



Deliverable D4.2: Rhodoshop Examples Catalogue

WP4 - Monitoring of results

Rhodoshop - a pilot programme to facilitate investment in energy efficiency by creation of One-Stop-Shop in Rhodope Region of Bulgaria

Grant agreement: 748425

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Date: 31 October 2022



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 748425

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List of Acronyms

EE – Energy Efficiency

EPC – Energy Performance Contracting

ESCO – Energy Service Company

GA – Grant Agreement

OSS – One-Stop-Shop

PV – Photovoltaics

RE – Renewable Energies

RES – Renewable Energy Sources

RoI - Return on Investment

SEP – Sustainable Energy Projects

SME – Small and Medium Enterprise



1. Introduction

Rhodoshop action was initiated as a pilot programme to facilitate investment in sustainable energy projects (EE and RE) by means of assisting local public authorities and other stakeholders in small sized rural municipalities in Rhodope Region of Bulgaria in the whole project development cycle, from project idea through energy auditing, feasibility assessment, matching available funding options, getting funded and launch of investment. The project development is undertaken by a special unit, Rhodoshop OSS which purpose is to assist the local authorities at every stage of the cycle, and thus contribute to achieving both qualitative results (investment in sustainable energy projects, energy savings, CO2 emission reductions) and quantitative results - local capacity building, contribution to local policy targets, contribution to increase of knowledge and experience about the main factors influencing sustainable energy investments. The main aim of this document is to offer the findings from Rhodoshop OSS operation regarding the typology of sustainable energy investment projects applicable to local authorities and the main influencing factors for success/failure of investment projects.



2. Executive Summary

The document gives an overview of the main types of sustainable energy projects in Rhodoshop investment pipeline that are applicable at local level. It also provides definitions of the terms “successfully launched” and “failed” investment projects in the context of Rhodoshop PDA and presents a categorization of the examples while performing an analysis of the major factors that determine the success or failure of sustainable energy investments.



3. Types of sustainable energy investment projects

In the course of Rhodoshop OSS operation two main types of investment projects relevant to local public authorities/municipalities have been observed:

- 1) Investments related to public buildings refurbishment and
- 2) Investments related to street lighting systems' renovation

These two types have been distinguished as they have specifics related to the measures and technical solutions for EE and RE, and consequent specifics in the project development requirements by funding institutions. As observed in Rhodoshop OSS operation, SEPs in public buildings typically involve measures such as :

- refurbishment of the building shell;
- refurbishments of energy related utilities inside the buildings such as heat piping, heat production units, electrical network of the building;
- fuel switch to more sustainable fuel, eg. from oil to wood chips or pellets

SEPs in street lighting systems typically include:

- replacement of old lamps with LED;
- lamp poles replacement;
- introduction of energy management system for automatic control on switching on and off;
- introduction of PV panels with batteries to provide electricity for lighting.

Investment project can include all or part of above mentioned measures, depending on its specifics (e.g. already implemented part of the measures, available funding vehicle, budget constraints, co-funding requirements, etc.) and also on the terms and condition of the intended funding bodies.

Additionally, EE and RE in public buildings type of investment is divided into several sub-categories depending on the type of the buildings which entails further specifics related to applicable funding. Following are the subcategories in public buildings SEPs:

- Educational (schools, kindergartens, day care centres, students' hostels, etc.);



- Healthcare (hospital, healthcare centres, etc.);
- Cultural (theatres, museums, libraries, art galleries, etc.);
- Community centres' and cultural homes
- Sport centres;
- Administrative buildings of the local authorities

The above presented distinction very often influences the funding as different funding vehicles can have preferences toward one or another type of building reflecting the policies that they have been established to implement, and consequently give different terms of funding depending on the type of the building.

Project bundling

The above described diversity of public building projects entails less possibilities for project bundling while street lighting systems' projects are much more uniform and thus allow project bundling which was done by Rhodoshop OSS for street lighting systems of different settlements within municipalities - for example Banite Municipality bundled 18 systems for street lighting in different settlements in one project, and in Cheperlare Municipality bundled 6 systems.

4. Overview of Successfully Launched Investments

Definition

Successfully launched investment in the context of this document is regarded when the investment project has been put through the whole project cycle by Rhodoshopp OSS to become ready to be funded, and there is already funding secured and contract with the respective financial institution signed or expected shortly to be signed. These projects are described in more detail in the following paragraphs:

Buildings

There are 45 buildings projects for 46 buildings (two buildings are bundled in one project in Smolyan) with **total investments of 9,7 MEuro** that have been enabled through the activities of Rhodoshop OSS who supported the municipalities in every step off the project development cycle - performing energy audits and feasibility studies,



search for funding and compliance with funding requirements in order to get funded. There are different funding vehicles used, including grant schemes, soft loan schemes and own funding, and the experience of Rhodoshop OSS shows that mostly used funding vehicles are combinations between two or more vehicles. Following is the breakdown of funding sources of successful Rhodoshop investment projects by municipality:

Banite Municipality – there are 5 projects (5 buildings), four projects have concluded funding contracts of which three used 50 % grant from Beautiful Bulgaria Programme and 50 % own resources, and one used 100 % grant from the EEA and Norway Grants Fund. There is also one more building project of Banite municipality which is expected to be funded under the Bulgarian Recovery and Resilience Plan when it becomes operational.

Chepelare Municipality – there are 3 projects (3 buildings), one project approved for 100 % grant funding of the Norwegian programme, reserve list; two projects expected to be funded under the Bulgarian Resilience and Recovery Plan when it becomes operational.

Devin Municipality – there are 6 projects (6 buildings), two projects in the reserve list of the ‘Energy Efficiency in the periphery areas-3’-OP Regions in Growth; one project to be funded under the Bulgarian Resilience and Recovery Plan; two projects received combined funding of loan and grants from various sources; one project financed by soft loan from National Trust Eco Fund

Nedelino Municipality —there are 5 projects (5 buildings), two projects to be funded under the Bulgarian Resilience and Recovery Plan when it becomes operational; one project to be funded by the Rural Areas Development and/or Bulgarian Recovery and Resilience Plan („Sustainable energy renovation of public buildings assets - administrative, cultural and sports buildings“; one project to be funded by the Bulgarian Recovery and Resilience Plan (Modernization of long-term cares); one project to be funded by the Bulgarian Recovery and Resilience Plan (Modernization of Educational infrastructure).

Smolyan Municipality – there are 14 projects (16 building), this is the only municipality that bundled buildings (two projects combining two buildings each). One project is



financed by grant of OP Regions in Growth in combination with loan; one project financed from OP Regions in Growth in combination with grant from European Regional Development Fund; six projects to be funded under the Bulgarian Resilience and Recovery Plan when it becomes operational; one project partially funded by own resources with the rest expected to come from the Bulgarian Resilience and Recovery Plan when it becomes operational; one project funded by the Bulgarian government; four projects funded entirely by municipality own resources;

Zlatograd Municipality – there are 10 projects (9 buildings), as the regional hospital building participate in two different projects. One project is funded by 50 % grant from Beautiful Bulgaria Programme and 50 % own resources; two projects are funded by 100 % grant by INTERREG V-A Greece; one project is funded by own resources, one project is funded by 100 % grant from Bulgarian Rural Development Programme plus European Agricultural Fund for Rural Development; four projects to be funded by the Bulgarian Recovery and Resilience Plan when it becomes operational; one project is in the reserve list of ‘Energy efficiency in the periphery areas-3’, OP Regions in Growth .

The following two municipalities were initially not part of the six pilot municipalities but have joined the Rhodoshop initiative at a later stage

Madan Municipality – there is 1 projects (1 building), the project is approved for 100 % grant funding of the Norwegian programme, reserve list;

Rudozem Municipality – there is 1 projects (1 building), the project approved is for 100 % grant funding of the Norwegian programme, reserve list.

Street lighting systems

There are **40 street lighting systems** with **total investments of 1,2 MEuro** that have been enabled by the Rhodoshop OSS staff, supporting the municipalities during the whole project development process- performing energy audits, search for funding and compliance with funding requirements in order to get funded. There are different funding vehicles used, including 100 % grant, own funding, projects approved by a grant scheme but expected to be financed by the Bulgarian Recovery and Resilience Programme, or ESCO - where the contractor takes (assumes) financial, commercial and technical risk –



fully funding the project from its own resources. Following is the breakdown of funding sources of successful Rhodoshop investment projects by municipality

Banite municipality – 18 street lighting systems, bundled in one project that has been approved by the the EEA and Norway Grants Fund, but is expected to be funded by the the Bulgarian Resilience and Recovery Plan.

Chepelare Municipality – 6 street lighting systems, bundled in one project that has been approved by the the EEA and Norway Grants Fund, but is expected to be funded by the the Bulgarian Resilience and Recovery Plan.

Nedelino municipality – ESCO used, the contractor takes (assumes) financial, commercial and technical risk – fully funding the project from its own resources;

Zlatograd Municipality – the renovation of street lighting system in the village of Dolen and the street lighting system in the village of Erma reka have been funded by own municipality funds.

Devin municipality- the street lighting system project has been funded from Devin municipality's own budget.

Smolyan municipality – the street lighting system project is funded by the 'Renewable energy, energy efficiency and energy security' programme under EEA and Norway Grants Fund (2014-2020).

It can be concluded from the above information that in most cases a mix of various funding sources are used to fund the investment projects by the municipalities, including own resources, loans and grant programmes. ESCO is used only by one project for street lighting system refurbishment in Nedelino Municipality. The main reason for this is the underdeveloped ESCO market in Bulgaria which could not take pace so far due to various reasons presented in more details under "Major Influencing Factors" below.

5. Overview of Failed Investments

Definition

Failed investment in the context of this document is regarded when the investment project has been put through the whole project cycle by Rhodoshopp OSS to become ready to be funded but it failed to secure funding and was dropped-out from the project pipeline. In

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total eight projects for 1.6 MEuro have not been realised, all of them coming from Rhodoshopp building pipeline. Below is presented the list of dropped out projects:

projects that have dropped out of pipelines due to various reasons, e.g. not meeting the requirements for funding after the audit results, or change of priorities of municipalities; they are all from the building pipeline	
	Energy Efficiency measures in Public Municipal Building – ‘Detelina’ Kindergarten
96 251,00 €	Energy efficiency measures in the Community Center in Lyaskovo
490 000,00 €	Energy efficiency measures in public municipal buildings -Primary School "Hristo Botev", Banite
288 721,00 €	Energy efficiency measures in public municipal buildings -Primary School "Tsar Simeon", Pavelsko
208 437,00 €	Energy efficiency measures in public municipal buildings -Primary School, Momchilovtsi
370 955,00 €	Energy efficiency measures in public municipal buildings-Primary School, Smilyan
51 988,00 €	Energy efficiency measures in public municipal buildings -Kindergarten 'Daga', Smilyan
84 106,00 €	Energy efficiency measures in public municipal buildings -Kindergarten 'Vela Peeva', Smilyan
1 590 456 €	Total investment

The typical reasons for drop-out of investment projects from the pipelines are presented below under “Major Influencing Factors”

6. Major Influencing Factors

A number of factors influencing the successful status of investment project have been observed during the five-year operation of Rhodoshopp OSS, as follows:

Availability of funding



The most influential factor is the **availability of funding vehicles**. This includes ESCO and TPF market in Bulgaria, availability of soft loans, operational grants, etc. In the course of operation of Rhodoshop OSS these types of funding vehicle have been researched, meetings and discussions with their representatives were held and the conclusions are as follows:

- ESCO/TPF market is underdeveloped, mainly due to the availability of grant schemes and also due to specifics of the energy efficiency projects in public buildings which were overheated before the reconstruction and thus the results of the reconstruction is increase of comfort with the same energy bills rather than lowering the energy bills. This specific hampers the ability of the ESCO to receive the money savings resulting from the energy savings and thus to pay back the investment, and has negative impact on the ESCO market development in the country. Together with the gradual phasing out of public grants and introduction of financial engineering schemes, a possible solution for increasing ESCO share is the separation of the measures on the building shell from those on the utility systems and involving an ESCO only for the latter set of measures. This will improve the economic performance of the separated set of measures and will decrease the risk for the ESCO, and increase the attractiveness of the project for TPF. There are positive examples of PDA projects applying this approach with good results. However, this approach may require changes of current legislation and therefore involvement of national governmental institutions.
- A special meeting was organised at the Rhodoshop OSS operation onset with the Director of the Bulgarian Energy Efficiency and Renewable Energy Fund (BEEREF). The meeting was attended by representatives of Rhodoshop Consortium and the Head of Rhodoshop PDU. At this meeting concerns have been expressed about the level of debt in small rural Rhodope municipalities and thus their ability to take loans under the conditions of BEEREF for sustainable energy project in their public buildings.
- In general, the issue of debt-to-asset ratio has proven to be a major obstacle when approaching loan providing institutions. In combination with underdeveloped



ESCO market it has left the local authorities with more limited options for funding, and consequently has led to drop-out of investment projects;

The typically used funding vehicles by Rhodoshop municipalities proved to be:

- The Bulgarian Fund of Fund (BFF) - the Fund Manager of Financial Instrument in Bulgaria, a quasi-vehicle combining various funding programs where EE and RE investments are eligible. It should be mentioned that there are different types of funding applied under this financial mechanism, grant, loan, own funding, or combination of both, depending on the specific programme and the type of project to be funded. The typically used funding programme under the BFF is the Rural Development Programme, as many of Rhodoshop municipalities belong to the category of remote small rural municipalities eligible under this programme. As Smolyan Municipality is eligible under the Regions in Growth, several of its projects have been financed by this programme.
- The Norwegian Programme providing 100 % grants:
- Beautiful Bulgaria Programme providing 50 % grants in combination with won resources;
- Own resources. These are used mainly by Smolyan Municipality as it is the biggest and most economically developed municipality in Rhodoshop action leading to bigger capacity to put own resources in SEPs. Devin municipality and Zlatograd municipality invested their own resources in street lighting systems renovation.

Another factor influencing the success in investment launch is the **type of measures** to be implemented as they influence the requirements of the funding bodies and thus force the municipalities to drop out project that are in non-compliance. However, the dropped out project are not abandoned but are kept in a stand-by mode, especially when they been assisted by Rhodoshop OSS and thus are ready-for-funding (energy audits done, feasibility assessments performed), and are often brought back in the pipeline if a suitable funding option arises.

Change of priorities in municipalities. In some cases the municipalities prefer not to apply with certain projects although initially they have been prioritised. The reasons can vary from internal political developments or adjustments to funding requirements.



Building audit results can also influence the decision to take an investment project out of the pipeline if they show potential RoI or energy savings or other important parameters that are not sufficient enough for the requirement of the respective funding body.

Project bundling was one of the main aims of the Rhodoshop project. However, the experience shows that it is feasible for street lighting systems where there is much more typology in the technical solutions and in the interventions types which allowed for combining different projects in one big pool and thus allowing for easier funding at better conditions. For the building projects it proved to be not applicable with the exception of two cases in Smolván Municipality where there are two projects with two buildings each - in both cases these are a kindergarten and a nursery which have similar designs and characteristics. The main reason was reported to be the lack of uniformity of the building characteristics in the same municipality, making it difficult to combine buildings in one project within the same municipality, and on the other hand, bundling buildings across municipalities is hampered by the additional administrative burden and the lack of clear regulatory rules and procedures. Opposite is the case of Zlatograd regional hospital where the investment is divided between two different projects because some measures were eligible for one funding body and others – for another one.



Annex 1-Links to Funding Institutions

1. Fund off Funds: <https://www.fmfib.bg/en>
2. Beautiful Bulgaria Programme: [Проект "Красива България" \(government.bg\)](#)
3. BEEREF: [Energy Efficiency and Renewable Sources Fund \(bgeef.com\)](http://bgeef.com)
4. EEA and Norway Grants Fund: <https://eeagrants.org>
5. Bulgarian Recovery and Resilience Plan: <https://www.nextgeneration.bg/14>
6. OP Regions in Growth 2014-2020: [Operational Programme "Regions in Growth" 2014 - 2020 \(mrrb.bg\)](#)

