and Mining Activity:** DGEAIM is part of the Regional Ministry of Economic Development, Tourism and Employment and is the regional public entity managing and coordinating all regional energy efficiency and renewable energy matters. Has the lead in the Program Delivery Unit as it has been designated to handle and facilitate the program execution with the support of DGP and INFO Murcia

**Instituto de Fomento de la Región de Murcia (INFO):** Is the Region of Murcia's Regional Development Agency. It promotes regional development and economic growth. It also provides technical support for energy investments in the public sector in the Region of Murcia and is coordinator of the Covenant of Mayors for the municipalities of the region. Is part of the Program Delivery Unit and provides technical support and technical expertise to the other PDU departments.

**Dirección General de Patrimonio e Informática (DGP), Directorate General of Regional Administration Properties:** Is part of the PDU as Central Purchasing Body and acts as the contracting party. It is responsible for the tendering process including contract awarding and acceptance of the energy efficiency works.

**ESCO:** Energy Services Company selected through public tendering. Performs the work planned under the program and guarantee agreed savings to the contracting authorities.

### 2.3.5. Beneficiaries

<b>Beneficiaries</b>	All public regional administrations of the Region of Murcia occupying buildings owned by the Region of Murcia
<b>Type of projects</b>	Energy Efficiency (building retrofits)
<b>Operational support</b>	Project integration through the Program Delivery Unit
<b>Financial support</b>	N/A

### 2.3.6. Funding mechanism

#### PDU Funding

The PDU and initial program coordination and communication is funded on the Region of Murcia's own budget for a total amount of 886 k€.

<b>Staff requirements</b>	<b># FTP</b>	<b>Cost (EUR)</b>
Management & project management	1	240.000 €
Technical	1	240.000 €
Administrative	1	144.000 €
Legal	1	12.000 €
Financial	0	0 €
<b>TOTAL</b>	<b>4</b>	<b>636.000 €</b>
<b>External experts/subcontracts</b>		<b>Cost (EUR)</b>
Training		0 €
Management & project management		0 €
Technical		250.000 €
Administrative		0 €
Legal		0 €
Financial		0 €
Other costs		0 €
<b>TOTAL</b>		<b>250.000 €</b>
<b>Funding</b>		<b>(EUR)</b>
Funding requirements		886.000 €

Own funding (PA/PDU)	886.000 €
European Grants*	0 €
Others	0 €

## Project Funding

The 71,8 million € necessary to fund the investments of the Murcia Region program come from 2 sources:

- Own funds from the Region of Murcia's own budget. This option is largely going to be used.
- ESCO financing, on a case-by-case basis.

<b>Program delivery unit funding</b>	Region of Murcia's own budget
<b>Projects Funding</b>	Projects are being funded by the ESCOs and based on own funding by the Region.
<b>Funding Vehicle</b>	ESCOs Property Owner (Regional Government)
<b>Fund size</b>	Not applicable
<b>Fund type</b>	Not applicable
<b>Fund sources</b>	Not applicable
<b>Financial Instruments</b>	EPC Financing Own funds (Annual General Budgets of the Autonomous Community of the Region of Murcia)

### 2.3.7. Achievements (targets)

Roughly the objectives of energy saving and emission reduction for the 392 buildings contained in the Energy Efficiency Plan are the following:

- Savings final energy: 16.906.283 kWh / year
- Savings primary Energy Foreseen: 36.503.397 kWh / year
- Avoided CO2 emissions 11,913,181 kg CO2 / year

In September 2017, a total of 392 buildings have been listed and planned for energy assessment or energy audits. The Energy Efficiency Plan for Buildings includes **two lines of work:**

**a) In Line of Work I:** audits, diagnostics and energy assessments; implementation of monitoring systems, the following actions have been carried out:

- Of the total of buildings and centers inventoried in the Ministry of Education, 30 certifications and energy evaluations have been completed so far (contract for an amount of 25,967.43 euros), with the contracting of the certification and energy evaluation works of 117 centers being planned for an amount of 217 201.52 euros. (announcement in the OJEU of August 4)

- The Region has 611 public educational centers: 147 depending of the Ministry of Education and 464 depending of City Councils. In the 2018 budget an amount of 1,400,000 euros has been foreseen to continue with the energy evaluations of all the educational centers of the Region (the university ones, at the moment, are not within scope)

- The contract for the supply and installation of electricity meters and a system for monitoring energy consumption (based on 3G technology) and billing management for 14 buildings of the CARM have been finalized (amount of the contract 11,470.80 euros).

**b) In Line of Work II:** energy management of buildings through contracting with energy service companies, the actions carried out are:

- Publication of contract notice in the OJEU (not known if it has been published or not).
- The submission phase of the allegations to the technical specifications document for contracting the Energy Services Supply and Maintenance with Total Guarantee of 23 buildings owned by the Autonomous Community (amount of 67,097,642.08 € including VAT) has been completed, remitted by the different ministries.
- Pending start of the contract processing phase.

### Achievements within CITYinvest project

The following table detailed the achievements at the end of the CITYinvest project (31/01/2018).

Murcia Region (ES)	Assessment	Preparation	Tendering	Awarded
# of beneficiaries served	10	2	2	0
# of buildings served	58	58	52	0
Cumulative Investment (euros)	70.753.663 €	70.753.663 €	70.614.028 €	0 €
Energy Consumption (kWh/annum)	23.552.938	23.552.938	22.945.828	0
Energy Savings (kWh/annum)	6.665.296	6.665.296	6.525.661	0
Renewable Energy (kWh/annum)	1.545.476	1.545.476	1.545.476	0
Energy Savings (%)	28%	28%	28%	n/a

## 2.3.8. Factsheet

### General Info

Country	Spain
Model Name	Energy Efficiency retrofit of the public buildings of the Region of Murcia
Date of creation	2015

### Model Description

Ownership	Public
Program authority	Region of Murcia
Program delivery unit	DGEAIM/DGP
Operating services	Assessor Aggregator Integrator
Implementation model	Energy Performance Contracting (EPC)

	Separate Base Contracting
Types of projects financed	Energy Efficiency (Buildings retrofit) Renewable Energy Sources
Beneficiaries	All public regional administrations of the Region of Murcia occupying buildings owned by the Region of Murcia
Geographical coverage	Regional 1,5 M inhabitants

### Financial Model Description

Project funding	Public
Project funding vehicle	Property owners ESCOs
Financial instruments	Equity/Own funds Loans Grants EPC Financing
Repayment model	Guaranteed savings agreement

### Project risk Profile

Performance risk	ESCOs
Recourse	Property Owners
Financial risk	ESCO Property Owners

### Model Requirements

Staff Requirements	Moderate
Equity Requirements	n/a
Funding Requirements	Low 886 k€

### Model Key indicators

Investment volume targeted	71,8 M€
Size of project (or project portfolio)	Unknown
Level of average energy savings	23%

### Development maturity

Development/implementation stage	Start-up
Operational development maturity	Growth
Financial development maturity	Start-up

### Model Qualification

Level of establishment	Well established
Growth potential	Large
Scalability of the model	Moderate
Replicability of the model	High

Impact on public balance sheet	Low
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