



# Action Plans of the Pilot Regions

Liège (Belgium), Murcia (Spain), Rhodope (Bulgaria)

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## Action plan for RenoWatt Liege Pilot Region

Last update: June 9, 2016

### Introduction GRE Liege

Gre Liege was created in 2004, following the announce of the Arcelor Mittal closure in Liege. Its mission is to create sustainable jobs in the province of Liege.

### Context of the province of Liege

The province of Liege is composed of 84 municipalities, with 1.1 million inhabitants.

About 4000 jobs could be created in the province of Liege in the energy efficiency building-retrofitting sector if Liege province wants to meet the 20/20/20 goals of the European Union.

The public authorities have a large role to play in energetic urban retrofitting. For most of the municipalities, dedicating specific resources to launch energetic urban retrofitting is not possible: they do not have the competencies and the human resources availability (note 80% of the municipalities have less than 20,000 inhabitants and most of them had to decrease the civil servant staff over the last 4 years, due to public spending restrictions). On top of that, they do not have the financial means to launch large investment in energetic retrofitting (although those projects are, at the end, profitable for the local authorities).

Aware of the stakes of the energetic urban retrofitting development and the challenges of the local authorities, the Groupement de Redeploiement Economique de Liege<sup>1</sup> (GRE-Liege) launched a reflexion on developing innovative financial vehicles for energetic urban retrofitting. It dedicated a specific resource for 18 months to develop a program of urban energetic retrofitting in the province of Liege.

### RenoWatt, a dedicated one-stop-shop to launch energy efficiency urban retrofitting

RenoWatt is structured as a one-stop-shop to support its clients to launch Energy Performance Contracts. It helps them in their audits, technical choices, financing solutions and tendering process. It has three main goals:

- Client support
  - o Play as a knowledge centre
  - o Gather competences and resources in one place (audits, works to be realized, tendering process...)
- Project Bundling

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<sup>1</sup> The GRE has a coordination and exchange role between public authorities and private actors across the Liege province. It draws for the region of Liege the strategic objectives to create the jobs of tomorrow within the province.

- Bundle projects across different clients
- Increase the size of the projects and the investment size
- Create more attractive investment opportunities
  - Building contractors, ESCOs, maintenance companies
  - Financial Sector
- Financing Opportunities
  - Identify how to finance the investments opportunities
  - Secure potential subsidies in Walloon region

The structure is in contact with final clients but also with various partners.

Final Clients of the structure are split into 4 categories: public authorities, Hospitals / Elderly care, private companies and private households. Each category requires a specific approach as their challenges are different.

RenoWatt's partners include:

- Financial actors (pension funds, invests, banks) : the objective of the structure is to launch ambitious and large retrofitting projects. Funds will be needed to finance those projects.
- Entrepreneurs: GRE Liege is an economic agency whose mission is to set up conditions to create sustainable jobs and foster economic development of the region. It is important to ensure that the local economy benefits from the future investments
- Auditors: the audits will not be carried out by GRE Liege, but by specialized auditors.



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#### Next actions

- September 12, 2016: Submission of the offers for the schools
- September 30, 2016: Submission of the offers for “other buildings”
- October 28, 2016: Submission of the offers for Sport equipment
  
- December 15, 2016: Award of the tendering EPCs for the schools
- January 15, 2017: Award of the tendering EPCs for Sport Equipments and “other buildings”

### Objective and structure of this document

The goal of this document is to present the action plan to achieve RenoWatt 2.0, being the extrapolation of the current RenoWatt pilot project in Liege reaching new target groups in an extended geographical scope. The new target groups are public authorities, hospitals / elderly care, private companies and private households. For each category, primary energy savings will be estimated.

To successfully launch RenoWatt 2.0, generic actions but also specific actions per target group will need to be undertaken.

Generic actions are transversal to all target groups. Based on the learnings of the pilot project, we identified 5 main actions that will be the cornerstones to build RenoWatt 2.0.

### Liège generic actions

#### Maintain and develop an independent one-stop-shop structure with a dedicated technical team

The first learning of our pilot project is the importance of having a dedicated operational team working in a one-stop-shop structure. Final clients don't have the expertise neither the time to launch pre-study to quantify potential savings and investments.

The one-stop-shop structure estimates the required investment for each building as well as the expected returns. Based on those figures, the client can take wiser prioritization decisions.

RenoWatt also bundles the buildings of various clients to take advantage of economies of scale and leads the tendering and negotiation process.

Those tasks involve specialized expertise in various domains that RenoWatt gathers in a multidisciplinary team.

#### Look for subsidies for efficient take off of projects

Subsidies such as the Technical Assistance of EEEF (European Energy Efficiency Fund) and Elena (European Local Energy Assistance) make it possible to provide grants for pre-studies to launch energy efficiency projects.

Those subsidies are necessary to show to the final clients the potential and added value of the project and energy savings. It allows them to launch energy retrofit without having to invest from the very beginning.

## Identify financing solutions for retrofitting investments

Finding efficient financing solutions is key in order to launch large energy efficiency retrofitting projects in public and private sectors.

Although money is available in the financial market to finance energy efficiency projects for public authorities, debt level is an important constraint to take into consideration in the Walloon Region to build the financial model.

Discussions are ongoing with the different ministerial cabinets (economy, public authorities and energy) to see how to build a long term financing structure to support this type of work.

Eurostat does not allow debt deconsolidation as long as economic property belongs to the public authorities. This was confirmed by the Eurostat note on EPC published on August 7, 2015, as well as a legal opinion drafted by EUBELIUS, an international lawyer, specialized in public finance, based in Brussels. According to EUBELIUS, there are three options for deconsolidation:

- The value of the building needs to be increased by at least 50% at the end of the works (meaning actually that the ESCO needs to double the value of the building). In the type of projects we are running, the energy retrofit investments do not fulfil this requirement.
- Transfer the full ownership of the public buildings to the private sector, without having any buying option at the end of the contract. The public authority would lose all the ownership of its building...what is not acceptable in Wallonia.
- Deconsolidating operational renting: this applies only for "removable assets" as a boiler and the conditions to be deconsolidating are the following one (a) the boiler must remain the ownership of the ESCO during the full contract length, (b) the contract length must be shorter than the lifespan of the equipment and (c) the contract cannot include a buying option of the equipment at the end of the contract. This solution is very difficult to apply as (i) the EPC covers much more than only HVAC. Insulation is not covered by the operational renting and (ii) the cities want to have the ownership of the equipment at the end of the contract.

As third party investment does not seem to be a suitable solution for debt deconsolidation, it was decided by the Walloon government that municipalities could invest in energy retrofitting contracting loans. At the time we update the action plan, a 0% loan provided by the government to municipalities to boost energy retrofitting is under consideration.

In September 2015, the Walloon Government decided to put the retrofitting investments outside investment limits.

- For the municipalities benefitting from the Regional Centre for Municipalities Support: traditional maximum investment limit set up by the government do not apply to energy retrofitting works
- Preparation of the "outside investment boundaries" files for the administration, on behalf of cities and municipalities

This lifted a major barrier for municipalities to invest in a substantial way in the pilot project and then, in energy savings works.

Private sector investment constraints and challenges differ for each of our clients' category. Attractive financing solutions would be an accelerator to ease the investment decisions. It remains a high priority on RenoWatt's agenda.

## Transform the structure into a central procurement service

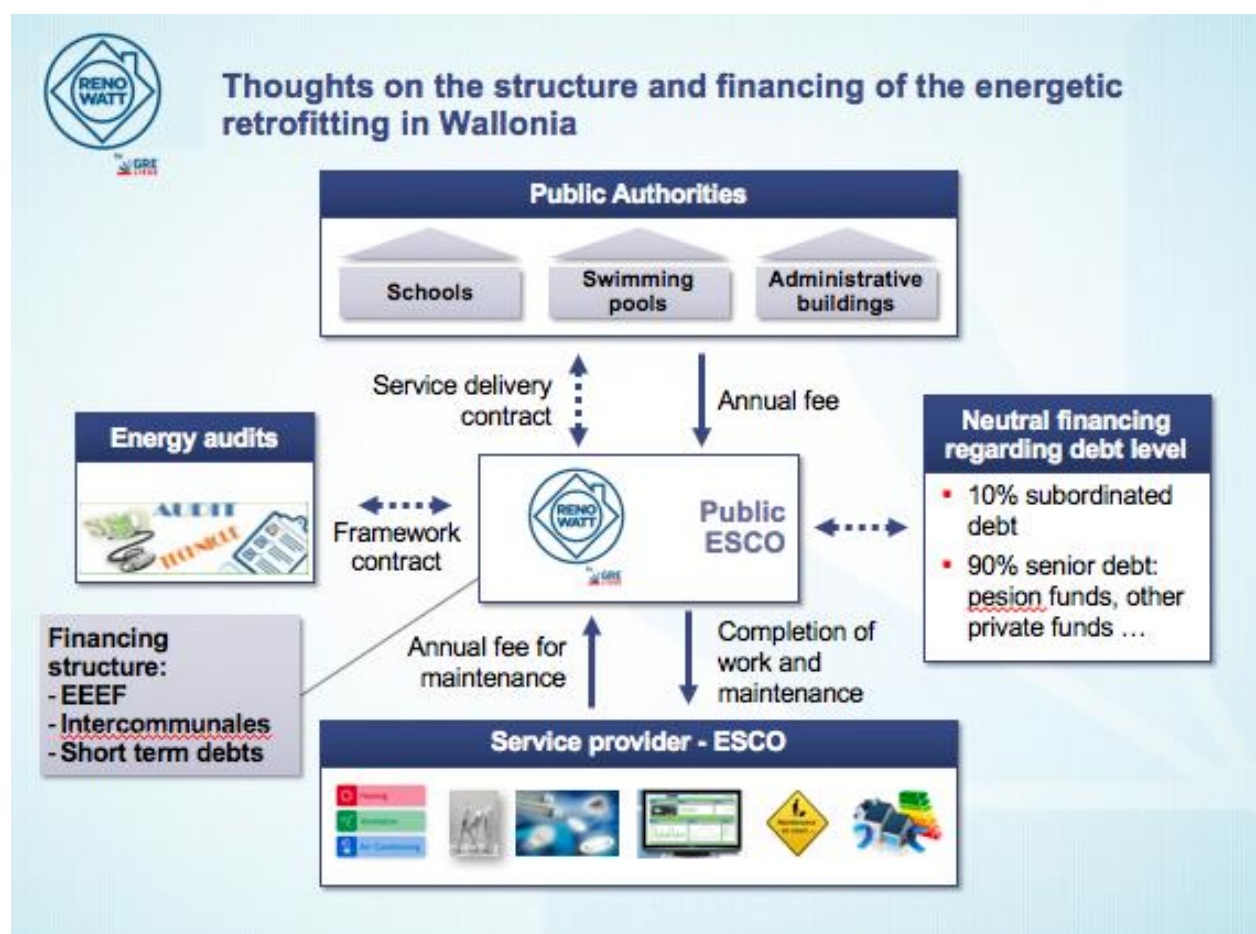
RenoWatt currently offers central contracting services: entering into and concluding contracts for the account of the public authorities (and leaving the responsibility of performance to the beneficiary public authorities).

As a central procurement service, RenoWatt would acquire services in its own name and then resell them to the beneficiary public authorities. The latter would pay an annual fee to RenoWatt consisting of two parts: the reimbursement of the investment ( $\pm 2/3$  of the amount) and the payment for equipment maintenance services ( $\pm 1/3$  of the annual fee). This structure would ensure a proper follow up of the contract, including:

- Ensuring smooth progress of the works
- Following the energetic KPIs
- Dealing with contractors
- Taking corrective actions when necessary
- ...

To that end, RenoWatt must be capitalized with equity (the funds could come from inter-municipal structures or the EEEF) and must have access to third-party investor type of financing.

The scheme below shows the first thoughts on that structure and its financing.



## Design a new business model for Renowatt 2.0

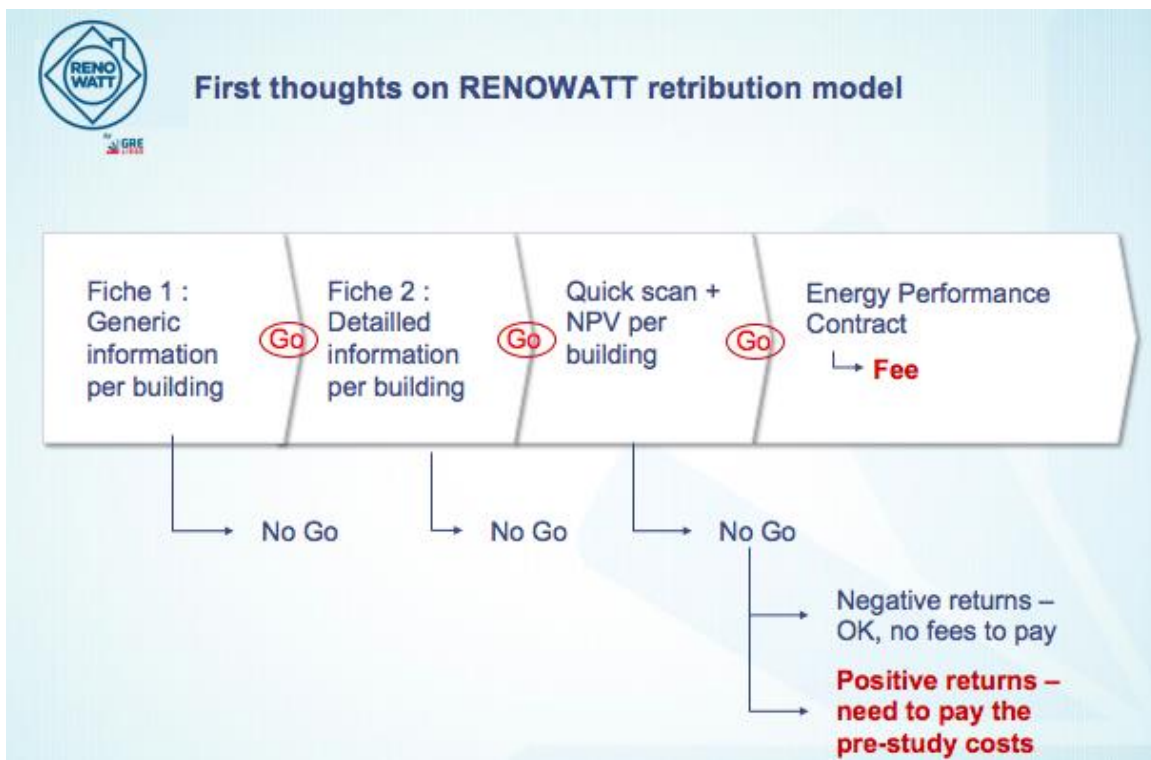
The services of RenoWatt 2.0 would be covered by European subsidies such as Elena but also by fees paid by the final clients.

For the selected buildings (the ones passing the 3 steps of the funnel illustrated below - for which an Energy Performance Contract are launched), the clients will have to pay a fee to cover RenoWatt's services being:

- The pre-study expenses not covered by subsidies
- The pre-study expenses for non selected buildings
- Follow-up costs to execute the contracts (in the case of a central procurement structure)

Different remuneration options are under consideration: either a fee in proportion of investment size or in proportion of energetic savings or a flat fee. The objective is to ensure the proper continuity of RenoWatt's services but also to keep its independence as a public and independent one-stop-shop.

Clients would also have to reimburse pre-study expenses if they choose not to select a building for which the estimated return on investment was positive.



## Actions per target group and estimated potential

Our 4 target groups are public authorities, hospitals / elderly care, private companies and private households. For each target group, we will present in the following sections the on-going actions, the planned future actions and the estimated potential energy savings.

## Public authorities

The goal is, within the CitYnvest project, to extend the pilot project of RenoWatt to public entities within Liege Province and outside Liege Province. GRE-Liège would be in charge of the full operationalization within Liège Province but would need to find relay partner for other Provinces.

### Planned actions to extend the services to other public authorities in Liège Province

RenoWatt plans to offer its services to other public authorities as of 2017, after the first pilot phase. The one-stop-shop will be open to the 84 municipalities of Liège Province as well as to other Provinces.

The first echos we gathered during the Salon des Mandataires (see section below) are very promising and we were already able to include an additional municipality in our current tenders : the municipality of Trois-Ponts.

### Planned actions to extend the services to other public authorities outside the Liège Province

RenoWatt extension beyond the Province of Liège will require partnerships with local entities to prepare files (data gathering among the public authorities, explanation of the project, etc.). So far, the best suitable partners would be the 'Provincial Development intercommunales'. RenoWatt would coach these entities and place at their disposal the tools developed (and improved, when appropriate) during experiments with RenoWatt 1.0 (e.g. specifications, methodology for identifying investments required, net present value tables to identify the profitability of investments, contracts with ESCOs, etc.).

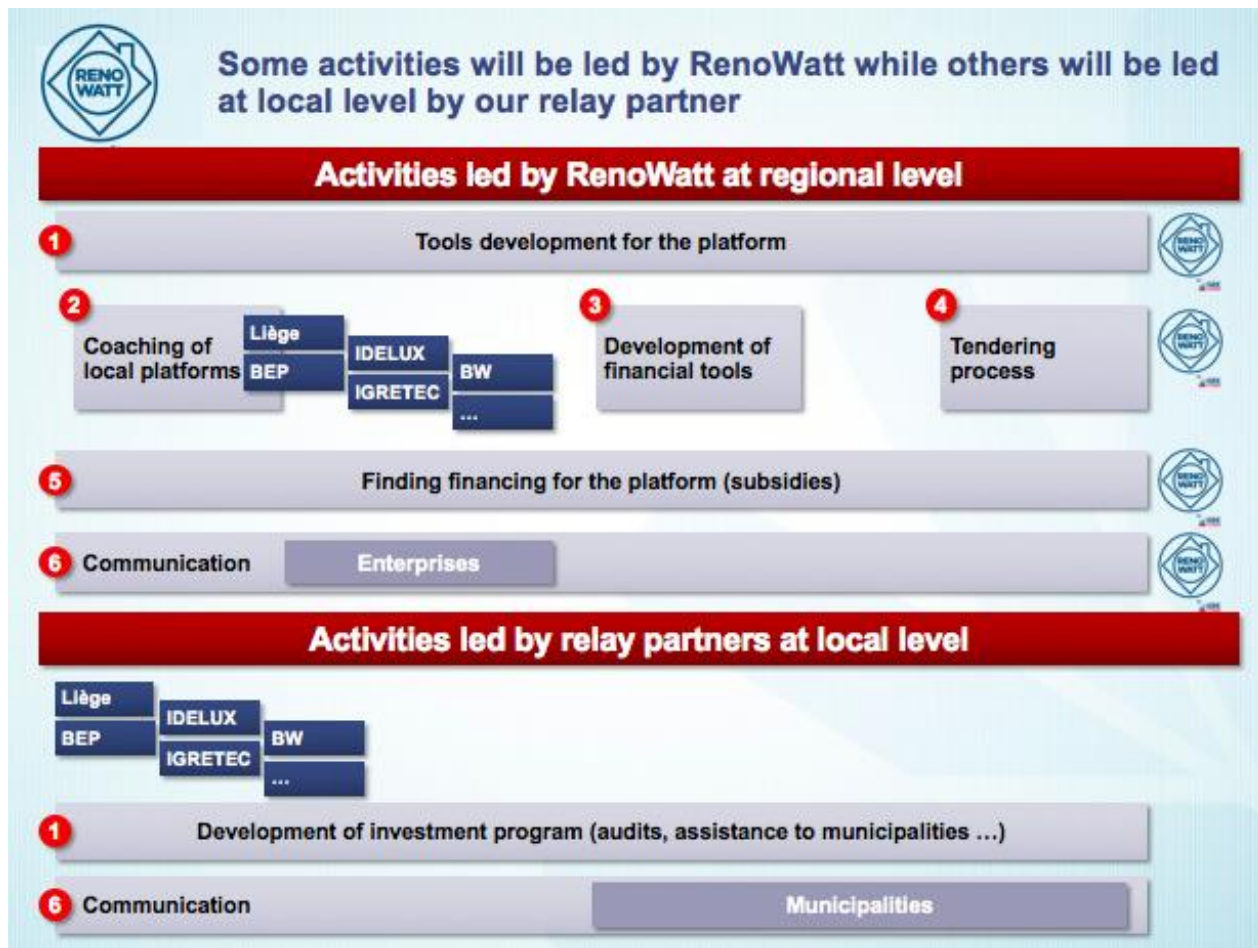
Some activities will be led by RenoWatt while others will be led at local level as illustrated below.

RenoWatt has already started to present the model and some of the intercommunales have showed clear marks of interests.

A cooperation model will be drafted by RenoWatt in July and August 2016 to be presented in face-to-face meetings in September 2016 with the general manager of those intercommunales in order get their commitment to join RenoWatt 2.0.



Some activities will be led by RenoWatt while others will be led at local level by our relay partner



#### Technical assistance to support RenoWatt 2.0 for public authorities

The goal is to get a new technical assistance from ELENA to support the launch of RenoWatt 2.0. This will be realized in the course of CITYnvest project. A large communication campaign as well as dissemination workshops will be organized in order to communicate on RenoWatt. This will be organized with the support of the CITYnvest project.

#### Focus on communication and events

The « Salon des Mandataires » is an annual event held in February in Marche-en-Famenne (province of Luxembourg) dedicated to all the public authorities levels in the Walloon region. Most of the members of Walloon parliament, government and administration are attending this event as well as the burgomasters and local authorities representatives. This event constitutes a unique opportunity to reach efficiently various institutions from the public and private sector (finances, construction, ...) and offers a major show-case for the CITYnvest/RenoWatt project. It gathers yearly more than 13.000, making of this event a major place of exchange of ideas and experiences in the public field.

A workshop has been organized for CITYnvest / GRE-Liege during "The Salon des Mandataires" to present RenoWatt and raise awareness during the 2016 edition. A second workshop is planned during the 2017 edition to present RenoWatt 2.0 and propose RenoWatt 2.0 services.



During the 2016 edition, a stand dedicated to the CITYnvest/RenoWatt project has been set up for all the duration of this event. Members of the RenoWatt team were available to explain the project and its specialities. So all the technical, financial and practical aspects of the energy retrofitting of public buildings were discussed with the visitors of our stand. In 2016, a lot of contacts have been established and still today, many people are showing their interest for the project, having heard about it through this event (more information on the 2016 events present in one of the workshop deliverables)..

Alongside our presence at the stand, 2 CITYnvest/RenoWatt events were organised:

- Invitation for a breakfast at our stand: an excellent occasion to discuss the opportunities of retrofitting in Wallonia in an informal way.
- A conference presenting all the details of the CITYnvest/RenoWatt project has been given.

Communication tools were also developed for this event to ensure a significant visibility of the CITYnvest/RenoWatt project:

- A short **video** presenting the CITYnvest/RenoWatt project
- A leaflet presenting the CITYnvest/RenoWatt project
- Posters have been edited.
- Roller-up with the logos of CITYnvest and RenoWatt

#### *Steps needed to achieve RenoWatt 2.0*

- March 2016 – September 2016: Identify and meet the RenoWatt 2.0 relay organizations
- July and August 2016: Write the cooperation model between RenoWatt and relay organizations
- January 2016 – October 2016: Organize meeting and workshops to raise awareness on RenoWatt among municipalities (in coordination with relay organizations)
- September – December 2016: Gather and confirm interest of public authorities and relay organizations
- December 2016 – January 2017: Prepare and write an Elena proposal to launch RenoWatt 2.0
- March 2017: Launch RenoWatt 2.0

#### *Estimated potential*

To estimate the potential energy savings for the public authorities target group, we took the assumptions of increasing our penetration in the Province of Liège to 10 additional municipalities and extending our geographical scope in 2 new provinces.

10 municipalities per province is the maximum number of public clients manageable by the one-stop-shop with the current structure and the planned help of relay partners.

Based on the figures of the pilot project with 7 representative municipalities, the average primary energy savings per inhabitant is 60KWh.

Province of Liege

- 10 municipalities with on average 10.000 inhabitants

Expected savings : 100.000 inhabitants x 60KWh = **6 GWh of primary energy**

Additional Provinces

- We plan to extend our regional reach to 2 additional provinces: one with a high population density and one with a low population density
  - o High population density

- 10 municipalities x 20.000 inhabitants = 200.000
- Low population density
  - 10 municipalities x 6000 inhabitants = 60.000

Expected savings : 260.000 inhabitants x 60KWh = **15,6 GWh of primary energy**

Total expected savings from Public Authorities : 21,6 **GWh of primary energy**

## Hospitals

### On-going actions

In November 2014, GRE-Liège organized a workshop with all the hospitals of the province and some important elderly care institutions.

The goal was to launch a new business unit of the one-stop-shop in the hospital sector and to apply to an Elena proposal.

5 main hospitals of the Liège province have showed their interest. In the initial plan, a formal engagement of the hospitals needed to be requested before the end of 2014. In order to achieve the required investment amount, a communication was needed outside the province of Liege. Due to the work required by RenoWatt 1.0, it has been decided to postpone RenoWatt – BU for hospitals and to launch it later.

However, one of the hospital (CHRH – Centre Hospitalier de Huy), eager to start collaborating on the project and to launch EPC, has decided to join the one-stop-shop RenoWatt in April 2015. RenoWatt is currently helping it in launching large EPC for a 10 year-period. Tendering procedures will be closed by November 2016.

It has been decided to draw on the CHRH experience to launch RenoWatt 2.0 for hospitals and elderly care.

### Planned actions to extend the services in and outside the Liège Province

As the project needs to be extended to hospitals outside the province of Liege, the communication to other hospitals will be done in the last quarter 2016, based on the results and lessons learned with the CHRH EPC. Elderly care institutions will be contacted as well.

The Elena proposal will be introduced in the first semester 2017. The goal is to launch the EPC program for hospitals and elderly care by mid 2017.

RenoWatt 2.0 will host the hospital EPC development.

The planned actions include:

- November 2016: finalize the CHRH EPC
- December 2016: organize a workshop with hospitals and elderly care institutions in Wallonia
- January 2017 – February 2017: Gather the hospital and elderly care interest
- First Semester 2017: Introduce a technical assistance request to Elena
- Second Semester 2017: Launch EPC program for hospitals and elderly care



## Estimated potential

To estimate the potential energy savings of the hospitals and elderly care sector, we took only the Province of Liège into consideration. This is a conservative assumption as we will extend the geographical scope to the whole Wallonia. However, at this early stage, we only have interest marks and no commitment in other province, so we preferred to stay prudent.

We based our estimates on the CHRH case where actual consumptions and number of beds are known and where expected savings were calculated. The average savings is 4,7 MWh of primary energy per bed.

### Hospitals

- Total number of beds in hospitals – Province of Liège<sup>2</sup>: 6436 beds. We need to exclude the 895 beds of the CHU Liège as the pre-study for the renovation of their facilities is already subsidised by a EEEF grant. The remaining number of beds taken into account is 5541.
- Expected penetration rate : 20%

Number of beds reached :  $5541 \times 20\% = 1108$  (among which 256 already secured with the CHRH)

- Expected savings of 4,7 MWh of primary energy per bed

Expected primary energy savings :  $1108 \times 4,7 \text{ MWh} = \mathbf{5,2 \text{ GWh of primary energy}}$

### Elderly care

- Total number of beds in the elderly care<sup>3</sup> : 13852
- Expected penetration rate : 20%

Number of beds reached :  $13852 \times 20\% = 2770$

- Expected savings of 1,9 MWh of primary energy per bed – as we expect the consumption and potential savings to be a half of the ones in hospitals

Expected primary energy savings :  $2770 \times 1,9 \text{ MWh} = \mathbf{5,3 \text{ GWh of primary energy}}$

**Total expected savings from Hospitals and elderly care : 10,5 GWh of primary energy.**

## Private companies

### Introduction

In March 2015, a workshop was organized with the CITYnvest's support to discussion how to launch large energy retrofitting project in the private sectors.

The main problem to launch large projects in the industries is to finance the project. Any project with a return that is longer than 5 years is difficult to finance.

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<sup>2</sup> SPW- DG05- Département des infrastructures de soins, 2013

<sup>3</sup> SPW - DG05, Troisième âge, 2011

A working group was set up with companies in charge of deploying large energy efficiency projects in companies (ESCOs), with companies willing to launch large energy efficiency processes in their companies. Meetings were held with financing institutions as banks, EIB and EEEF.

#### RenoWatt for private companies

Novalia, a public financing entities (one of the SOWALFIN'S branches) received a ERDF funding of 47 million to invest in energy efficiency measures in the private sector and mainly in SMEs.

However, SMEs need to be supported and helped to launch energy efficiency projects. RenoWatt will create a specific business unit to support companies.

Audits and quick scans will be realized and companies will have the opportunity to finance the energy efficiency measures through Novalia.

A detailed business plan is currently drawn with Novalia, RenoWatt and other actors in Wallonia in order to submit a technical assistance project (EE22, H2020) in September 2016.

#### Potential

At this stage of the project development, it is difficult to estimate the potential of the project as target SMEs still need to be identified. A study is currently carried out by the cabinet of the Economy Minister.

## Private households

#### Introduction

High middle class already starts to launch energy efficiency projects in their houses. Utility companies propose different type of services to lower the energy bills.

The main problem lays down mainly for the population who rents their houses. Owners have no benefits to make energy efficiency works as it will not get any savings on the energy bills (the rentee being in charge of paying the energy bills). Currently, the owner cannot impact some of the energy savings in the rent.

RenoWatt is working on the private households' sector in 2 ways:

- Lobbying is undergoing with the Walloon Minister in charge of housing in order to be able to be able to modify the rent if energy efficiency works are done and have showed a decrease in the energy bill.
- RenoWatt is part of a working group lead by Fondation Roi Baudouin working on energy efficiency for the poorest people. One of the Roi Baudouin's mission is to help the poorest classes in Belgium to have a decent level of lifestyle. One of the main factor is the energy. The Foundation launched preliminary study in order to identify the topics to work on. 2 topics were identified: energy efficiency in the social housing sector as well the energy bill simplification. The working group gathers experts, utility companies, public and private housing associations as well as private experts. Currently, the working group is studying different models to be inspired and understand what could be replicated in Belgium. The CITYnvest guideline summarizing the different models is one of the key document of the working group.

RenoWatt is not in the lead of this operation. However, as all the Belgian actors are gathered around this working group, it was decided not working in parallel and beneficiate from all the stakeholder's experience.

The goal of the working group is to launch, before end of 2017, different pilot projects in the social housing sector.

#### Potential

At this stage of the project development, it is difficult to estimate the potential of the project as the working group has not defined yet the actions and the pilot projects to launch.

## Timeline

We synthesized the planned actions in the timeline below with the same structure as in the document: generic actions and specific actions per target group.

	2016						2017											
	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
<b>Generic actions</b>																		
1. Maintain and develop the one-stop-shop structure																		
2. Look for subsidies for efficient take off of projects																		
3. Identify financing solutions																		
4. Transform the structure into a central procurement																		
5. Design a new Business Model for Renowatt 2.0																		
<b>Public authorities</b>																		
1. Finalize successfully the 4 EPC launched in 2016																		
2. Identify and meet relay organizations																		
3. Write the cooperation model between RenoWatt and relay organizations																		
4. Organize meetings and workshops to raise awareness among municipalities																		
5. Gather and confirm interest of public authorities																		
6. Write Elena request for technical assistance																		
7. Launch Renowatt 2.0																		
<b>Hospitals and elderly care</b>																		
1. Finalize successfully the CHRH EPC																		
2. Organize meetings and workshops to raise awareness																		
3. Gather and confirm interest																		
4. Write Elena request for technical assistance																		
5. Launch EPC program																		
<b>Private companies</b>																		
1. Write Elena request for technical assistance with																		
2. Follow up with the cabinet of Economy Minister on potential estimation																		
<b>Private households</b>																		
1. Take active role in working groups																		

## Conclusion

We reviewed in this document the action plan to achieve RenoWatt 2.0, the extension of the current RenoWatt pilot project to new target groups and in an extended geographical scope.

Generic actions and specific actions per target group will be undertaken.

Those efforts are expected to lead to an estimated savings of 32,1 GWh of primary energy, above the 28,2 GWh target.

Target group	Estimated savings potential, GWh primary energy
▪ Public authorities	21,6
▪ Hospitals and elderly care	10,5
▪ Private companies	TBD
▪ Private households	TBD

The total savings potential is 32,1 GWh of primary energy, exceeding the 28,2 GWh commitment

# Action plan for RhodoShop

## Rhodope Pilot Region

Last update: May 2, 2016

### Introduction

The present Action Plan has been developed under WP3 with the following main goals:

- to present the current situation in Rhodope Region regarding sustainable energy potential focusing on building retrofitting/RES incorporation and street lighting;
- to present available financing models of relevance to local sustainable energy actions in Rhodope Region;
- to tailor the Liege approach (RenoWatt experience to create a one-stop-shop) to Rhodope Region and to ensure it fits with Rhodope constraints and reality;
- to outline the necessary steps to be taken in order to put in place the infrastructure that will help Rhodope municipalities in securing funding, while taking into account organizational, administrative, legal and financial aspects.

### Brief description of Rhodope Region

Rhodope Region is situated in the Southern/South-Western part of Bulgaria within the Rhodope Mountains. The terrain is mountainous with vast forests and suitable conditions for tourism and skiing; climate is mountainous with snowy winters and cool summers with a lot of sunshine.



Source: "Rhodopen Balkan topo de" by RosarioVanTulpe - based on the map Balkan\_topo\_de.jpg which bases on the map Balkan topo blank.jpg. Licensed under CC BY-SA 3.0 via Commons - [https://commons.wikimedia.org/wiki/File:Rhodopen\\_Balkan\\_topo\\_de.jpg#/media/File:Rhodopen\\_Balkan\\_topo\\_de.jpg](https://commons.wikimedia.org/wiki/File:Rhodopen_Balkan_topo_de.jpg#/media/File:Rhodopen_Balkan_topo_de.jpg)

The total population of the region is 612 220 inhabitants<sup>4</sup> located in 22 municipalities who participate in Association of Rhodope Municipalities (ARM) – the organization supporting CITYnvest. The following municipalities are members of ARM: Municipality of Devin, Municipality of Septemvri, Municipality of Rudozem, Municipality of Zlatograd, Municipality of Velingrad, Municipality of Asenovgrad, Municipality of Smolyan, Municipality of Bratsigovo, Municipality of Chepelare, Municipality of Kardzhali, Municipality of Banite, Municipality of Madan, Municipality of Laki, Municipality of Batak, Municipality of Rakitovo, Municipality of Nedelino, Municipality of Dospat, Municipality of Borino, Municipality of Rodopi, Municipality of Momchilgrad, Municipality of Kirkovo, Municipality of Strelcha. The six biggest municipalities are: Municipality of Kardzhali (105 993 inhabitants), Municipality of Rodopi (81 705 inhabitants) consisting of suburban areas of the town of Plovdiv, Municipality of Asenovgrad (71 465 inhabitants), Municipality of Smolyan (51 943 inhabitants), Municipality of Velingrad (42 103 inhabitants) and Municipality of Septemvri (33 845 inhabitants). The six biggest municipalities together make about 70 % of the population of the region.

Association of Rhodope Municipalities (ARM) is an NGO created with the main aim to provide general support to its participating municipalities but the Association lacks specific expertise in building retrofitting projects and in securing financing for them. There is no local development agency to provide this expertise so ARM has supported CITYnvest project in order to bring the knowledge about innovative financing schemes suitable for the local conditions.

### Local awareness and past actions

There is a significant local potential for building retrofitting and RES incorporation within the Rhodope Region as well as awareness about sustainable energy issues at the local level. There are five municipalities that have joined the Covenant of Mayors. These are: Municipality of Asenovgrad, Municipality of Bratsigovo, Municipality of Smolyan, Municipality of Rudozem, and Municipality of Zlatograd. Two of those (Asenovgrad and Smolyan) have submitted their Sustainable Energy Action Plans while others have developed various municipal programs and plans for energy efficiency and RES utilization that foresee concrete actions for building refurbishment and RES incorporation as well as street lighting projects. More than a half of Rhodope Municipalities municipalities have made energy audits of their public buildings of which only 25% have been realized. The investigation made under CITYnvest project shows that energy efficiency improvements have been already implemented in 127 municipal buildings in Rhodope Region with total investment of almost 27 MEuro. The figures prove that there is high interest and commitment on behalf of local authorities towards energy efficiency refurbishment of the municipal building stock.

### Role of CITYnvest

In spite of the achievements there are identified projects and actions that need funding in order to be implemented and contribute to the local targets for CO<sub>2</sub> emissions reductions and for achieving energy savings and RES utilization at the local level. The experience within the Region shows that generally there is not enough collaboration between municipalities to gain a critical mass for attracting funding for their sustainable energy projects. The foreseen role of the CITYnvest project is to provide expertise and knowledge to speed up energy retrofitting by setting up a suitable infrastructure (one-stop-shop) to act as a knowledge centre facilitating the cooperation among Rhodope municipalities in order to improve their access to funding. In this task GRE Liege will play an important role by bringing in their significant experience in similar initiatives and adapting it to the specific local conditions.

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<sup>4</sup> Data of National Statistical Institute census 2011

## Legal aspects of local debt financing

In Europe, some of the Member States have troubles to launch large energy retrofitting projects due to the interpretation of the accounting rules by Eurostat (cf. Guidance Note of 07/08/2015), which creates a constraint for those authorities that cannot increase their debt level.

In Bulgaria, the figures of the Ministry of Finance as of May 2015 show that overall public debt/GDP ratio is 28,8 % (MoF bulletin data) which give a room for municipalities to employ debt financing when considering retrofitting of buildings and lighting systems. On the other hand, there are legally binding limits for municipal borrowing set in Public Finance Law, Art. 94, i. 3, as follows:

- Liabilities for expenses (*payments for accomplished public works*) at the end of the year cannot exceed 5 % of the average annual amount of accounted expenses for the last 4 years;
- Maximum amount of engagements for expenses (*contracts for future public works*) at the end of the year cannot exceed 30 % of the average annual amount of accounted expenses for the last 4 years

These limits should be taken into account within CITYnvest activities especially when smaller municipalities with limited own budgets are involved - in such cases it may be feasible to consider bundling of several neighbouring municipalities in order to gain critical mass for implementing retrofitting projects.

## Facilitation structures under CITYnvest

Program authority/Program Delivery Unit roles and functions: The Program Authority (PA) and the Program Delivery Unit (PDU) are the two main stakeholders that will manage and implement the program or the model.

- **Program Authority (PA):** The Program Authority (PA) is the public entity or organization that is in charge of the program or that controls the Program Delivery Unit (PDU). This is typically a national or regional government, a provincial or local authority or council or a city or municipal council. The Program Authority (PA) define the vision and the program scope including the targeted beneficiaries, the level of ambition, the implementation model and the funding vehicle that will be put in place. The Program Authority also identifies within the stakeholders/parties who can play the role of Program Delivery Unit (PDU), and determines the services that it will offer to the beneficiaries. The Program Authority has also to secure the funding of the Program Delivery Unit (PDU).
- **Program Delivery Unit (PDU):** The Program Delivery Unit (PDU) is the organization that is specifically set-up (and/or entitles) to implement/execute the program. It is often a separate legal entity, but can also be a department or project team within an existing organization. It can be a public, a public-private or a private entity/organization, depending the local capabilities. In the most advanced models, the Program Authority (PA) has set-up a specific legal entity to play the role of Program Delivery Unit (PDU), either as a local public company or a mixed company (public-private).

### Key questions to address:

Program Authority (PA)	
Who is/are the Program Authority (PA)?	21 municipalities in Rhodope region through the General Assembly of Association of Rhodope Municipalities
How can you help the Program Authority (PA) to have a clear vision of the issues?	Show them the summarized overview of existing potential in the Region, legal and administrative issues, available national/international sources of financing
How can you support the Program	After studying the different models presented in WP2,



Authority (PA) to define the vision and the program scope?	the approach to be adopted and proposed to ARM will follow the model and role of GRE Liege taking into consideration local conditions and the considerations of the Managing Director and the General Assembly of ARM (the governing body with decision making powers). Currently, the ARM is not staffed to take over such responsibilities. A dedicated team and budget would be needed.
How can you get from the Program Authority (PA) a clear commitment to the beneficiaries and the Program Delivery Unit (PDU)?	A Letter of Commitment to be used to apply for PDA at H2020 (next deadline: 15 September 2016). To be discussed with the General Assembly of ARM.
<b>Program Delivery Unit (PDU)</b>	
What are the capabilities and knowledge requirements to manage the Program?	Experience in SE project management and financing (e.g. energy efficiency retrofitting of public buildings or street lighting,) recruited by ARM or other suitable structure undertaking the role of facilitator and "one-stop-shop"
What are the tools and resources requirements to manage the Program?	Specific knowledge on methodology and tools for financial assessment of SE projects as well as expertise in public procurement and tendering procedures in Bulgaria. These will be a problem on a regional level due to lack of local expertise so additional training will be required.
What will be the staff requirements to manage the Program?	3-4 permanent staff
What will be the funding requirements to manage the Program?	0,5-1 MEuro
How long will be the Program?	Start with 36 months pilot phase and continue if successful
Who are the stakeholders/parties that have those capabilities, knowledge and resources to play the role of Program Delivery Unit (PA)? Are they willing to play it?	It is planned to establish a specific structure to play the role of PDU within ARM and recruit the adequate competencies. Training to the staff and study-tour to GRE-Liege will be provided. .
Is it desirable/necessary to set up a specific entity to play the role of Program Delivery Unit (PDU)?	Yes
If a specific entity is to be set up, should it be a public company or a mixed company?	Public (as part of ARM)
If a mixed company is suitable, who are the private stakeholders/parties that can be invited? Are they willing	N/A



to play it?	
How will the Program Delivery Unit (PDU) be funded?	Possible sources of funding: <ul style="list-style-type: none"> <li>• H2020 E22 2016-2017 Project Development Assistance</li> <li>• ELENA funding</li> <li>• BGEEF</li> <li>• National operational programmes/ERDF (to be investigated)</li> </ul>
Could the Program Delivery Unit (PDU) apply for a technical assistance (e.g. Elena (EIB) technical assistance facility)?	Yes

#### Summary:

It is foreseen to create a PDU as a structure within ARM and recruit the necessary staff with technical and financial expertise by applying for PDA H2020 (or another suitable option). The recruited staff will receive training on economic aspects of project evaluation as well as on technical aspects of EE in buildings and in street lighting combined with a study-tour to GRE-Liege.

#### Actions to undertake

No	Action	Due	Owner	Status
1	General assembly of ARM to be presented the concept of PA and PDU and get first feedback	25.03.2106	SEC/ARM	completed
2	Collection of feedback from municipalities and spotting most promising ones	15.05.2016	SEC/ARM	On-going
3	Presentation to GA of ARM of detailed action-plan with concrete actions and the ways to finance PDU activities.	26.05.2016	SEC/GRE-Liege/ARM	On-going
4.	Signing a letter of commitment for establishing PDU and applying for financing by most promising municipalities (eg. Smolyan)	10.06.2016	SEC/ARM	On-going
5	Identify needs of training for PDU	15.07.2016	SEC/GRE-Liege/ARM	On-going
6	Writing the application to PDA H2020	15.09.2016	SEC/ARM	On-going

## Beneficiaries, type of projects & Level of “ambition”

The beneficiary profile, the type of projects and the level of ambition will have a significant impact on the model:

- **Beneficiaries:** They could come from the public sector, the commercial sector, the residential sector and/or the industrial sector.
- **Type of projects:** It could be Energy Efficiency building retrofit project, Energy Efficiency public lighting retrofit project, Energy Efficiency industrial retrofit project or renewable energy project.
- **Level of ambition:** the level of ambition could be classified as following:
  - Up to 35% reduction of energy consumption and/or GHG emissions: this level of ambition could be reached with short and middle term contract durations (average 10 years) based on technical installations (HVAC, lighting, electrical...) retrofits and managed energy services. As basic indicator, the price per square meter in case of a building retrofit could be less than 50€. Typically the ESCO market based offer target this level of ambition. The market is also able to offer ESCO and TPF financing options for this level of ambition.
  - Up to 50% reduction of energy consumption and/or GHG emissions: this level of ambition could be reached with middle and long term contract durations (between 15 and 25 years) based on technical installations (HVAC, lighting, electrical...) retrofits, envelope retrofits (insulation), renewable energy generation and managed energy services. As basic indicator, the price per square meter in case of a building retrofit could be less than 200 €. There are various examples in Europe of EPC/ESC models that have addressed such a level of ambition. ESCO financing and/or TPF financing will be more difficult to find for this level of ambition.
  - Up to 75% reduction of energy consumption and/or GHG emissions: this level of ambition could only be reached with long or very long term contract durations (min. 25 years) based on deep retrofits. As basic indicator, the price per square meter in case of a building retrofit could reach up to 800 €. There are a few examples in Europe of EPC/ESC model that have addressed such a level of ambition. This level of ambition will require a mix of financing solutions (conventional financing, ESCO financing, PDU financing, Investment fund).
  - Carbon neutral: this level of ambition could only be reached with deep retrofit and renewable energy generation projects. This level of ambition will require a mix of financing solutions (conventional financing, ESCO financing, PDU financing, Investment fund).

### Key questions to address

Beneficiaries	Comments
Who will be the beneficiaries of the program?	Public authorities (for EE/RES in public buildings and street lighting)  Private households (for residential buildings retrofitting at a later stage)
How many are they and what is their potential in terms of number and size of projects?	<b>Public buildings:</b> <sup>5</sup>  Identified projects of 180 municipal buildings with 226 967 sq.m. in the municipalities of Bratsigovo, Madan, Rodopi,

<sup>5</sup> The data have been derived from the available municipal programmes and strategies for energy efficiency development and from Sustainable Energy Action Plans submitted to CoM

	<p>Septemvri, Smolyan, Strelcha and Zlatograd.</p> <p>Calculated savings: 20 427 000 kWh/annum (at 300 kWh/sq.m/annum average consumption for different types of buildings – schools, kindergartens, hospitals, etc., and 30 % savings after retrofit)</p> <p>Cost of investment in retrofitting: 23 MEuro (at about 100 Euro/sq.m)</p> <p><b>Street lighting<sup>6</sup>:</b></p> <p>Potential for refurbishment of street lighting for all 22 municipalities in Rhodope region:</p> <p>Investment costs:</p> <p>270 millions – if all components (lamps, fixtures, poles) are changed which is about 440 euro/inhabitant;</p> <p>7,35 MEuro- if only lamps are changed with more efficient (which is the <b>preferred option</b> in view of big investments otherwise) which is about 12 Euro/inhabitant;</p> <p>15,3 MEuro if an ESCO contract is included with replacement, maintenance and control (about 25 Euro/inhabitant).</p> <p><b>Residential buildings:</b></p> <p>Overall potential: 133 736 buildings with over 16 million sq meters residential area,</p> <p>402 large concrete buildings with 14 000 dwellings (given priority under the National Programme for Residential Building Energy Retrofitting) with total building area of 1 036 000 sq.m. area.</p> <p>Investment costs: 72,5 MEuro</p> <p>Calculated savings: 83 916 000 kWh/annum (at average consumption of 270 kWh/sq.m/annum for large concrete buildings before retrofitting and 30 % savings from retrofitting)</p>
What is the estimated funding need to finance the beneficiaries projects (depending of the level of ambition)?	<p>Public buildings: 23 MEuro</p> <p>Street lighting: 7,35 MEuro</p> <p>Residential buildings: 72,5 MEuro</p>
Are those potential and funding needs addressable within the program?	<p>Yes, the identified potential can be addressed by the different units within the programme although the first focus will be on street lighting and/or public buildings. After a proven successful programme operation it will focus on</p>

<sup>6</sup> Same as previous

	residential buildings at a later stage.
<b>Type of projects</b>	<b>Comments</b>
What will be the type of projects?	<ul style="list-style-type: none"> <li>• EE/RES in public buildings;</li> <li>• Street lighting;</li> <li>• EE retrofits in large concrete multifamily residential buildings</li> </ul>
What will be the knowledge and resources requirements to realize this type of projects?	<p>Experience in project management;</p> <p>Knowledge on methodology and tools for financial assessment of SE projects;</p> <p>Expertise in public procurement and tendering procedures in Bulgaria</p>
Are there experienced ESCOs, contractors and/or suppliers to realize that type of projects?	Only limited capacity of ESCO activities is available in Bulgaria as there are isolated cases of ESCO eg. Ulichno sovetlenie in street lighting and ENEMONA in public building refurbishment
<b>Level of ambition</b>	<b>Comments</b>
What will be the level of ambition for the project?	30 % of savings and 30%GHG emissions reduction.
Is it coherent with the beneficiaries potential?	Yes
Are beneficiaries able or willing to contract on very long term?	To be defined although not usually due to political constraints
Is it addressable within the program?	Yes

#### Summary:

The identified potential in street lighting and public buildings refurbishment will be initially tackled because it is achievable within municipal decision making process while residential buildings involve also agreement of private owners and will be focused at a later stage when the programme has gained momentum and it is easier to show its usefulness and results.

#### Actions to undertake

No	Action	Due	Owner	Status
1.	Collect data from Rhodope Municipalities about building stock (public and residential) and street lighting systems	31.08.2015	SEC/ARM	completed
2	Identify types of potential projects and necessary expertise to implement them	21.12.2015	SEC/GRE-Liege/ARM	completed
3	Calculate potential savings and investment needed	20.03.2016	SEC/GRE-Liege/ARM	completed

## Implementation model

The implementation model is the method by which the projects are technically and operationally implemented in the field, most often by using contractors or subcontractors. Typical implementation models are Energy Performance Contracting, Energy Supply Contracting and Separate Contractor Based.

- **EPC/ESC model:** Energy Performance Contracting (EPC) or Energy Supply Contracting (ESC) is a method by which an ESCO (Energy Services Company) acts as a unique contractor and assure all the technical risks of the contract. The ESCO delivers to the contracting beneficiary performance guarantee on the energy savings (EPC) or “useful” energy to a contractually agreed price (ESC) that secures the stream of revenues to reimburse the investment. In the EPC/ESC model, the Program Delivery Unit (PDU) can act either as a project facilitator or project integrator but do not takes on the technical risks of the project (neither the beneficiary). The EPC/ESC model is the key condition to access to ESCO and/or Third party financing (TPF).
- **Separate contracting:** Separate contracting is a method to implement multi-technique energy efficiency or renewable energy projects, by which each step of the process is dealt with by a separate party (energy auditor, engineering company, installer or contractor, maintenance company) and by which individual projects (e.g. boiler replacement, relighting, isolation, etc.) are executed by separate contractors for each technique. In this model, the Program Delivery Unit (PDU) can act either as a facilitator or integrator, but it can be useful to have the Program Delivery Unit (PDU) or another organization to act as an integrator to ensure an end-to-end delivery of the energy efficiency program and provide a consistent level of service from the different contractors. In the Separate contracting model, the Program Delivery Unit (PDU) and/or the beneficiary takes on the technical risks of the project. In this model, there is also little room to access to Third party financing (TPF).

### Key questions to address:

EPC/ESC vs. Separate contracting	Comments
Are there local ESCO's on the market to organize competitive tenders? (= Condition for EPC/ESC)	The market is not mature enough but there are isolated cases eg. in street lighting and also ENEMONA in public buildings
Do local ESCO market practices meet the program level of ambition (e.g. in case of deep retrofit)? (= Condition for EPC/ESC)	No, but the programme does not target deep retrofit
Are the beneficiaries able or willing to sign long term contracts with suppliers/private ESCO's? (= Condition for EPC/ESC)	Not usually, due to political constrains: long-term contracts don't match with the political cycle/mandates as the new elected mayors tend to reject ald mayors' decisions solely on political grounds.
Is there a standard and robust EPC/ESC tendering model available locally? (= Condition for EPC/ESC)	No
Is there local expertise and resources in EPC/ESC tendering process? (= Condition for EPC/ESC)	No
Is it desirable to integrate “operating and maintenance services” within the contractual scheme for the projects? (= Suitable for	Yes, in street lighting mainly as there is a suitable ESCO in this sector. The situation with ENEMONA (active in public buildings) is unclear as they experience financial

EPC/ESC)	difficulties.  It is possible, however, to contract only the operating/maintenance services as there are ESCOs (like DALKIA) doing only this part of the project while the funding part is undertaken by the municipality itself.
Is it important/necessary to manage the technical risk of the projects by performance guarantees? (= Suitable for EPC/ESC)	Yes, in street lighting mainly  Only limited capacity of ESCO activities is available in Bulgaria as there are isolated cases of ESCO eg. Ulichno sovetlenie in street lighting and ENEMONA in public building refurbishment
Is it important/necessary to manage and control transaction costs of the projects? (= Suitable for EPC/ESC)	No , as the Programme is not directed to full ESCO involvement but mainly to operating/maintenance services.
Is it important to enhance financial predictability of the projects? (= Suitable for EPC/ESC)	Yes, as in any case the financial viability of the project is crucial to secure funding no matter if it is a bank loan or ESCO, or revolving fund.
Are ESCO and/or TPF financing desirable or necessary? (= Suitable for EPC/ESC)	No The experience of GRE-Liege shows that it is financially more favourable for municipalities to secure funding from other sources and contract ESCO only for operating/maintenance services.
Are the "time to invest" and "time to savings" decisive factors for the program? (= Suitable for EPC/ESC)	No as the Programme is not directed to full ESCO involvement but mainly to operating/maintenance services

### Summary

Separate contracting is the preferred model of implementation for Rhodope Region as the market for ESCO services is not mature enough and there are only isolated cases eg. in street lighting and also ENEMONA in public buildings. This means that each step of the process is dealt with by a separate party (energy auditor, engineering company, installer or contractor, maintenance company) and by which individual projects (e.g. boiler replacement, relighting, isolation, etc.) are executed by separate contractors for each techniques. Under this model the Program Delivery Unit (PDU) will act as a facilitator (one-stop-shop) to support public authorities to launch refurbishment of public buildings and/or street lighting on their territories. It helps them in establishing audit schemes, choosing technical solutions, finding financing solutions and performing tendering processes. The PDU develops the economic and technical assessments on behalf of the municipalities and applies it to the available operational programmes/revolving and/or grants as the market is not mature enough for EPC (although this possibility will be considered by the PDU)

### Actions to undertake

No	Action	Due	Owner	Status
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1.	Investigate local TPF/ESCO market	31.12.2015	SEC/ARM	completed
2.	Assess different operation models and present to GA of ARM to be considered	25.03.2016	SEC/ARM	completed
3.	Define operational model for the programme and get approval by GA of ARM	26.05.2016	SEC/GRE-Liege/ARM	On-going

## Operating Services

The Operating Services are the kind of services that are delivered by the Program Delivery Unit (PDU). They can be Marketing, Aggregation, Integration, Facilitation, Financial Advisory, Financing and Assessment (or a combination of):

- Marketing: Marketing covers the commercialization of the services of energy efficiency to the beneficiaries. This covers the whole range of communication and commercial development services that are necessary to inform the beneficiaries of the types of offerings that are available to them. It also covers the pricing policy and product/services development.
- Aggregation: see below
- Facilitation: Facilitation means that the Program Delivery Unit (PDU) does not sign the contract with the beneficiary, but coordinates or “facilitates” the whole process of project delivery on behalf of the beneficiary. The contracts are signed directly between the beneficiary and the contractors. This role is often played by the Program Delivery Unit (PDU) in case of EPC/ESC implementation model, where the contract is signed directly between the beneficiary and the ESCO. Managing the tendering process is typically part of facilitation services offered in case of EPC or ESC projects.
- Integration: Integration means that the Program Delivery Unit (PDU) acts as an intermediary between the beneficiary on one hand and the contractors or subcontractors on the other hand. This means that the contract for the delivery of the energy efficiency is signed between the integrator and the beneficiary and that the integrator signs contracts with the (sub)contractors. This role is often associated with the Separate Contractor Based implementation model, although it can also be applied to EPC or ESC. In the integrating model, the Program Delivery Unit (PDU) takes on the technical risks of the project, except to have back-to-back agreements with the beneficiary on one hand and the ESCO on the other hand (in the case of EPC/ESC model).
- Financial Advice: see below
- Financing: see below
- Assessment: Assessment is the role by which the PDU evaluates the technical and financial viability of an energy efficiency project and decides whether or not the project gets implemented and/or financed. The PDU will typically use a number of criteria to judge whether the project is acceptable or not

In case of **CITYnvest Rhodope PDU** the following operating services have been considered:

The PDU will be one-stop-shop to support public authorities to launch refurbishment of buildings and/or public lighting on their territories. It helps them in audits, technical choices, financing solutions and tendering process. The structure has following main activities:

- Marketing and communication: to inform the beneficiaries of the types of offerings available to them. It also covers the pricing policy and product/services development.
- Facilitation and client support: Facilitation means that the Program Delivery Unit (PDU) does not sign the contract with the beneficiary, but coordinates or “facilitates” the whole process of project delivery on behalf of the beneficiary. The contracts are signed directly



between the beneficiary and the contractors – due to legal constraints the municipalities prefer to launch tenders by themselves. .

- ✓ Play as a knowledge centre;
- ✓ 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 national Operational programmes. 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;
- ✓ 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 goal is to start with first with Municipality of Smolyan, and to attract 4-5 smaller municipalities. Smolyan has shown supportive attitude towards CITYnvest initiative, it is one of the biggest in terms of inhabitants, it is the centre of the Smolyan District, and therefore is influential for the smaller municipalities around like Zlatograd, Chepelare, Devin, etc. The funding will be sought from H2020 (Project Development Assistance or), ELENA facility or the Operational Programmes 2014-2020.

## Financing & Funding Vehicle

The Funding Vehicle is the entity that is used to finance the projects. Typically, the models/programs that where analyzed make use of the following funding vehicles (or a combination of) :

- Investment fund: the Program Authority (PA) or the Program Delivery Unit (PDU) set-up a public, public-private, public-citizens fund to provide total or partial project financing of the program. The fund can work on a stand-alone basis, in cooperation with the Program Delivery Unit (PDU) or be integrated into the Program Delivery Unit (PDU). In this case, the fund takes on the financial risk of the project.
- PDU financing: the Program Delivery Unit (PDU) acts as the funding vehicle, providing financing, either through an own fund (or the Investment fund) or by packaging external financing solutions into an integrated financing service. In this case, the Program Delivery Unit (PDU) takes on the financial risk of the project.
- ESCO financing: the ESCO or contractor acts as the funding vehicle, providing financing through either EPC financing or ESC financing. In this case, the ESCO takes on the financial risk of the project. The Program Delivery Unit (PDU) can support the beneficiary with financial advice and financial engineering services providing guidance and consultancy on ESCO financing for these projects.
- Conventional financing: the beneficiaries pack internal (own funds) and external financing (financial institutions, utility funds, etc.) solutions in order to finance his projects. In this case, the beneficiaries take on the financial risk of the project. The Program Delivery Unit (PDU) can support the beneficiary with financial advice and financial engineering services providing guidance and consultancy on available funding for his project.

### Key questions to address

Main topics	Comments



What is the funding need of the program	30 MEuro without residential buildings 100 MEuro with residential buildings
Are there existing local, regional or national financing instruments to fund the program (e.g. ERDF)	Yes, Operational programme "Regions in Growth" and Operational Programme "Rural Development"
Is it eligible for EU funding (e.g. EIB)?	Yes
Who can bare the financial risk?	Municipalities themselves
What is the bearable impact on public balance sheet and/or beneficiary balance sheet (debt capacity)?	<p>Public debt/GDP ratio in Bulgaria is 28,8 % (MoF bulletin data as of May 2015)</p> <p>Legal constrains for municipal borrowing: Public Finance Law, Art. 94, i. 3:</p> <ol style="list-style-type: none"> <li>1. Liabilities for expenses (<i>payments for accomplished public works</i>) at the end of the year cannot exceed 5 % of the average annual amount of accounted expenses for the last 4 years;</li> <li>2. Maximum amount of engagements for expenses (<i>contracts for future public works</i>) at the end of the year cannot exceed 30 % of the average . annual amount of accounted expenses for the last 4 years.</li> </ol>

Conventional financing	Comments
Are financial advice and financial engineering services to the beneficiary sufficient?	Yes
Can beneficiaries count on their own funding (own debt capacity)?	Yes
Can beneficiary take the financing risk on?	No
Is bank financing available for the kind of projects?	There is no special bank facility (eg. credit line or programme) for these type of projects but if the project is financially viable loan can be secured on common terms of the bank.
Can the Program Authority (PA)/Program Delivery Unit (PDU) set up an agreement with financial institutions (public and private) on a structural funding scheme for your program?	Yes, with national operational programmes. National operational programmes 2014-2020 are financing mechanisms operated in Bulgaria with EU funds like ERDF, Cohesion Funds,

	etc., plus national co-funding. Information on this financing vehicle is provided on page 20
Does the beneficiary need partial credit guarantee or portfolio guarantee to finance his projects?	No
Can the Program Authority (PA)/Program Delivery Unit (PDU) set up a credit guarantee fund to support the program funding through beneficiaries?	No
<b>ESCO Financing</b>	<b>Comments</b>
Does local private ESCO's (market) provide funding?	The market is not mature and it is limited to isolated cases for street lighting and public buildings
Is the ESCO financing competitive compared to conventional (or PDU) financing?	ESCO guarantees the resulted savings which reduces the technical risks of the project (technology or technical solution involved) that otherwise lies upon the project owner/financier. Anyway, the experience of GRE-Liege shows that ESCO funding is not competitive to other types of funding eg. bank loans.
Could the local private ESCO's market meet the program size (funding volume)?	No
Can the Program Authority (PA)/Program Delivery Unit (PDU) set up an agreement with financial institutions (public and private) on a third party structural funding scheme for your program?	Yes, with national operational programmes  National operational programmes 2014-2020 are financing mechanisms operated in Bulgaria with EU funds like ERDF, Cohesion Funds, etc., plus national co-funding. Information on this financing vehicle is provided on page 20
Does the ESCO need partial credit guarantee of portfolio guarantee?	Yes
Can the Program Authority (PA)/Program Delivery Unit (PDU) set up a credit guarantee fund to support the program funding through ESCO's?	No, but BGEEF (Bulgarian Energy Efficiency and Renewable Energy Fund) can provide partial guarantees for ESCOs for public retrofitting
<b>PDU Financing</b>	<b>Comments</b>
Is it necessary and/or cheaper to integrate the project financing within the model?	No
Can the Program Delivery Unit (PDU) take the financing risk on?	No

What is the desired level of integration of the program funding in the role of aggregator/facilitator/integrator?	Aggregator + facilitator
Does the Program Delivery Unit (PDU) have the financial expertise and resources to fund the program?	No
Can the Program Delivery Unit (PDU) have access to sufficient funding to meet the program size?	Yes, through national Operational programmes
Can the Program Authority (PA)/Program Delivery Unit (PDU) set up an agreement with financial institutions on a third party structural funding scheme for your program?	Yes, through national Operational programmes

#### Summary:

Because the market for ESCOs is not mature enough it is considered that the Programme for EE in Rhodope Region will start with conventional funding focusing mostly on National operational programmes 2014-2020 (combined public subsidies with revolving mechanisms). Additionally ESCO funding possibilities (like ESCO for street lighting) matching the needs of the Programme and possibilities for direct bank loans will also be investigated and considered.

# Existing financing instruments for the retrofitting in Bulgaria

## BGEEF

Bulgaria has created a revolving fund (Bulgarian Energy Efficiency Fund – BEEF) that can be used as a financing option to launch an ambitious energetic retrofit program in the Rhodope Region. The Fund was established pursuant to the Energy Efficiency Act, with intergovernmental agreements between the Global Environment Facility (through the World Bank), the Government of Austria and the Government of Bulgaria. The fund operates according to the provisions of the Energy Efficiency Act, the Energy from Renewable Sources Act and the agreements with the Donors, and is not part of the consolidated state budget. The initial capital of the fund was 22 million Leva (11 MEuro) which is considered low compared to the exiting needs . The Fund combines the functions of financing/guaranteeing institution and a consultancy center. The fund offers loans, partial credit guarantees (PCGs) and ESCO portfolio guarantees opportunities for municipalities:

### Loans:

BGEEF provides loans to municipalities with maximal tenor of 7 years which is rather low given the usual paybacks of EE projects<sup>7</sup>, 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 need 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 **BGN 800 000 (400 000 Euro)** with a maturity of maximum 7 years.

The fund also provides ESCO portfolio guarantees and residential portfolio guarantees.

### ESCO portfolio guarantees:

If ESCO's financing is required, **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 our ESCO portfolio guarantee, BGEEF **undertake some of the risk of the ESCO** and guarantee 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.

**Apart from ESCO guarantees for refurbishment of public buildings BGEEF also provides Residential Portfolio Guarantees** being developed as a **partnership with commercial banks**.

Up to date BGEEF fund has financed 170 projects of which 98 have been municipal projects. Municipality directed funding amounts to 24,3 million Leva (about 12 MEuro) representing 66 % of the overall

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<sup>7</sup> In some cases, they make exceptions and extend the maturity of the loan for municipal projects (only on case-by-case basis)

municipal project costs. As for the ESCO portfolio guarantees, so far 32 projects have been financed amounting to 22,9 million Leva (about 11,5 MEuro) of which BEEF guarantee represents 16,6 %.

Measures in the following areas are eligible to be financed by BGEEF:

- **Rehabilitation of buildings** in all sectors;
- **Improvements to the heat source and distribution system;**
- **Street lighting;**
- **Other energy end-use applications like** energy management systems (EMS), power factor correction measures, air compressors, fuel switching, projects with utilization of renewable energy sources (RES)

In view of the significant RES potential in Rhodope region especially interesting can be projects that combine retrofitting of public buildings with fuel switch from heavy fuel oil and/or electricity to biomass. Other promising areas can be introduction of EMS and projects for utilization of solar or geothermal energy (there is significant potential for these RES in the Region).

The **main constrain to municipalities** observed so far comes from the rather short tenor of loans provided by BEEF which are not applicable for deeper renovation projects or for RES projects usually requiring longer pay-back periods but nevertheless providing significant social and environmental benefits.

### National Program for Residential Building Energy Retrofitting in Bulgaria

Bulgaria has created a National Program for private building targeting the energy retrofitting of multi dwelling residential buildings. The program is managed by the Ministry of Regional Development and public works.

#### Legal basis

Decree of Ministerial Council № 103 от 07.05.2013 (ПМС № 103/07.05.2013 г.) for approving a mechanism for additional financial assistance through the budget of the Ministry for Regional Development to ensure the participation of owners of single dwellings in multi-family buildings approved in the framework of Project BG161PO001-1.2.01-0001 „Energy Retrofitting of Bulgarian Homes” under Operational Programme “Regional Development” 2007-2013 (published State Gazette, Issue. 81 of 2014 г., in force since 30.09.2014)

A grant of 100 % (non-repayable funding) is provided to the owners.

#### Criteria to receive the funding

- The multi-dwelling building to have approved “Application for interest and support”( *Заявление за интерес и подкрепа -ЗИП*)
- To have prepared **indicative budget** by the Project Manager (for the whole buildings) responsible for the respective planning region/Sofia-capital (*remark: Bulgaria is divided in 6 planning regions and Sofia capital city, i.e seven in total, and each region has been assigned through a tender a Project Manager – organization to undertake administrative and logistic tasks related to the initiative – these PMs have been functioning since mid-2012 and have been funded by the initiative itself*).
- Recipients: physical persons – owners of single dwellings in multifamily residential buildings in case the monthly income of the household (**per person** – all inhabitants of the dwelling irrespectively if they are related or not), does not exceed 310 Leva (155 Euro)/person, and the owner or the co-inhabitant does not possess another dwelling except the one they are applying for, or commercial property, with the exception of the case when the other property (residential or commercial) is co-owned outside the household/co-inhabitants and/or cannot be used to generate income (*Remark: the purpose of the programme is to assist socially vulnerable households that in Bulgaria happen to owe their dwellings, this rather sophisticated formulation aimed at avoiding*

*subsidizing owners/household member who possess other property and can increase their income in that way).* There are several exceptions: handicapped people, single parents, when the threshold is set to 400 Leva/month (200 Euros):

#### **Important issues:**

- Prior to applying the owners should have established an Association of Owners as a legal person according to the Bulgarian Law;
- A special application-declaration is to be submitted and the size of the requested funding cannot exceed the funding allocated with the indicative budget of the building (prepared by PM as indicated above). There is a set of required documents to be submitted and after approval of application, a contract is signed between the Ministry and the owner-applicant meeting the conditions.
- The financial assistance is provided solely for participation of the building in the project BG161PO001-1.2.01-0001 „Energy Retrofitting of Bulgarian Homes“. In case the Association of Owners does not conclude the Contract with the Ministry for financing assistance for implementation of energy retrofitting measures or cancels its participation in the programme or the building is not refurbished at the end, the funding will not be provided.
- The funding is not provided to the Owner in the form of cash. The sum will be transferred by the Ministry of Regional Development on behalf of the Owner to provide the requested co-funding under the Project BG161PO001-1.2.01-0001 „Energy Retrofitting of Bulgarian Homes“ according to the indicative budget.
- By signing the contract for this additional funding the owners are obliged not to transfer the ownership over the property they received the additional funding for, within the next five years from the signature of the contract and are obliged to inform the Ministry upon any change of the circumstances within one-month period from their occurrence. In case of breach of these conditions, the financial assistance is due to be reimbursed by the owner.

#### **Additional information:**

- **Available fund: 1 billion Leva (500 million Euro)**
- **Territorial coverage: nation-wide, all 264 municipalities**
- <http://www.mrrb.government.bg/?controller=category&catid=117>
- Eligibility criteria changed with Decree № 23/04.02.2016 and since 01.01.2016 all multifamily buildings with more than 3 storeys and 6 dwellings are eligible but priority is given to large concrete buildings with minimum 36 independent dwellings in the building.
- Measures eligible for funding:
  - Constructive repairs, reinforcement and major overhaul depending on the damages occurred throughout building use;
  - Retrofitting of common spaces: roof, façade, staircases, etc.);
  - Windows and doors replacement;
  - Thermal insulation of the building shell (walls, roofs, floors, etc.);
  - Major overhaul, retrofitting or replacement of local heating production units or their piping or other equipment, owed by the owners, including fuel switch at proven energy saving and environmental effect;
  - Construction of systems to use RES to meet the building own energy needs (not for sale);
  - Repair and replacement of obsolete parts of common heating/ventilation/sewage systems of the building in order to increase its energy efficiency;
  - Re-design and re-construction of the vertical heating system piping into horizontal one in order to ensure individual metering and control on heating consumption of each dwelling;
  - Repairs and replacement of electrical installations in common building spaces and energy saving lighting in common spaces;
  - Installing a system for central management and control of heat supplies in case of local heating sources owned by the building;
  - Installing a system for central management and control of lighting in the common spaces;

- Gas supply provision to the building (mounting of gas-fired boiler and connecting to the city gas supply network close to the building);
- Energy efficiency measures of the lifts;
- Building works complement to the energy saving measures;

The economically most efficient measures package will be financed by the programme which achieves Energy Efficiency Class C in compliance with Order №7 of 2004 for energy efficiency, heat energy savings and cost savings in buildings.

Municipalities are engaged in the program for Residential Building Energy Retrofitting (especially the one who have signed the Covenant of Mayors) and should select contractors to do the retrofitting according to the Public Procurement Law. There is also an opportunity for the municipalities to use the available 200 million leva (20 % of the overall program budget) allocated to a common public procurement for the technical auditing (both energy and construction) of the building and its technical passportization. It is also recommended that the municipalities bundle in a common public procurement the retrofitting and building works, and the offers to be evaluated according to least costs criteria.

The program will run until year 2020.

### Public subsidies

Energy retrofitting is currently financed mainly through national operational programmes that comprise of EU Funds plus national co-funding. The general policy in the next programme 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 programme 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.

New programming period 2014-2020 for Operational Programmes has already been established and specific programmes and priority areas have been defined. Further information can be obtained from the following web-site:

<https://www.eufunds.bg/programen-period-2014-2020/operativni-programi-2014-2020>

OP Regions in Growth and Rural Development Programme are of most relevance and will be mostly considered for the first stage of the Programme for EE in Rhodope Region.

### Third party financing (TPFs) and ESCOs

There is limited experience in ESCOs/TPF in Bulgaria:

**For street lighting:** Ullichno 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.

Other financing sources for street lighting include: National operational programmes (EU funds, Kozloduy Fund of EBRD), municipal own funding

#### For public buildings:

ENEMONA Ltd. (not very active recently due to financial shortfalls)

Dalkia (only for building energy management contracts, not investing in retrofits)

Small conclusion to summarize the financial sources: to investigate with banks to be able to finance

#### Actions to undertake

No	Action	Due	Owner	Status
1.	Investigate abilities to borrow from banks	25.05.2016	SEC/ARM	On-going

## PDU establishment budget estimates:

### Direct staff costs

Categories of staff to work on the project	Monthly salary incl.social security charges (EUR)	Number of work months on project	Total direct staff costs
<i>Technical Expert</i>	1600	36	57600
<i>Technical Expert</i>	1600	36	57600
<i>Administrative support</i>	1000	36	36000
<i>Administrative support</i>	1000	36	36000
<b>Total direct staff costs</b>			<b>187200</b>

### External experts / subcontracts

Type of activities / support	Description of tasks to be carried out	Total [EUR]
<i>Project Implementation Unit</i>	<i>Support to manage and provide project development services, of which:</i> <ul style="list-style-type: none"> <li><i>Training on basic economic and technical aspects of EE in street lighting and in buildings;</i></li> <li><i>Travel to GRE-Liege on a study-tour</i></li> </ul>	15 000  10 000  5 000
<i>Design contractual basic scheme for EE and street lighting</i>	<i>Legal and contractual framework external advice</i>	15 000
<i>Street lighting scheme design</i>	<i>Design technical review of energy audits scheme for street lighting systems (contract developing, public procurement)</i>	10 000
<i>EE in Buildings scheme design</i>	<i>Design technical review of energy</i>	10 000



	<i>audits scheme for EE in public buildings (contract developing, public procurement)</i>	
<i>Feasibility studies</i>	<i>Feasibility studies of projects for street lighting and EE in public buildings (85 approx.)</i>	170 000
Subtotal external experts / subcontracts		220 000
<b>Total costs</b>		<b>407 200</b>

## Conclusions

Under the Programme for EE in Rhodope Region it is foreseen to create a PDU as a structure within ARM and recruit the necessary staff with technical and financial expertise by applying for PDA H2020 (or another suitable option). The PDU will act as a one-stop-shop and will provide the following main services:

- Marketing and communication:
- Facilitation and client support:
  - ✓ Act as a knowledge centre;
  - ✓ 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).
  - ✓ Help to identify financing solutions applicable to different municipalities/clients – as Rhodope municipalities are of different sizes they are eligible for financing under different national Operational programmes. The PDU will investigate the opportunities and will identify suitable financing sources depending on the client's profile.
  - ✓ Assist in finding and negotiating the terms and conditions with banks (in case of direct loans) or ESCOs (if applicable);
  - ✓ 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

Because the market for ESCOs is not mature enough the Programme for EE in Rhodope Region will start with conventional funding focusing mostly on National operational programmes 2014-2020 (combined public subsidies with revolving mechanisms). Additionally ESCO funding possibilities (like ESCO for street lighting) matching the needs of the Programme and possibilities for direct bank loans will also be investigated and considered.

## Action plan summary

### Actions:

No	Action	Due	Owner	Status
1.	Collect data from Rhodope Municipalities about building stock (public and residential) and street lighting systems	31.08.2015	SEC/ARM	completed
2	Identify types of potential projects and necessary expertise to implement them	21.12.2015	SEC/GRE-Liege/ARM	completed
3	Calculate potential savings and investment needed	20.03.2016	SEC/GRE-Liege/ARM	completed
4.	Investigate local TPF/ESCO market	31.12.2015	SEC/ARM	completed
5	Assess different operation models and present to GA of ARM to be considered	25.03.2016	SEC/ARM	completed
6	General assembly of ARM to be presented the concept of PA and PDU and get first feedback	25.03.2106	SEC/ARM	completed
7	Collection of feedback from municipalities and spotting most promising ones	25.05.2016	SEC/ARM	On-going
8	Define operational model for the programme and get approval by GA of ARM	26.05.2016	SEC/GRE-Liege/ARM	On-going
9	Presentation to GA of ARM of detailed action-plan with concrete actions and the ways to finance PDU activities.	26.05.2016	SEC/GRE-Liege/ARM	On-going
10	Investigate abilities to borrow from banks	25.06.2016	SEC/ARM	On-going
11	Signing a letter of commitment for establishing PDU and applying for financing by most promising municipalities (eg. Smolyan)	10.07.2016	SEC/ARM	On-going
12	Identify needs of training for PDU	15.08.2016	SEC/GRE-Liege/ARM	On-going
13	Writing the application to PDA H2020	15.09.2016	SEC/ARM	On-going

### Actions' expected impact

The present Action plan is expected to result in investment projects launched in Rhodope Region with cumulative investment of 8.3 MEuro leading to 17.6 GWh of primary energy savings.

# Action plan for Murcia

## Pilot Region

Last update: November 30, 2016

### Introduction

The present Action Plan has been developed under WP3 with the following main goals:

- to present the current situation in the Murcia Region regarding sustainable energy potential focusing on building retrofitting/RES incorporation;
- to present available financing models of relevance to local sustainable energy actions in the Murcia Region;
- to tailor an Action Plan for the Murcia Region and to ensure it fits with the Murcia Region's constraints and reality;
- to outline the necessary steps to be taken in order to put in place or execute the program that will help Murcia Region in securing funding taking into account organizational, administrative, legal and financial aspects.

### Brief description of Murcia Region strategic objectives

The strategic objectives of the Murcia Energy plan are based on three concepts:

- Guaranteeing supply security conditions (supply, legal and prevention) and quality with the necessary infrastructure.
- Encourage savings and energy efficiency in all areas.
- Promote the use of sustainable energy sources and to ensure competitiveness.

These strategic objectives are connected with the horizon 20-20-20 tactical objectives are realized and quantitatively the operational objectives, modified these in a realistic conception conditioned by existing regulations, economic and social situation.

The strategic areas are subdivided into two categories:

- Sectoral
- Transverse

This classification is made in view of the matters that are the subject of execution; subdividing the first turn in the oriented businesses, residential and Public Administration; and the second to infrastructure, efficiency, positive environmental impact and administrative simplification.

**Sectoral areas:** these axes are the lines and actions are oriented clearly to specific sectors, groups or social or economic groups. Here is the Plan Efficiency in Public Buildings.

**Transverse:** Are these axes those lines and actions are oriented horizontally vocation and that will promote or foster concepts or areas of activity impacting positively on society.

## Role of CITYnvest

The Government of the Region of Murcia has mandated the Directorate General for Energy, Industry and Mining (DGEAIM) of the Regional Ministry of Economic Development, Tourism and Employment to develop an energy efficiency plan for the renovation of the building stock owned by the regional authorities. This plan is part of a global energy plan 2016-2020 for the Region. The foreseen role of CITYnvest for the Region of Murcia is to provide expertise and knowledge to speed up the plan implementation by assisting in the setting up of a suitable organization to act as a PDU (Program Delivery Unit) facilitating the execution of the projects.

## Facilitation structures under CITYnvest

Program authority/Program Delivery Unit roles and functions: The Program Authority (PA) and the Program Delivery Unit (PDU) are the two main stakeholders that will manage and implement the program or the model.

Program Authority (PA): The Program Authority (PA) is the public entity or organization that is in charge of the program or that controls the Program Delivery Unit (PDU). This is typically a national or regional government, a provincial or local authority or council or a city or municipal council. The Program Authority (PA) define the vision and the program scope including the targeted beneficiaries, the level of ambition, the implementation model and the funding vehicle that will be putted in place. The Program Authority also identifies within the stakeholders/parties who can play the role of Program Delivery Unit (PDU), and determines the services that it will offer to the beneficiaries. The Program Authority has also to secure the funding of the Program Delivery Unit (PDU)

Program Delivery Unit (PDU): The Program Delivery Unit (PDU) is the organization that is specifically set-up (and/or entitles) to implement/execute the program. It is often a separate legal entity, but can also be a department or project team within an existing organization. It can be a public, a public-private or a private entity/organization, depending the local capabilities and. In the most advanced models, the Program Authority (PA) has set-up a specific legal entity to play the role of Program Delivery Unit (PDU), either as a local public company or a mixed company (public-private).

### Key questions to address

<b>Program Authority (PA)</b>	
Who is/are the Program Authority (PA)?	The Government of the Murcia Region
How can you help the Program Authority (PA) to have a clear vision of the issues?	The Government has mandated, through its Government Council, the Directorate General for Energy, Industry and Mining (DGEAIM) of the Regional Ministry of Economic Development, Tourism and Employment to develop Energy Efficiency Plan for the renovation of the building stock owned by the regional authorities. This plan is part of a global energy plan 2016-2020 for the Region. The DGEAIM works in close cooperation with INFO-Murcia to set-up and execute the plan.
How can you support the Program Authority (PA) to define the vision and the program scope?	<p>The Government of the Murcia Region has already fixed his vision and program scope in a first draft of an Energy Efficiency Plan for the regional buildings. This plan has been developed by the DGEAIM and is in the approval process by the regional government.</p> <p>The plan (first draft) aimed to renovate the public buildings owned</p>

by the Murcia Region (409 buildings – 107 GWh – 26,6 millions € energy base line) with an preliminary estimated investment of 44,39 millions € that should lead to 23% energy savings (24,66 GWh, 64,119 GWhep, 6,12 millions € savings) and 16,005 avoided tons of CO2 per year.

This plan will be executed in several phases (8 phases) aiming to be fully accomplished in 2020.

DGEAIM has been designated as the Program Delivery Unit to handle and facilitate the program execution with the support of the DGP (Dirección General de Patrimonio e Informática) that will act as the contracting authority while INFO-Murcia will take in charge the reporting requirements within the CITYnvest project. With the support of INFO-Murcia, the CITYnvest team assists the DGEAIM/DGP to implement the program operationally.

After studying the different models presented in WP1, the approach to be adopted by DGEAIM will be based on the following:

**Hybrid Facilitation/Integration model:** The organization to carry out the Energy Efficiency Plan in Public Buildings is based on an hybrid facilitation/integration model, with two Murcia Regional Administrations at work on behalve of beneficiaries: DGEAIM team leads the organization, execution and follow-up of the plan and prepare/facilitate the projects pipeline (Execution of energy audits and diagnoses, Impact sheet and technical specs drafting) for the DGP Team which is in charge of the tender execution up to the contract awarding (through a Centralized Purchasing Office) and the monitoring, supervision and acceptance of works. DGP will act as the Contracting Authority.

**FI financing model:** The model that we will use preferentially is the ESCO Financing model. In this model, the ESCO or contractor acts as the funding vehicle, providing financing through EPC financing. The ESCO takes on the financial risk of the projects. The Program Delivery Unit (DGEAIM & INFO) can support DGP with financial and technical advice.

Therefore, the proposed model is a **mixed or hybrid model**, in which coexist **integration** (budgetary and administrative by the DGP) and **facilitation** functions carried out by the PDU (in this context, DGEAIM & INFO), which will provide technical advice to the DGP for the best use of funds.

**Operational models** applied to this financial scheme are facilitation and integration. In the part of integration is the Program Delivery Unit (DGP) that signs the contract with the ESCO on behalf of the beneficiary.

	<p>Implementation model: the EPC option has been chosen by DGEAIM to execute the projects.</p> <p>The DGEAIM/DGP will be funded to implement the plan (as part of his on-going work).</p>
How can you get from the Program Authority (PA) a clear commitment to the beneficiaries and the Program Delivery Unit (PDU)?	The commitment is fixed in the Regional Energy Plan 2016-2020 that contains the Plan of Energy Efficiency in public buildings.
<b>Program Delivery Unit (PDU)</b>	
What are the capabilities and knowledge requirements to manage the Program?	<p>Energy Efficiency assessment: DGEAIM has an internal team experienced in the field. In addition, DGEAIM will hire external consultants to handle audits and studies.</p> <p>Public procurement: DGEAIM will work in cooperation with a Centralized Purchase office (DGP) that has internal team experienced in public procurement but has limited to no experience in EPC contracting and/or Competitive Dialog.</p> <p>Project management : DGEAIM has an internal team experienced in the field.</p> <p>Public Finance: DGEAIM has an internal team experienced in the field.</p>
What are the tools and resources requirements to manage the Program?	<p>At date, the DGEAIM (and/or the DGP) has had little experience in EPC Contracting and/or Competitive Dialog. If applied, DGEAIM will have to:</p> <p>acquire the knowledge and capacities to handle the procurement process</p> <p>develop a standard contract model</p> <p>hire experienced consultants in EPC contract facilitation and in Measurement &amp; Verification techniques.</p>
What will be the staff requirements to manage the Program?	3-4 permanent staff for DGEAIM. To these, must be added the staff of DGP.
What will be the funding requirements to manage the Program?	0,8 M Euro
How long will be the Program?	48 months (2016-2020)
Who are the stakeholders/parties that have those capabilities, knowledge and resources to play the role	DGEAIM has been designated as the Program Delivery Unit to handle the program execution while INFO-Murcia will take in charge the reporting requirements within the CITYnvest project.

of Program Delivery Unit (PA)? Are they willing to play it?	
Is it desirable/necessary to set up a specific entity to play the role of Program Delivery Unit (PDU)?	No, the DGEAIM has the resources and the knowledge to handle the program execution.
If a specific entity is to be set up, should it be a public company or a mixed company?	N/A
If a mixed company is suitable, who are the private stakeholders/parties that can be invited? Are they willing to play it?	N/A
How will the Program Delivery Unit (PDU) funded?	From the regional budget. The PDU functions are performed by the system consisting of DGEAIM and DGP. Both are part of the Regional Government and its employees are public servants.
Could the Program Delivery Unit (PDU) apply for a technical assistance (e.g. Elena or EIB technical assistance)?	Yes, in fact the PDU (DGEAIM+DGP) is receiving technical assistance from the Elena-Fuentsanta team of INFO.

### Actions to undertake

No	Action	Due	Owner	Status
1	Presentation of the Energy Efficiency Plan (first draft) to the government of the Murcia Region.	25.03.2106	DGEAIM	completed
2	Refine the impact sheet	29.06.2016	DGEAIM/EI	Completed

### Beneficiaries, type of projects & Level of "ambition"

The beneficiary profile, the type of projects and the level of ambition will have a significant impact on the model:

Beneficiaries: They could come from the public sector, the commercial sector, the residential sector and/or the industrial sector.

Type of projects: It could be Energy Efficiency building retrofit project, Energy Efficiency public lighting retrofit project, Energy Efficiency industrial retrofit project or renewable energy project.

Level of ambition: the level of ambition could be classified as following:



Up to 35% reduction of energy consumption and/or GHG emissions: this level of ambition could be reached with short and middle term contract durations (average 10 years) based on technical installations (HVAC, lighting, electrical...) retrofits and managed energy services. As basic indicator, the price per square meter in case of a building retrofit could be less than 50€. Typically the ESCO market based offer target this level of ambition. The market is also able to offer ESCO and TPF financing options for this level of ambition.

Up to 50% reduction of energy consumption and/or GHG emissions: this level of ambition could be reached with middle and long term contract durations (between 15 and 25 years) based on technical installations (HVAC, lighting, electrical...) retrofits, envelope retrofits (insulation), renewable energy generation and managed energy services. As basic indicator, the price per square meter in case of a building retrofit could be less than 200 €. There are various examples in Europe of EPC/ESC models that have addressed such a level of ambition. ESCO financing and/or TPF financing will be more difficult to find for this level of ambition.

Up to 75% reduction of energy consumption and/or GHG emissions: this level of ambition could only be reached with long or very long term contract durations (min. 25 years) based on deep retrofits. As basic indicator, the price per square meter in case of a building retrofit could reach up to 800 €. There are a few examples in Europe of EPC/ESC model that have addressed such a level of ambition. This level of ambition will require a mix of financing solutions (conventional financing, ESCO financing, PDU financing, Investment fund).

Carbon neutral: this level of ambition could only be reached with deep retrofit and renewable energy generation projects. This level of ambition will require a mix of financing solutions (conventional financing, ESCO financing, PDU financing, Investment fund).

#### Key questions to address

Beneficiaries	Comments
Who will be the beneficiaries of the program?	Government departments (Public Regional Administrations) of the Region of Murcia.
How many are they and what is their potential in terms of number and size of projects?	<p><b>Beneficiaries</b></p> <p>Beneficiaries are the nine departments of the Regional Department, four autonomous public organizations and five other public entities.</p> <p><b>Regional public buildings stock</b></p> <p>The regional building stock counts 409 buildings with a yearly consumption of 107 Gwh and 26,6 millions € of energy bill.</p> <p>The composition of the stock of buildings used to develop the Sheet Impact of May 18, 2016 is shown below. This information is based on the inventory of DGP. However DGEAIM continue working to improve the information available.</p>

	<p>Distribution public buildings CARM</p> <p>CONSEJERIA DE PRESIDENCIA: 6</p> <p>CONSEJERIA DE HACIENDA Y ADMIN PUBLICA: 36</p> <p>CONSEJERIA DE AGRICULTURA Y AGUA : 46</p> <p>CONSEJERIA DE DESARROLLO EC. TURISMO Y EMPLEO : 8</p> <p>CONSEJERIA DE EDUCACION Y UNIVERSIDADES: 111</p> <p>CONSEJERIA DE FOMENTO E INFRAESTRUCTURAS: 7</p> <p>CONSEJERIA DE SANIDAD (included SMS): 101</p> <p>CONSEJERIA DE FAMILIA E IGUALDAD DE OPOR: 4</p> <p>CONSEJERIA DE CULTURA Y PORTAVOCIA: 10</p> <p>ORGANISMO AUTONOMO AGENCIA TRIB, REG. MURCIA: 1</p> <p>ORGANISMO AUTONOMO IMIDA: 4</p> <p>ORGANISMO AUTONOMO IMAS: 36</p> <p>ORGANISMO AUTONOMO SEF: 26</p> <p>ASAMBLEA REGIONAL: 2</p> <p>CONSEJO ECONOMICO Y SOCIAL: 1</p> <p>BORM: 1</p> <p>CONSEJO JURIDICO: 1</p> <p>CONSORCIO EXTINCION DE INCENDIOS: 8</p> <p>The energy efficiency plan intend to realize 23% energy savings (25 Gwh, 6,2 millions €)</p> <p>For the first group of 24 buildings contracts will be signed with an ESCO (Energy Services Company) that will acts as a unique contractor and assure all the technical risks of every contract. If the experience is positive this model will be extended to other groups of buildings, although other financing options have not been ruled out.</p> <p>The number of planned projects is 100 for large buildings, 79 projects for medium-size buildings and 230 projects for small buildings. The program will be implemented in 8 phases over the life of the program.</p>
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What is the estimated funding need to finance the beneficiaries' projects (depending of the level of ambition)?	<p>Using the ESCO model, for a first group of buildings, the annual cost of the contract for the Program Authority will always be less than the annual cost of energy for that group, plus the cost of maintenance (electrical and thermal equipment). The other investments made by the company ESCO will be financed with the own savings obtained.</p> <p>ESCO model will be used for the first group of 24 buildings. If the experience is positive its use will be extended to other groups of buildings, although other financing options have not been ruled out.</p> <p>The exact cost will depend on which is the most favorable offer in the process of bidding and awarding the contracts.</p>
Are those potential and funding needs addressable within the program?	Yes.
<b>Type of projects</b>	<b>Comments</b>
What will be the type of projects?	<p>EE/RES in public buildings. Projects include the followings Energy Conservation Measures (ECMs):</p> <p>Façade renovation (mix between windows replacement and opaque facades placement)</p> <p>Inside lighting renovation (relighting with leds)</p> <p>Boiler retrofitting (biomass boilers)</p> <p>Air conditioning retrofitting (technical equipment replacement)</p> <p>Energy management (commissioning and regulation of the equipment)</p>
What will be the knowledge and resources requirements to realize this type of projects?	<p>Energy Efficiency assessment: DGEAIM has an internal team experienced in the field. In addition, DGEAIM will hire external consultants to handle audits and studies. In addition, technical assistance from the Elena-Fuensanta team of INFO.</p> <p>Public procurement: DGEAIM will work in cooperation with a Centralized Purchase office (DGP) that has internal team experienced in public procurement but has limited or no experience in EPC contracting and/or Competitive Dialog.</p> <p>Project management: DGEAIM has an internal team experienced in the field.</p>
Are there experienced ESCOs, contractors and/or suppliers to realize that type of projects?	Yes, there are several ESCOs active on the market in the Region of Murcia. In addition, there are many electrical and air conditioning installers which could answer to

	competitive tenders.
<b>Level of ambition</b>	<b>Comments</b>
What will be the level of ambition for the project?	23 % of savings (kWh)
Is it coherent with the beneficiaries potential?	Yes
Are beneficiaries able or willing to contract on very long term?	Yes
Is it addressable within the program?	Yes

### Summary

Beneficiaries are the nine departments of the Regional Department, four autonomous public organizations and five other public entities. The regional building stock counts 409 buildings with a yearly consumption of 107 Gwh and 26,6 millions € of energy bill. The building stocks is composed as following:

CONSEJERIA DE PRESIDENCIA: 6

CONSEJERIA DE HACIENDA Y ADMIN PUBLICA: 36

CONSEJERIA DE AGRICULTURA Y AGUA : 46

CONSEJERIA DE DESARROLLO EC. TURISMO Y EMPLEO : 8

CONSEJERIA DE EDUCACION Y UNIVERSIDADES: 111

CONSEJERIA DE FOMENTO E INFRAESTRUCTURAS: 7

CONSEJERIA DE SANIDAD (incluido SMS): 101

CONSEJERIA DE FAMILIA E IGUALDAD DE OPOR: 4

CONSEJERIA DE CULTURA Y PORTAVOCIA: 10

ORGANISMO AUTONOMO AGENCIA TRIB, REG. MURCIA: 1

ORGANISMO AUTONOMO IMIDA: 4

ORGANISMO AUTONOMO IMAS: 36

ORGANISMO AUTONOMO SEF: 26

ASAMBLEA REGIONAL: 2

CONSEJO ECONOMICO Y SOCIAL: 1

BORM: 1

CONSEJO JURIDICO: 1

CONSORCIO EXTINCION DE INCENDIOS: 8

The Energy Efficiency Plan in Public Buildings intend to realize 23% energy savings (25 Gwh, 6,2 millions.

Projects include the followings Energy Conservation Measures (ECMs):

- Façade renovation (mix between windows replacement and opaque facades placement)
- Inside lighting renovation (relighting with led)
- Boiler retrofitting (biomass boilers)
- Air conditioning retrofitting (technical equipment replacement)
- Energy management (commissioning and regulation of the equipment)

The number of planned projects is 100 for large buildings, 79 projects for medium-size buildings and 230 projects for small buildings. However, this number of planned projects is subject to evolve depending the results of energy analysis (in process) and the conditions of the first contracts signed with ESCOs. The renovation program will be implemented in 8 phases over the life of the plan.

Implementation of the plan follows the procedure below:

1. Execution of energy audits and diagnoses (DGEAIM)
2. Impact sheet and technical specifications drafting (DGEAIM)
3. Tender execution up to contract (DGP)
4. Monitoring, supervision and acceptance of works (DGP)

The table below details the phases foreseen at this stage of the master plan (draft paper):

Stages	Number of buildings in stages and sizes			Finish Date
	Big	Medium	Small	
I	47	8	7	2017/03
II	38	12	0	2017/03
III	15	35	0	2017/07
IV	0	24	30	2017/09
V	0	0	50	2017/11
VI	0	0	50	2018/01
VII	0	0	50	2018/03
VIII	0	0	43	2018/05
<b>Subtotal</b>	<b>100</b>	<b>79</b>	<b>230</b>	

This strategic updated as the However, the plan

planning is being plan progress. implementation

has already begun. At date, DGEAIM/DGP is busy to finalize the first stage with the drafting of the technical specifications to tender, award and sign a first EPC contract for a pool of 24 administrative buildings for which energy audits and diagnoses have been already executed. In the elaboration of the technical specifications of the 24 administrative buildings is collaborating the ELENA team of INFO Murcia.

The next step is the diagnosis of a second pool of 37 buildings (educational buildings). The contract is completed and pending tender and award.

#### Actions to undertake

No	Action	Due	Owner	Status
1	Execute Energy Audits and Diagnoses for the first pool (24 administrative buildings)	30.09.2016	DGEAIM	Completed

2	Draft Technical Specs for the first pool (24 administrative buildings)	30.12.2016	DGEAIM	On-going
3	Execute the tender for the first pool (24 administrative buildings)	01.04.2017	DGP	On-going
4	Execute energy audits and diagnoses for the 2d pool (37 educational buildings)	30.12.2016	DGEAIM	On-going
5	Calculate potential savings and investment needed for the 2d pool (37 educational buildings)	30.12.2016	DGEAIM	On-going
6	Refine the Impact Sheet with on-going results	30.12.2016	DGEAIM	On-going

### Implementation model

The implementation model is the method by which the projects are technically and operationally implemented in the field, most often by using contractors or subcontractors. Typical implementation models are Energy Performance Contracting, Energy Supply Contracting and Separate Contractor Based.

EPC/ESC model: Energy Performance Contracting (EPC) or Energy Supply Contracting (ESC) is a method by which an ESCO (Energy Services Company) acts as a unique contractor and assure all the technical risks of the contract. The ESCO deliver to the contracting beneficiary performance guarantee on the energy savings (EPC) or "useful" energy to a contractually agreed price (ESC) that secures the stream of revenues to reimburse the investment. In the EPC/ESC model, the Program Delivery Unit (PDU) can act either as a project facilitator or project integrator but do not takes on the technical risks of the project (neither the beneficiary). The EPC/ESC model is the key condition to access to ESCO and/or Third party financing (TPF).

Separate contracting: Separate contracting is a method to implement multi-technique energy efficiency or renewable energy projects, by which each step of the process is dealt with by a separate party (energy auditor, engineering company, installer or contractor, maintenance company) and by which individual projects (e.g. boiler replacement, relighting, isolation, etc.) are executed by separate contractors for each technique. In this model, the Program Delivery Unit (PDU) can act either as a facilitator or integrator, but it can be useful to have the Program Delivery Unit (PDU) or another organization to act as an integrator to ensure an end-to-end delivery of the energy efficiency program and provide a consistent level of service from the different contractors. In the Separate contracting model, the Program Delivery Unit (PDU) and/or the beneficiary takes on the technical risks of the project. In this model, there is also little room to access to Third party financing (TPF).

#### Key questions to address:

EPC/ESC vs. Separate contracting	Comments
Are there local ESCO's on the market to organize competitive tenders? (= Condition for EPC/ESC)	Yes, there are several ESCOs working in the Murcia region.
Do local ESCO market practices meet the program level of ambition (e.g. in case of deep retrofit)? (= Condition for EPC/ESC)	ESCO companies that have worked in Murcia, have done projects on municipal infrastructures. No results are known about

	large public buildings.
Are the beneficiaries able or willing to sign long term contracts with suppliers/private ESCO's? (= Condition for EPC/ESC)	Yes, beneficiaries are departments of regional Government and can contract under the same conditions.
Is there a standard and robust EPC/ESC tendering model available locally? (= Condition for EPC/ESC)	No, there isn't at this moment.
Is there local expertise and resources in EPC/ESC tendering process? (= Condition for EPC/ESC)	There are some experiences in municipalities (sports facilities and public lighting) but DGEAIM and/or DGP) but has limited or no experience in EPC contracting and/or Competitive Dialog
Is it desirable to integrate "operating and maintenance services" within the contractual scheme for the projects? (= Suitable for EPC/ESC)	Yes. In cases of ESCO financing we think it is the most useful.
Is it important/necessary to manage the technical risk of the projects by performance guarantees? (= Suitable for EPC/ESC)	In all contracts the contractor must provide guarantees, but the guarantees increase the contract price. It is a case to handle case by case.
Is it important/necessary to manage and control transaction costs of the projects? (= Suitable for EPC/ESC)	We think it is very important.
Is it important to enhance financial predictability of the projects? (= Suitable for EPC/ESC)	Yes, we believe that ESCOs are an essential tool to enhance financial predictability.
Are ESCO and/or TPF financing desirable or necessary? (= Suitable for EPC/ESC)	After evaluating the financing possibilities for a first group of 24 building we have concluded that for large-scale energy efficiency projects the preferred financing option is ESCO financing, although other financing options have not been ruled out.
Are the "time to invest" and "time to savings" decisive factors for the program? (= Suitable for EPC/ESC)	These are very important factors.

### Summary

EPC Contracting is the preferred model of implementation for the Region of Murcia, but this model could evolve depending the final results of the first EPC contracts.



## Actions to undertake

No	Action	Due	Owner	Status
1.	Investigate local TPF/ESCO market	30.09.2016	DGEAIM/DGP	Completed

## Operating Services

The Operating Services are the kind of services that are delivered by the Program Delivery Unit (PDU). They can be Marketing, Aggregation, Integration, Facilitation, Financial Advisory, Financing and Assessment (or a combination of):

**Marketing:** Marketing covers the commercialization of the services of energy efficiency to the beneficiaries. This covers the whole range of communication and commercial development services that are necessary to inform the beneficiaries of the types of offerings that are available to them. It also covers the pricing policy and product/services development.

**Aggregation:** see below

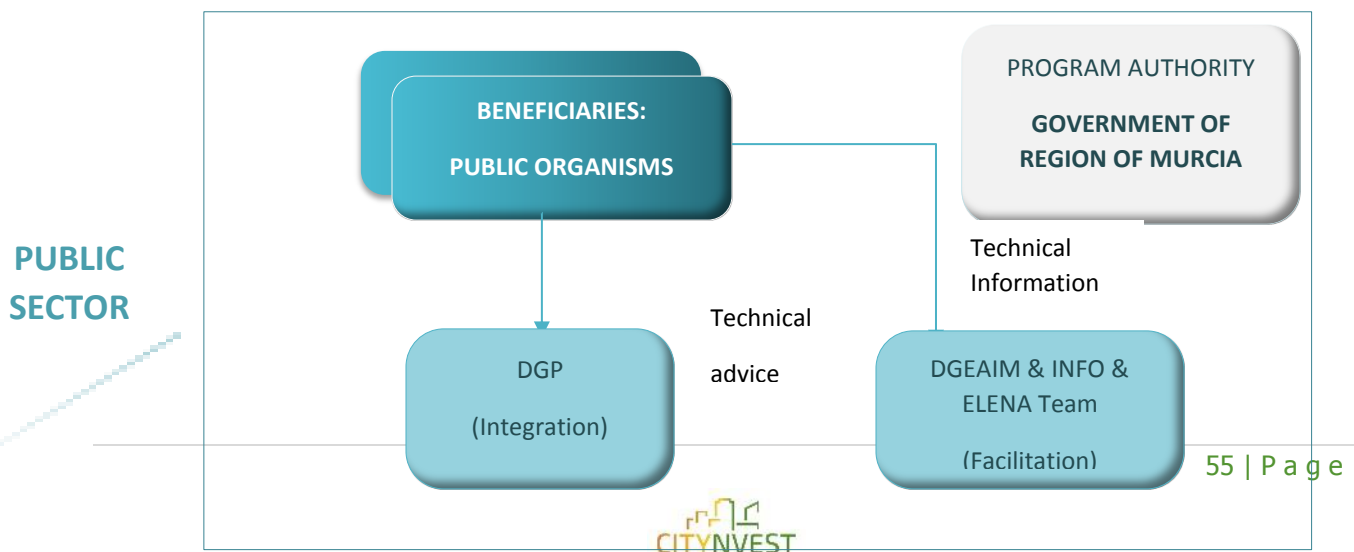
**Facilitation:** Facilitation means that the Program Delivery Unit (PDU) does not sign the contract with the beneficiary, but coordinates or “facilitates” the whole process of project delivery on behalf of the beneficiary. The contracts are signed directly between the beneficiary and the contractors. This role is often played by the Program Delivery Unit (PDU) in case of EPC/ESC implementation model, where the contract is signed directly between the beneficiary and the ESCO. Managing the tendering process is typically part of facilitation services offered in case of EPC or ESC projects.

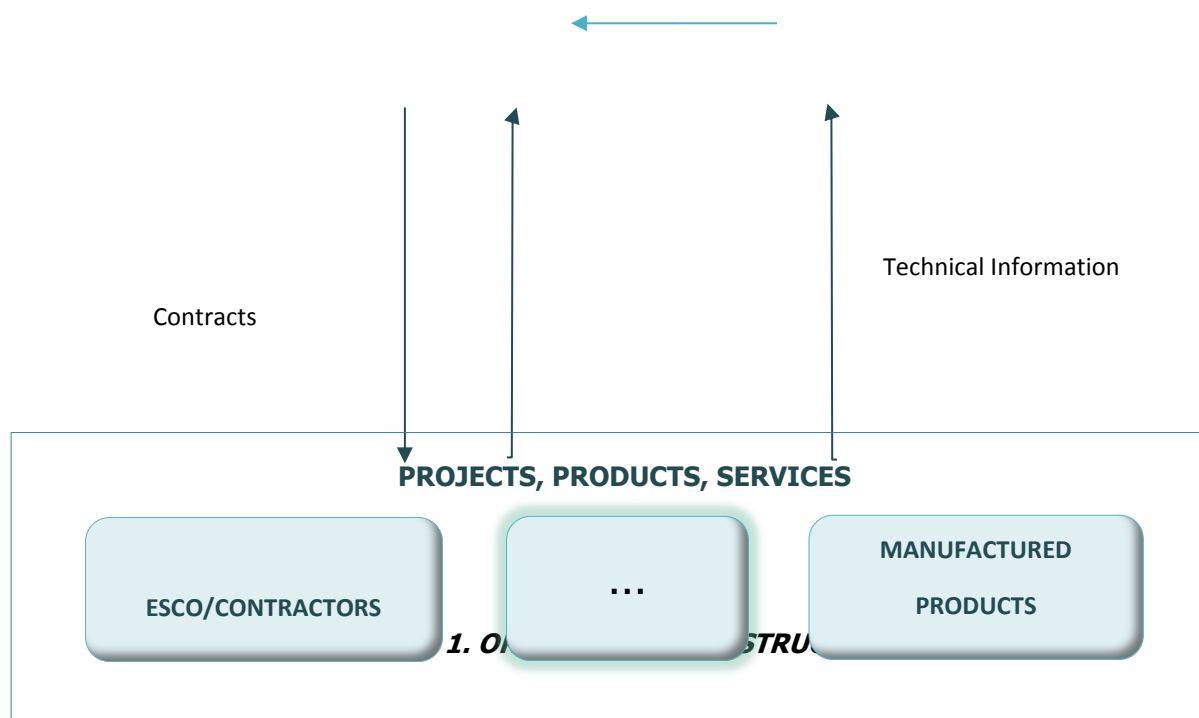
**Integration:** Integration means that the Program Delivery Unit (PDU) acts as an intermediary between the beneficiary on one hand and the contractors or subcontractors on the other hand. This means that the contract for the delivery of the energy efficiency is signed between the integrator and the beneficiary and that the integrator signs contracts with the (sub)contractors. This role is often associated with the Separate Contractor Based implementation model, although it can also be applied to EPC or ESC. In the integrating model, the Program Delivery Unit (PDU) takes on the technical risks of the project, except to have back-to-back agreements with the beneficiary on one hand and the ESCO on the other hand (in the case of EPC/ESC model).

**Financial Advice:** see below

**Financing:** see below

**Assessment:** Assessment is the role by which the PDU evaluates the technical and financial viability of an energy efficiency project and decides whether or not the project gets implemented and/or financed. The PDU will typically use a number of criteria to judge whether the project is acceptable or not.





#### Key questions to address

Marketing	Comments
What are the knowledge, resources and staff required to market?	In our case the marketing service is not a type of service delivered by the Program Delivery Unit (PDU).
How to market the program?	
What are the funding requirements to market the program?	
Facilitating vs. integrating	Comments
What are the knowledge, resources and staff required to facilitate the projects?	<p>Energy Efficiency assessment: DGEAIM has an internal team experienced in the field. In addition, DGEAIM will hire external consultants to handle audits and studies. In addition, technical assistance from the Elena-Fuentsanta team of INFO.</p> <p>Public procurement: DGEAIM will work in cooperation with a Centralized Purchase office (DGP) that has internal team experienced in public procurement but has a no experience in EPC contracting and/or Competitive Dialog.</p> <p>Project management: DGEAIM has an internal team experienced in the field.</p> <p>Public Finance: DGEAIM has an internal team experienced in the field.</p>
What are the funding requirements to	The funds needed for the facilitation and integration of the

facilitate the projects?	projects are part of the budgets of the Regional Government.
What are the knowledge, resources and staff needed to integrate the projects?	Knowledge on public procurement, centralized contracting and management of public (real estate)  DGP is specialized in these matters. It has enough managers and architects to handle the contractions that are necessary.
What are the funding requirements to integrate the projects?	The funds needed for the facilitation and integration of the projects are part of the budgets of the Regional Government.
What is the desired level of integration of the program management? (= Suitable for integration)	The level of integration is high because DGP signs all contracts on behalf of the beneficiaries.
Is integration (in particular those of the separate contracting model) desirable to have a uniform level of service and risk profile to offer? (= Suitable for integration)	Yes, integration into large-scale projects allows acquiring useful knowledge for new tenders.
Is there sufficient "value added" to integrate the contracting process (e.g. single point of contact, risk management, economies of scale)? (= Condition for integration)	We believe that the integration and centralization of contracting can take advantage of economies of scale and manage risks more efficiently.
Does the Program Delivery Unit (PDU) have the knowledge and resources (in terms of staff and funding requirements) to integrate the program? (= Condition for integration)	Yes (as part of the work of DGP)
Can the Program Delivery Unit (PDU) take the "residual" risk on? (= Condition for integration)	N/A.
<b>Assessment</b>	<b>Comments</b>
What are the knowledge, resources and staff required to assess the projects?	Energy Efficiency assessment: DGEAIM has an internal team experienced in the field. In addition, DGEAIM will hire external consultants to handle audits and studies, and we have technical assistance from the Elena-Fuentsanta team of INFO.
How to market the program?	N/A
What are the funding requirements to assess the projects?	The financing costs of assessment are mainly labor costs for technical staff (engineers in DGEAIM and INFO, architects in DGP) and administrative and management staff. At the moment we are in the process of economic valuation of these costs.

## Summary

DGEAIM/DGP will act as a facilitator/integrator to execute the projects on behalf of the beneficiaries:

Program Management: DGEAIM leads the program implementation and follow-up.

- Projects preparation: DGEAIM will execute the energy audits, make economic and technical assessments to define the scope of works to be executed within the projects, organize the phases of execution (pool of works and/or buildings) on the timeframe of implementation (2016-2020). DGEAIM also draft the technical specifications required for the Projects tendering.
- Projects tendering: DGP will manage the tenders up to the contract awarding through a Central Purchasing Office. DGP is the contracting authority.
- Works follow-up: DGP will manage the monitoring, supervision and acceptance of works.

## PDU establishment budget estimates: Direct staff costs DGEAIM/DGP

These calculations are still under development.

Categories of staff to work on the project	Monthly salary incl.social security charges (EUR)	Number of work months on project	Total direct staff costs
<i>Technical Expert 1</i>			
<i>Technical Expert 2</i>			
<i>Administrative support 1</i>			
<i>Administrative support 2</i>			
Total direct staff costs			

## External experts / subcontracts DGEAIM/DGP

Type of activities / support	Description of tasks to be carried out	Total [EUR]
<i>Project Implementation Unit</i>	<i>Support to manage and provide project development services, of which:  Training on basic economic and technical aspects of EPC contracts versus SBC operational model;  Travel to Brussels on a study-tour</i>	
<i>Audits, mapping, feasibility studies</i>	<i>External advice to execute audits, buildings mapping, feasibility studies needed to finalize the master plan.</i>	

<i>ECMs technical specifications</i>	<i>External advice to draft technical specifications of ECMs (for SBC-based project) needed to launch the tenders.</i>	
<i>EPC tenders documents</i>	<i>Legal and contractual external advice to draft standardized EPC tenders documents</i>	
<i>EPC tenders assistance</i>	<i>Legal and contractual external advice to facilitate the first EPC tenders:</i>  <i>project preparation</i>  <i>final tenders documents drafting</i>  <i>bidders selection</i>  <i>bids analysis and negotiation</i>  <i>Measurement &amp; Verification plan establishment</i>  <i>contract implementation follow-up)</i>	
Subtotal external experts / subcontracts		
Total costs		

**DGEAIM Project staff:** two engineers and an officer are working on the development and implementation of the Plan. Coordination and general supervision of the plan is made by the Director of DGEAIM.

#### Actions to undertake

No	Action	Due	Owner	Status
1.	Estimate the final funding and staff requirements (DGEAIM/DGP) depending the final choice of the implementation model	31.12.2016	DGEAIM/DGP	On-going

#### Financing & Funding Vehicle

The Funding Vehicle is the entity that is used to finance the projects. Typically, the models/programs that where analyzed make use of the following funding vehicles (or a combination of):

Investment fund: the Program Authority (PA) or the Program Delivery Unit (PDU) set-up a public, public-private, public-citizens fund to provide total or partial project financing of the program. The fund can work on a stand-alone basis, in cooperation with the Program Delivery Unit (PDU) or be integrated into the Program Delivery Unit (PDU). In this case, the fund takes on the financial risk of the project.

**PDU financing:** the Program Delivery Unit (PDU) acts as the funding vehicle, providing financing, either through an own fund (or the Investment fund) or by packaging external financing solutions into an integrated financing service. In this case, the Program Delivery Unit (PDU) takes on the financial risk of the project.

**ESCO financing:** the ESCO or contractor acts as the funding vehicle, providing financing through either EPC financing or ESC financing. In this case, the ESCO takes on the financial risk of the project. The Program Delivery Unit (PDU) can support the beneficiary with financial advice and financial engineering services providing guidance and consultancy on ESCO financing for his project

**Conventional financing:** the beneficiaries pack internal (own funds) and external financing (financial institutions, utility funds, etc.) solutions in order to finance his projects. In this case, the beneficiaries take on the financial risk of the project. The Program Delivery Unit (PDU) can support the beneficiary with financial advice and financial engineering services providing guidance and consultancy on available funding for his project.

[Key questions to address](#)

Main topics	Comments
<b>What is the funding need of the program</b>	<p>Using the ESCO model, for a first group of buildings, the annual cost of the contract for the Program Authority will always be less than the annual cost of energy for that group, plus the cost of maintenance (That is, current expenditures are a higher upper limit of the bidding cost of contracts. The actual cost will be substantially lower) The other investments (Improvement and replacement of equipment) made by the ESCO company will be financed with the own savings obtained.</p> <p>The exact cost will depend on which is the most favorable offer in the process of bidding and awarding the contracts.</p> <p>ESCO model will be used for the first group of 24 buildings. If the experience is positive its use will be extended to other groups of buildings, although other financing options have not been ruled out.</p> <p>The exact cost will depend on which is the most favorable offer in the process of bidding and awarding the contracts.</p>
<b>Are there existing local, regional or national financing instruments to fund the program (e.g. ERDF)</b>	<p>Yes, there are two national schemes (JESSICA-FIDAE and Programma Pareer-Grece) but they ended their terms this year.</p> <p>The financing of the planning and advisory work is done with own funds coming from</p>

	<p>the budget of the Regional Government.</p> <p>In order to finance the specific technical projects of each building, ESCO funding will be used principally, although other possibilities are not ruled out.</p>
<b>Is it eligible for EU funding (e.g. EIB)?</b>	Yes, this funding source is possible.
<b>Who can bare the financial risk?</b>	N/A
<b>What is the bearable impact on public balance sheet and/or beneficiary balance sheet (debt capacity)?</b>	ESCO financing is not indebted (in the sense that there is no creditor and repayment term for a loan). However, it is an instrument that must be used with the utmost precaution.

<b>Conventional financing</b>	<b>Comments</b>
<b>Are financial advice and financial engineering services to the beneficiary sufficient?</b>	N/A
<b>Can beneficiaries count on their own funding (own debt capacity)?</b>	The specific beneficiaries are part of the Regional Government. They do not use their own funds, since these funds are destined to their own activities (education, health, etc).
<b>Can beneficiary take the financing risk on?</b>	No
<b>Is bank financing available for the kind of projects?</b>	Yes. It is not the preferred option but it is not discarded either.
<b>Can the Program Authority (PA)/Program Delivery Unit (PDU) set up an agreement with financial institutions (public and private) on a structural funding scheme for your program?</b>	It could do this, but this is not the chosen option.
<b>Does the beneficiary need partial credit guarantee or portfolio guarantee to finance his projects?</b>	No
<b>Can the Program Authority (PA)/Program Delivery Unit (PDU) set up a credit guarantee fund to support the program funding through beneficiaries?</b>	Yes
<b>ESCO Financing</b>	<b>Comments</b>
<b>Does local private ESCO's (market) provide funding?</b>	Yes. There are several ESCOs that provide funding
<b>Is the ESCO financing competitive compared to</b>	Yes, it is competitive. However the other



<b>conventional (or PDU) financing?</b>	options are completely discarded.
<b>Could the local private ESCO's market meet the program size (funding volume)?</b>	Yes, although we may have to hire more than one ESCO.
<b>Can the Program Authority (PA)/Program Delivery Unit (PDU) set up an agreement with financial institutions (public and private) on a third party structural funding scheme for your program?</b>	Yes. This is possible.
<b>Does the ESCO need partial credit guarantee of portfolio guarantee?</b>	All companies that contract with the Regional Government must present sufficient guarantees. Contracts legislation is very strict in this area.
<b>Can the Program Authority (PA)/Program Delivery Unit (PDU) set up a credit guarantee fund to support the program funding through ESCO's?</b>	Option not considered at this moment.
<b>PDU Financing</b>	<b>Comments</b>
<b>Is it necessary and/or cheaper to integrate the project financing within the model?</b>	In our case, the PDU does not act as a financing vehicle. It will not act as a financier or investor for the final beneficiaries.
<b>Can the Program Delivery Unit (PDU) take the financing risk on?</b>	No
<b>What is the desired level of integration of the program funding in the role of aggregator/facilitator/integrator?</b>	N/A
<b>Does the Program Delivery Unit (PDU) have the financial expertise and resources to fund the program?</b>	No
<b>Can the Program Delivery Unit (PDU) have access to sufficient funding to meet the program size?</b>	N/A
<b>Can the Program Authority (PA)/Program Delivery Unit (PDU) set up an agreement with financial institutions on a third party structural funding scheme for your program?</b>	The Program Authority (PA)/Program Delivery Unit (PDU) can set up agreements with financial institutions on a third party structural funding scheme. It is a possibility that is not completely ruled out.

#### Summary

As the size of the program is bearable on the regional budget, financing of the projects will be made by the Regional Government, sourced totally from its own funds.

#### Actions to undertake

No	Action	Due	Owner	Status
1.	Investigate local TPF/ESCO market	31.09.2016	DGEAIM/DGP	Done
2.	Refine the funding requirements to finance the projects to revise the impact sheet.	31.12.2016	DGEAIM	On-going

## Action plan summary

The Government has mandated, through its Government Council, the Directorate General for Energy, Industry and Mining (DGEAIM) of the Regional Ministry of Economic Development, Tourism and Employment to develop Energy Efficiency Plan for the renovation of the Public Building stock owned by the regional authorities. This plan is part of a global Energy Plan 2016-2020 for the Region. The DGEAIM works in close cooperation with INFO-Murcia and to set-up and execute the plan.

Beneficiaries are the nine departments of the Regional Department, four autonomous public organizations and five other public entities. The regional building stock counts 409 buildings with a yearly consumption of 107 Gwh and 26,6 millions € of energy bill. The building stocks is composed as following:

CONSEJERIA DE PRESIDENCIA: 6

CONSEJERIA DE HACIENDA Y ADMIN PUBLICA: 36

CONSEJERIA DE AGRICULTURA Y AGUA : 46

CONSEJERIA DE DESARROLLO EC. TURISMO Y EMPLEO : 8

CONSEJERIA DE EDUCACION Y UNIVERSIDADES: 111

CONSEJERIA DE FOMENTO E INFRAESTRUCTURAS: 7

CONSEJERIA DE SANIDAD (incluido SMS): 101

CONSEJERIA DE FAMILIA E IGUALDAD DE OPOR: 4

CONSEJERIA DE CULTURA Y PORTAVOCIA: 10

ORGANISMO AUTONOMO AGENCIA TRIB, REG. MURCIA: 1

ORGANISMO AUTONOMO IMIDA: 4

ORGANISMO AUTONOMO IMAS: 36

ORGANISMO AUTONOMO SEF: 26

ASAMBLEA REGIONAL: 2

CONSEJO ECONOMICO Y SOCIAL: 1

BORM: 1

CONSEJO JURIDICO: 1

CONSORCIO EXTINCION DE INCENDIOS: 8

The Energy Efficiency Plan in Public Buildings intend to realize 23% energy savings (25 Gwh, 6,2 millions €). Projects include the followings Energy Conservation Measures (ECMs):

Façade renovation (mix between windows replacement and opaque facades placement)

- Inside lighting renovation (relighting with leds)
- Boiler retrofitting (biomass boilers)
- Air conditioning retrofitting (technical equipment replacement)
- Energy management (commissioning and regulation of the equipment)

The number of planned projects is 100 for large buildings, 79 projects for medium-size buildings and 230 projects for small buildings. However, this number of planned projects is subject to evolve depending the results of energy analysis (in process) and the conditions of the first contracts signed with ESCOs. The renovation program will be implemented in 8 phases over the life of the plan.

Implementation of the plan follows the procedure below:

- Execution of energy audits and diagnoses (DGEAIM)
- Impact sheet and technical specifications drafting (DGEAIM)
- Tender execution up to contract (DGP)
- Monitoring, supervision and acceptance of works (DGP)

The table below details the phases foreseen at this stage of the master plan (draft paper):

Stages	Number of buildings in stages and sizes			Finish Date
	Big	Medium	Small	
I	47	8	7	2017/03
II	38	12	0	2017/03
III	15	35	0	2017/07
IV	0	24	30	2017/09
V	0	0	50	2017/11
VI	0	0	50	2018/01
VII	0	0	50	2018/03
VIII	0	0	43	2018/05
<b>Subtotal</b>	100	79	230	

This strategic planning is being updated as the plan progress. However, the plan implementation has already begun. At date, DGEAIM/DGP is busy to finalize the first stage with the drafting of the technical specifications to tender, award and sign a first EPC contract for a pool of 24 administrative buildings for which energy audits and diagnoses have been already executed. For the elaboration of these technical specifications DGEAIM is receiving technical advice from ELENA team integrated in INFO Murcia.

The next step is the diagnosis of a second pool of 37 buildings (educational buildings).

DGEAIM has been designated as the Program Delivery Unit to handle and facilitate the program execution with the support of the DGP (Dirección General de Patrimonio e Informática) that will act as the contracting authority while INFO-Murcia will take in charge the reporting requirements within the CITYnvest project. With the support of INFO-Murcia, the CITYnvest team assists the DGEAIM/DGP to implement the program operationally.

After studying the different models presented in WP1, the approach to be adopted by DGEAIM will be based on the following:

Hybrid Facilitation/Integration model: The organization to carry out the Energy Efficiency Plan in Public Buildings is based on an hybrid facilitation/integration model, with two Murcia Regional Administrations at work on behalve of beneficiaries: DGEAIM team leads the organization, execution and follow-up of the

plan and prepare/facilitate the projects pipeline (Execution of energy audits and diagnoses, Impact sheet and technical specs drafting) for the DGP Team which is in charge of the tender execution up to the contract awarding (through a Centralized Purchasing Office) and the monitoring, supervision and acceptance of works. DGP will act as the Contracting Authority.

FI financing model: Beneficiaries finance the projects on their own resources. The funding of the projects will be provided from the regional budget sourced totally or partially on existing national energy efficiency funds available to regions (JESSICA-FIDAE, Programa Pareer-Grece.)

Implementation model: the EPC option has been chosen by DGEAIM to execute the projects.

The DGEAIM/DGP will be funded to implement the plan (as part of his on-going work).

EPC Contracting is the preferred model of implementation for the Region of Murcia, but this model could evolve depending the final results of the first EPC contracts.

DGEAIM/DGP will act as a facilitator/integrator to execute the projects on behalf of the beneficiaries:

Program Management: DGEAIM leads the program implementation and follow-up.

Projects preparation: DGEAIM will execute the energy audits, make economic and technical assessments to define the scope of works to be executed within the projects, organize the phases of execution (pool of works and/or buildings) on the timeframe of implementation (2016-2020). DGEAIM also draft the technical specifications required for the Projects tendering.

Projects tendering: DGP will manage the tenders up to the contract awarding through a Central Purchasing Office. DGP is the contracting authority.

Works follow-up: DGP will manage the monitoring, supervision and acceptance of works.

### Action plan summary

No	Action	Due	Owner	Status
1	Presentation of the Energy Efficiency Plan (first draft) to the government of the Murcia Region.	25.03.2106	DGEAIM	completed
2	Refine the impact sheet	29.06.2016	DGEAIM	Completed
1	Execute Energy Audits and Diagnoses for the first pool (24 administrative buildings)	30.09.2016	DGEAIM	Completed
2	Draft Technical Specs for the first	30.12.2016	DGEAIM	On-going

	pool (24 administrative buildings)			
3	Execute the tender for the first pool (24 administrative buildings)	01.04.2017	DGP	On-going
4	Execute energy audits and diagnoses for the 2d pool (37 educational buildings)	30.12.2016	DGEAIM	On-going
5	Calculate potential savings and investment needed for the 2d pool (37 educational buildings)	30.12.2016	DGEAIM	On-going
	Refine the Impact Sheet with on-going results	30.12.2016	DGEAIM	On-going
1	Investigate local TPF/ESCO market	30.09.2016	DGEAIM/DGP	Completed
1	Estimate the final funding and staff requirements (DGEAIM/DGP) depending the final choice of the implementation model	31.12.2016	DGEAIM/DGP	On-going
1	Investigate local TPF/ESCO market	31.09.2016	DGEAIM/DGP	Completed
2	Refine the funding requirements to finance the projects to revise the impact sheet.	31.12.2016	DGEAIM	On-going