



Best Practices Report

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The Report at a Glance

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List of abbreviations and acronyms

Abbreviation	Full name
EASME	Executive Agency for Small and Medium-sized Enterprises
EE	Energy Efficiency
EEEF	European Energy Efficiency Fund
EIB	European Investment Bank
ELENA	European local energy assistance
EPANEK	Operational Programme "Competitiveness, Entrepreneurship, Innovation"
EPC, EnPC	Energy Performance Contracting
ERDF	European Fund for Regional Development
ESCO	Energy Service Company
EU	European Union
FI	Financial Institution
NCCF	Natural Capital Financing Facility
NECP	National Energy and Climate Plan
NSRF	National Strategic Reference Framework
NTEF	National Trust EcoFund
nZEB	Nearly Zero-Energy Buildings
OP	Operational Programme
PDS	Project Development Services
PPP	Public Private Partnership
RDP	Regional Operational Programmes
REECL	Residential Energy Efficiency Credit Line Facility
SME	Small and Medium Enterprise

1 ABSTRACT

One of the goals of the SMAFIN project is the upscaling of best practices that have achieved high investments in energy efficiency in buildings, industry and SMEs, and the present report presents the main findings regarding successful financing schemes and initiatives previously applied at the national level in the four countries participating in the SMAFIN project.

After the introductory Chapter 1, Chapter 2 is presenting a selection of the most relevant projects using financing schemes and initiatives applied at the European and national level, in the four countries participating in the SMAFIN Project: Bulgaria, Croatia, Greece and Romania. Chapter 3 concludes on the presented best practices. Each country has several best practice examples presented and all of them are summarised in the table below.

No	Best practice	Beneficiary	Type of funding	Replication potential
Bulgaria				
1.	Energy Efficiency and Renewable Sources Fund	<ul style="list-style-type: none"> ■ Public buildings ■ Private buildings ■ Infrastructure Industry 	EnPC	High
2.	Residential Energy Efficiency Credit Line Facility (REECL)	Private buildings	Loans	High
3.	Investment Climate Program - Energy Efficiency	<ul style="list-style-type: none"> ■ Public buildings ■ Infrastructure 	Loans EnPC	Medium
4.	National Programme for Energy Efficiency in The Multifamily Residential Buildings	Private buildings	Grants	Medium
Croatia				
1.	Project NEWLIGHT	Infrastructure	Grants EnPC	High
2.	Project RePubLEEc - Energy Efficient Reconstruction of Public Lighting	Infrastructure	Grants EnPC	High
Greece				
1.	Efficient Eco-Friendly Transportation, Public Lighting and Buildings	<ul style="list-style-type: none"> ■ Public buildings ■ Infrastructure 	Investment grants	High

No	Best practice	Beneficiary	Type of funding	Replication potential
2.	SAVE-AUTOMATE (Energy saving interventions and RES in the residential buildings)	Private buildings	<ul style="list-style-type: none"> ■ Interest rate subsidy ■ Capital grant ■ Covering costs of energy inspections 	High
3.	Improving Energy Efficiency in the Region of South Aegean	<ul style="list-style-type: none"> ■ Public buildings ■ Infrastructure 	<ul style="list-style-type: none"> ■ Investment Grants ■ Loans ■ PPP 	High
4.	ELEKTRA Energy Renovation of Public Buildings	Public buildings	Loans	Medium
5.	ATHENS resilient city	Infrastructure	<ul style="list-style-type: none"> ■ Investment Grants ■ Loans 	High
6.	PRODESA - Energy Efficiency Project Development for South Attica	Private buildings	<ul style="list-style-type: none"> ■ Grants ■ Loans ■ EnPC ■ Crowdfunding 	Medium
Romania				
1.	Retrofit of residential flats blocks in Bucharest	Private buildings	<ul style="list-style-type: none"> ■ Grants ■ Loans 	Medium
2.	Commercial loan granted to CHIMCOMPLEX S.A. Borzești to finance investments in a modern and efficient calcium chloride production plant and two cogeneration power plants	Industry	Loans	High
3.	District 6 energy efficiency for public buildings- (d6eepb)	Public buildings	<ul style="list-style-type: none"> ■ Grants ■ Loans 	High
4.	Green mortgage for One Herastrau Park residence - by One United Bucharest, Romania	Private buildings	Loan with subsidised interest	High

TABLE 1 SYNTHESIS OF THE VARIETY OF BENEFICIARIES AND FINANCING INSTRUMENT TYPES

2 INTRODUCTION

SMAFIN project aims to support smart financing implementation of energy efficiency investments in Balkan countries, mainly in private and public buildings but also SMEs, industry and infrastructure by setting up national roundtables. These forums seek to establish a fruitful dialogue between all stakeholders involved in delivering investments in sustainable energy, in particular the financial sector and public authorities. A total of four countries are included in the project's consortium: Bulgaria, Croatia, Greece, Romania.

Within the Work package 2 - Policy analysis and market assessment, the task 2.3 foresees the gathering of best practices on financing energy efficiency projects in the participating countries, in order to disseminate these experiences and promote their large-scale replicability.

Partners searched and provided information on some best practices in each country. Information was acquired by desk research and during the contacts with FI representatives as well. The first step of the work was an inventory of possible best practices built by the partners in an Excel file form. For the selection of best practices, criteria like scale, impact on energy savings, replication potential, leverage of private funds capacity etc were taken into account. These best practices are compiled and presented in this report. Together with the deliverable Market Analysis Report this deliverable is used as material for presentation and discussion during the round tables and for the development of the policy guidelines.

3 NATIONAL BEST PRACTICES

3.1 Bulgaria

3.1.1 Energy Efficiency and Renewable Sources Fund

Since 2005 the Fund has financed 110 municipal, 20 industrial, 24 ESCOs, and 2 other projects, providing loans to Bulgarian enterprises, municipalities, and individuals. The lending process starts with the submission of an application that includes also an energy audit. The Fund's experts review the audits in order to ensure the quality of the measures and to verify that the energy savings are calculated correctly.

The Fund operates through loans and can purchase receivables (taking future payments from projects as collateral), used to finance ESCO and EPC models. The Fund can also provide co-financing alongside other lenders. Loans must be between EUR 30.000 and EUR 3 million, with up to 7-year terms. Interest rates typically start at 4% but can go lower. The interest rate is fixed throughout the loan term, which allows project developers to better budget. This approach may be preferable to standard bank financing. The Fund can provide technical expertise and a flexible procedure, the loans are at a fixed rate with no hidden fees or commission and the management board meets every month and is quick at making decisions.

3.1.2 Residential Energy Efficiency Credit Line Facility (REECL)

To help Bulgarian households reduce their energy bills and consumption the European Commission, EBRD, and the Bulgarian Ministry of Energy had developed a EUR 20 million REECL Facility to provide credit lines to reputable Bulgarian banks to make loans to individuals, Association of Apartment Owners or Service Providers (Housing Management Companies, Energy Service Companies, Developers and Construction Companies) for specific energy efficiency measures including double-glazing; wall, floor, and roof insulation; efficient biomass stoves and boilers; solar water heaters; efficient gas boilers and gasification installations; heat pump systems; building-integrated photovoltaic systems; heat-exchanger stations and building installations; balanced mechanical ventilation systems with heat recovery; and energy efficient lifts. The applicants may purchase only preapproved equipment and should contract only preapproved companies. The total number of energy efficiency home improvement projects to be financed under the REECL facility is expected to be in the range of 30.000.

Despite its strengths, the practices of REECL were lacking in sufficient follow-up monitoring of the quality of the financed projects. In addition, the process of approval of the eligible companies and products was not clear enough and the approved products are not the most efficient on the market.

3.1.3 Investment Climate Programme - Energy efficiency

The Investment Climate Programme is the most recent programme by the National Trust EcoFund (NTEF), aiming at reduction of the greenhouse gas emissions. The programme has financed 62 projects, with 57 in progress. It has a volume of grant funding up to 60%, but not more than BGN 300 000 (150.000 EUR) The programme is a continuation of the National Green Investment Scheme. The objective of the Investment Climate Programme is to encourage initiatives that lead to direct or indirect reduction of the greenhouse gas emissions.

The programme has seen significant progress towards the implementation of financial instruments for combined financing aiming at attracting private investors through Guaranteed Savings Contract (ESCO contracts), currently working on project "Introduction

of energy saving measures, modernisation, and repair of the street lighting of Gabrovo city” based on EPC, where the grant has been calculated upon concrete financial data from the project. NTEF has also been focused on financing energy efficiency projects involving application of European standards developed under the Investment Confidence Project (ICP) Europe, for monitoring and verification of the results, currently with a pilot project in a high school in Sofia.

3.1.4 National Programme for Energy Efficiency in the Multifamily Residential Buildings

Within the National Programme for Energy Efficiency in the Multifamily Residential Buildings, a total of 1921 multifamily buildings fully renovated up to December 2020. The budget of the programme amounted to EUR 1 billion and its continuation is expected. The programme was dedicated to the renovation of multifamily residential buildings up to energy class C at 100% grant rate, on the principle "first come - first served". No social criteria for eligibility were applied, meaning that even high-income households were eligible for the 100% subsidy. No technical monitoring of the results was applied. Although the measures had positive impact on the households in risk of energy poverty (reaching up to 50% as per our estimation), the results could be much better if higher energy targets and differentiated eligibility criteria were applied. The scope of the programme was relatively small, as EUR 1 billion was sufficient for about 4% of the eligible buildings. Given the fact that the execution of the programme spread over 5 years, it is obvious that at this rate, there is no way that all households will be served, and of course, no other programmes or financing instruments offering different conditions can compete with this one. In general, the programme has inspired a huge interest towards EE renovation projects among homeowners, it needs significant improvement in the future.

3.2 Croatia

3.2.1 Project NEWLIGHT

Project NEWLIGHT was the first Croatian project co-financed by the ELENA programme, technical assistance programme intended for the preparation of major infrastructure projects in European regions and cities in the field of clean energy, transport and buildings. The main objective of the project is the modernisation of public lighting systems in 57 Croatian cities and municipalities based in Zagreb County and Krapina-Zagorje County.

Back in 2015 when the project started, public lighting was recognised as one of the key sectors for achieving EU energy objectives, as well as significant financial savings, as the cost related to operation and maintenance of public lighting systems in Croatian cities and municipalities can amount up to 7% of the total local authority budget. This is mainly due to the inefficient regulation and maintenance coupled with the fact that within the last 20 years there has been little investment in the modernisation of public lighting systems.

To address these issues and find a potential solution for up-scaling investments in this sector, North-West Croatia Regional Energy Agency (REGEA) applied for the project development services financed by the EIB ELENA facility to develop and implement the NEWLIGHT project. NEWLIGHT was implemented mainly through Energy Performance Contracting (EPC) with some local authorities opting for the Design and Build (D&B) - traditional contract model. The total cost of project development services amounted to EUR 700.000 and ELENA facility covered 90% of the total cost. This technical assistance resulted in the leverage factor of 23, with the investment in the implementation phase amounting to EUR 14,3 million.

The implemented EE measures mainly included replacing the luminaires with more efficient technologies such as LED, thus achieving more than 21 GWh of energy saved annually. During the project implementation period, public lighting energy audits (inventory) details of existing systems from around 72.200 lighting points have been collected and analysed. This resulted in a unique database, which has been used for technical and financial investment assessment.

Out of 72.200 existing luminaires, more than 54.000 (approx. 75%) were reconstructed in 26 municipalities using four financial models. Major milestones achieved due to the implemented activities:

- a) 26 public authorities engaged in tendering process until October 2018 (45,5%):
 - 13 EnPC procurement processes (22,5%),
 - 8 traditional procurement processes (14,0%),
 - 1 D&B procurement process (2,0%),
 - 4 Leasing procurement processes (7,0%),
- b) 31 public authorities - did not engage in procurement processes until 26 October 2018 (54,5%).

In 2020 the project was declared as the best European project in the category “Contribution to the local and regional community” in the voting organised by the daily Croatian newspaper Jutarnji List. Based on the analysis of all public lighting details conclusion can be given:

- On average 71% of energy savings can be reached by implementing LED sources and power regulation;
- Average simple payback period - SPP (of replacement of luminaires) is around 13 years;

- Approximately extra EUR 15 million is needed for achieving full compliance to public lighting infrastructure standard defined in norm EN 13 201 (in 57 local authorities) and to finance reconstruction of poles and power cables (all other parts besides luminaires).

Based on analysis made it was concluded that grant component is still much needed for ensuring financially feasible contracts (based on lifetime expectancy of new LED infrastructure that is 20 years). In bigger cities EnPC is financially feasible but only for luminaire modernisation (no other parts of public lighting infrastructure). If holistic reconstruction is applied average simple payback period is around 23 years and grant component as well as financial instruments for supporting of projects (SPVs) is needed.

3.2.2 Project RePubLEEc - Energy Efficient Reconstruction of Public Lighting

At the end of 2017, the City of Zagreb concluded an agreement with the EIB on financing the development of the project Energy Efficient Renewal of Public Lighting in Zagreb (RePubLEEc) within the ELENA financial facility. Following the contract, ELENA Technical Assistance is used for the preparation and implementation of modernisation of public lighting system in the City of Zagreb by developing an EnPC/PPP public lighting documentation, including innovative financial structure, for the most energy inefficient parts of the lighting system. In addition, ELENA TA activities will be used in the preparation of technical specification for modernisation of the remaining lighting system, not used in the PPP structure. Total project development cost amounts to EUR 2 million, with ELENA contribution covering 90% of the total cost.

The main goal of the RePubLEEc project is to increase the energy efficiency of public lighting systems, reduce the impact on the climate, increase standards and safety for citizens and pave the way for Zagreb to become Smart City, all while achieving savings in the operating cost of public infrastructure (electricity and maintenance). The implementation of the modernisation of the public lighting system will be executed based on the Energy Performance Contracting (EnPC). This contracting model is implemented in a way that the private partner (ESCO company or special purpose company) independently designs, finances, and performs works on the reconstruction of public lighting and guarantees the realisation of the contracted standards (functionality, lighting and minimum energy savings). The EPC Contract must result in energy savings. The condition of the EPC Agreement is that the fee that the City of Zagreb will pay annually to the selected ESCO company or special purpose company is equal to or less than the savings achieved by reducing electricity consumption. Purpose of starting the RePubLEEc project was:

- Reconstruction will harmonise the public lighting system with the obligations from the Law on Light Pollution;
- As part of the EnPC Agreement, the Management and Control Centre of the public lighting system will be implemented, which will communicate in real time with all luminaires in the scope for the purpose of monitoring and regulation of luminaires (records of failures, energy consumption) in real time;
- In case of non-fulfilment of contracted standards by ESCO partners (failure to achieve energy savings, insufficient lighting, faulty lamps, etc.), the contracted fee is automatically reduced on a monthly basis (pay per performance scheme) ensuring off-balance treatment for the City of Zagreb.

RePubLEEc project in numbers:

- The ESCO company is obliged to continuously prove the realisation of energy savings

(as evidenced by measurement and verification on a daily basis), which the City of Zagreb controls through the Management and Control Centre (each individual lamp represents a billing and metering point);

- ESCO company assumes all risks of the implementation of the reconstruction, guarantees the full functionality of the lamps as well as the necessary illumination of the surfaces during the duration of the EnPC contract;
- Reconstruction of the public lighting system is exclusively financed from energy/cost savings and does not create a fiscal burden on the City of Zagreb (off-balance treatment);
- The energy performance contract will be concluded for seventeen years, two of which are intended for the design and execution of works and fifteen years for the provision of lighting services;
- The scope of the project is about 40% of the public lighting system (about 50.000 lamps), with an estimated procurement value of HRK 262,5 million (EUR 35 million) with VAT.

Estimated value of procurement, i.e., the total cost of the EPC Contract of HRK 262,5 million (EUR 34,6 million) includes the total costs of the project of energy efficient renovation of public lighting, of which some of the most important can be highlighted:

- capital costs,
- financing cost,
- cost of renovation and maintenance,
- cost of extended warranty,
- cost of bank guarantee during the term of the contract,
- the cost of upgrading the Management and Supervision Centre and
- data traffic costs for the purpose of communication of luminaires with the Control Centre.

Annual estimated contributions in energy savings are 22 GWh and a decrease in CO₂ emissions of 7.000 t CO₂ eq.

The city of Zagreb is the final beneficiary and REGEA provides professional support and project management services, which include activities of project application for grants (ELENA), development and monitoring of the project implementation plan, administrative and technical project management and all other activities necessary for successful project preparation and implementation.

The project is entering its third and last phase - tendering for private partner responsible for the modernisation of City of Zagreb public lighting and the Preliminary Consultation with Interested Economic Entities are ongoing. In this procedure, all interested ESCOs, and entrepreneurs can review the procurement documents, submit comments and suggestions. This procedure will be followed by a public procurement procedure that will lead to a reconstruction of about 40% of public lighting in the Croatian capital.

The project has a high replication potential, especially in Croatia and the market replication potential of the project is considerable. The project is using an innovative concept for the implementation of energy efficiency measures in street lighting. It is expected that lessons learned from carrying out the project in the City of Zagreb will allow other Croatian municipalities to follow a similar path.

3.3 Greece

3.3.1 Efficient Eco-Friendly Transportation, Public Lighting and Buildings

The project was developed by Epirus Region and aimed at improving the energy efficiency of public buildings and public lighting systems located in the Region of Epirus and deploy sustainable transport. The programme proposed a substantial scale for the Region as well as a high level of ambition in terms of energy efficiency performance objectives set. It is the first project of that kind in Greece. The ELENA assistance contributes substantially to the implementation of the investment programme by bringing in missing resources and expertise. The ELENA support is designed with the aim of strengthening the Regions capacities. The Region of Epirus signed a financing agreement of EUR 65 million with the European Investment Bank (EIB) for the execution of energy projects. With the "vehicle" the ELENA mechanism, the EIB gave the Region of Epirus EUR 1,5 million to "mature" the planned projects: the replacement of street lighting in the national network and in the network of some Municipalities, the replacement of boats on Lake Pamvotida with more environmentally friendly "boats" and the energy upgrade of public buildings.

3.3.2 SAVE-AUTOMATE (Energy saving interventions and RES in the residential buildings)

This incentive programme - interest rate subsidy, capital grant is covering costs of energy inspections, and other "intangibles" expenditures, with resources from the Portfolio fund "Saving Fund II" and the "Immediate Programme "Support" of households - for energy saving interventions in the existing residential building sector, for the Programming Period 2014-2020.

The Programme is co - financed by the European Union (European Fund Regional Development (ERDF) and from National Resources, through the Regional Operational Programmes (OP) and the Operational Programme "Competitiveness, Entrepreneurship, Innovation" (EPANEK) of the NSRF 2014-2020. The total Public Expenditure of the Programme amounts to EUR 896,75 million: EUR 692 million from EPANEK, EUR 170,75 million from the RDP (Regional Operational Programmes) and EUR 34 million from National Resources.

Ministry of Energy is launching the programme for all the state. The beneficiary is the Hellenic Development Bank, and the final beneficiaries are residential buildings owners.

3.3.3 Improving Energy Efficiency in the Region of South Aegean

The Investment Programme consists of 2 schemes addressing energy efficiency measures in the regional and municipal street lighting network and implementation of Energy Efficiency Retrofits in Public Buildings, owned by the Region of South Aegean. The Project Development Services is financed by ELENA. The investments related to street lighting are planned to be implemented through PPP schemes where private capital is used to co-fund public infrastructure projects. It is also possible to blend these funding with some European Structural and Investment Funds under the so-called National Strategic Reference Framework (NSRF 2014-2020), in order to finance works related to pole replacement and electric system upgrade, if necessary. Regarding the investments in buildings, six hospitals were identified, and financing is expected to be ensured by NSRF 2014-2020 (regional funds) and by private investors, based on the energy performance contract.

The Region will be the umbrella entity responsible for funding part of the project with funds from its Regional Operational Programme NSRF 2014-2020 and the rest by ESCOs. All buildings are expected to benefit from both financing sources. Regional Structural funds will be used

to finance envelope related investments (building insulation and windows replacement) which are expected to have higher payback period. ESCOs will finance investments with shorter payback periods (lighting, heat recovery systems, efficient HVAC systems, etc.).

3.3.4 ELECTRA Energy Renovation of Public Buildings

EIB will finance an integrated investment programme, launched by the Ministry of Environment & Energy and the Ministry of Economy & Development, aiming to improve energy efficiency in public buildings and other venues (e.g., schools, hospitals and sports facilities). The project is in line with the objectives of the National Energy Efficiency Action Plan (NEEAP) and the objectives are aimed at generating energy savings of at least 30% in the energy consumption of public buildings, resulting in reduced air pollution and reduced emission of greenhouse gases. Under this framework loan, the Promoter, TPD will provide loans to public entities located across Greece, in order to improve the energy efficiency of public buildings. The total budget of the Programme "ELECTRA" for the entire duration of its application amounts to EUR 500 million which comes from borrowing from the TPD Deposits Fund and Loans, as well as the EIB. The remaining part of the funding may come from own resources of the Beneficiary Bodies.

3.3.5 ATHENS resilient city

The project will comprise Green and Blue infrastructure projects (e.g., parks, greening public spaces, green corridors, roofs) and other measures improving the functioning of urban ecosystems. In addition, these projects are expected to deliver air quality benefits, positive impacts on biodiversity, positive economic impacts on neighbourhoods and real estate in the vicinity as well as enhancing social inclusion. The NCCF FL will be blended with a Technical Assistance component to the city of Athens.

3.3.6 PRODESA - Energy Efficiency Project Development for South Attica

PRODESA aims at assisting seven major municipalities in the Athens Metropolitan Area to launch showcase energy efficiency and renewable energy projects, utilising innovative financial tools and attracting private investments. To achieve its objectives, the project focuses on optimal bundling of the fragmented municipal projects to achieve considerable size, reasonable payback time and risk diversification. The pooling of resources will be used to optimise financial results for all parties and to ensure high participation of ESCOs in the tenders. PRODESA is the first of its kind effort in Greece and among other things, aims at creating a network of at least 30 municipalities that will be supported in order to replicate the results. **European Crowdfunding Network** is developing innovative crowdfunding schemes for energy efficiency in the municipalities by coaching crowdfunding piloting activities.

3.4 Romania

3.4.1 Retrofit of Residential Flats Blocks in Bucharest

The project was developed by the Municipality of the districts 3 and 6 of Bucharest. Constructii Erbasu is the leader of the association of construction companies that have won the tender organised by Bucharest district 6 town hall for the renovation of 300 blocks of flats. Most of the blocks of flats in Romania were built between 1950 and 1990 and need insulation and replacement of doors and windows. The thermal rehabilitation includes solutions for the exterior walls, the exterior joints and balconies as well as for the floor above the basement and the terrace. Banca Transilvania has financed the project by providing a non-recourse factoring limit of EUR 16 million (EUR 12,6 million under the EEEF facility). Bucharest town hall, district 6, one of the biggest Romanian town halls with a good financial standing, is the assigned debtor. The half of the investment was financed by the national budget and the other half from the local budget. Subsequently in 2015, Banca Transilvania continued to finance further phases of building retrofit projects with Constructii Erbasu. In 2015, a short-term loan was granted to Constructii Erbasu for approximately EUR 4,5 million for the retrofit of 90 blocks of flats in Bucharest Districts 3 and 6. In 2016 BT issued Constructii Erbasu another non-recourse factoring limit, this time for approximately EUR 3,3 million.

3.4.2 Commercial loan granted to CHIMCOMPLEX S.A. Borzești to finance investments in a modern and efficient calcium chloride production plant and two cogeneration power plants.

Loan was received from the Romanian Energy Efficiency Fund. On May 17, 2018, The Romanian Energy Efficiency Fund awarded S.C. Chimcomplex S.A. Borzești, Bacău county a commercial loan worth USD 2 million, to finance an investment totalling USD 9,985 million.

The investment aims to make the production and consumption of energy within S.C. Chimcomplex S.A. Borzești more efficient, by integrating a plant for the production of calcium chloride granules with a capacity of 30.000 tonnes/year. The profile considered for the analysis of the opportunity, from the point of view of energy efficiency, to make this investment, included the calcium chloride production plant, the M electrolysis plant and the two co-generation plants. The analysis also took into account the favourable impact of the operation of the calcium chloride production plant on the operation with quasi-constant electricity consumption of the ion exchange membrane electrolysis plant (5th generation, among the best in the world), under the conditions of full use of the amount of chlorine resulting from the electrolysis process. At the same time, it was also considered that the entire amount of electricity related to the increase of electricity consumption in electrolyzers and electricity consumption in the calcium chloride plant is produced by the company's cogeneration plants. Finally, it was taken into account the favourable impact of the operation of the calcium chloride plant on the production of energy in the company, through the energy recovery of a renewable energy source: hydrogen resulting from the electrolysis process, by producing electricity and heat in co-generation and for the production of steam in one of the steam boilers of the thermal power plant. The significant energy savings were estimated at about 14.777 toe/year, implicitly representing annual reductions in carbon dioxide emissions, amounting to 32.214 tons/year. This loan is the third of the same value, obtained by Chimcomplex S.A., the total value was of 6 million US dollars for investments exceeding USD 33 million. In total, the energy savings obtained by Chimcomplex, cumulated for the three investments, will be about 37.285 toe/year, representing annual reductions in carbon dioxide emissions, amounting to 84.703 tonnes/year.

3.4.3 District 6 energy efficiency for public buildings (d6eepb)

The beneficiary was District 6 of the Municipality of Bucharest, Romania. The works performed envisaged energy efficient building retrofits, built-in small-scale renewable energy projects and nearly zero-energy buildings. Total Project Development Services (PDS) costs amounted to EUR 1.283.300, from which ELENA contribution was EUR 1.154.970.

The project is financed from multiple sources such as ELENA grant, European Investment Bank and Council of Europe Development Bank.

PDS costs financed by ELENA provides support to District 6 municipality in acceleration of the implementation of the energy efficiency (EE) investment programme for deep energy retrofit of 11 existing buildings, such as schools managed by the municipality, and to provide support to a construction of 8 nZEB (nearly zero-energy buildings), designed for kindergartens and after-school programmes, in existing school courtyards.

The ELENA TA contributes substantially to the implementation of the investment programme by bringing in missing resources and external expertise, since District 6 municipality has limited experience in energy efficiency projects for public buildings.

The ELENA TA strengthens the resources and capacities of the General Investment Department, within District 6 municipality, with external experts. ELENA TA brings the know-how and manpower that will accelerate the investments, reaching a high level of energy efficiency improvements and renewable energy installations.

Investment programme description: According to the projects factsheet¹, the investments are in the public sector buildings and include two components:

- Energy retrofit of 12 existing buildings such as schools and kindergartens managed by the Municipality, and
- Extensions in existing school courtyards as a construction of 8 NZEB designed for kindergartens and after-school programmes.

The specific measures for the first component of the programme include insulation of walls, roofs, floors and pipes, replacing windows, optimised control and regulation of technical installations, ventilation and heating systems, replacement of inefficient installations (e.g., lighting).

The achievement of the nearly zero-energy building standards of the second investment component, renewables (non-fossil) resources will cover at least 10% of the total calculated primary energy of the buildings, primarily in the form of PV. Other measures will include thermal insulation of building envelope, including high-performance windows, automatic blinds for windows, local regulation of heating systems, intelligent architectural design, high-performance mechanical ventilation systems for increased air quality and decreased heating and cooling demand, heat recovery systems, low energy hot water systems, low electricity consumption systems. The ELENA D6EEPB project targets for 2021 are 115 kWh/m²/year, according to the Romanian legislation (transposing EU applicable directives) and will make the best efforts to go around 20% beyond this legal target.

District 6 Municipality will be responsible for the preparation and implementation of the entire programme as a central purchasing body and will take the final investment decisions, based on the specialised opinion provided by the ELENA TA.

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¹ ELENA factsheet, <https://www.eib.org/attachments/documents/d6eepb-factsheet-en.pdf>

based on the specialised opinion provided by the ELENA TA. The expected leverage factor is 21.

Expected results:

- RES generation - annual total renewable energy generation 218 MWh_{el} and 476 MWh_{th},
- Energy efficiency - annual total savings in the final energy consumption of 5,3 GWh,
- CO₂ reductions - annual total emission reductions of 1.370 t CO₂ eq.

There is a high market replication for this ELENA supported investment programme by other municipalities in Romania. District 6 municipality of Bucharest shares its experience and results via press releases, website and articles in professional media. The project is aiming at the extensive promotion of the obtained results through replication at the level of other institutions.

3.4.4 Green mortgage for One Herastrau Park residence - by One United Bucharest, Romania

This project benefits from the Green Homes & Green Mortgage programme, being certified by RoGBC as a green residential project, so its beneficiaries are entitled to be financed by one of the two discounted mortgage products available in Romania dedicated to Green Homes certified by RoGBC.

It was completed in September 2017, includes 106 apartments, and has committed to achieve the necessary criteria established by the Green Homes certification program. The concept of integrated design and all sustainable strategies are being considered including significant reduction of construction waste through responsible construction management strategies, operational waste separation for households, and energy efficient measures combined with an occupant educational program to optimize and reduce all the energy consumption throughout the building lifecycle.

4 CONCLUSION

The report provided an overview of 16 best practices in the 4 SMAFIN participating countries: Bulgaria, Croatia, Greece and Romania.

Country	Bulgaria	Croatia	Greece	Romania
Number of best practices	4	2	6	4

TABLE 2 NUMBER OF BEST PRACTICE EXAMPLES BY COUNTRY

Based on the conducted analysis across four countries, grants and loans are mostly used financing instruments for EE projects and such investments heavily rely on the funds available through European programmes.

An overview of financing instruments implied in the best practices presented in this report is presented in the table below.

Country/type of financing instruments	Bulgaria	Croatia	Greece	Romania
Grants	1	2	5	2
Loan	2	-	4	4
EnPC	2	2	1	-
Others	-	-	3	1

TABLE 3 OVERVIEW OF TYPES OF FINANCING INSTRUMENTS

Based on the analysis following observations can be made:

- ERDF Financing is the most used in the four SMAFIN countries.
- ELENA programme is presented as a best practice in Romania, in 2 in Croatia and 2 in Greece therefore it is considered to have a good replication potential.
- Only a small part of EE projects is financed by innovative instruments involving private funds, EnPC, Green Mortgage or Crowdfunding, highlighting the need to focus on the promotion of innovative financing mechanisms during the SMAFIN project.
- A national fund dedicated to providing support to EE projects appears as a basic and necessary instrument (Romanian Fund for Energy Efficiency in Romania, REECL Residential Energy Efficiency Credit Line Facility in Bulgaria).
- Best practices are to be used and disseminated during the first-round tables, e.g., the agenda of the Romanian RT contains a presentation on the ELENA scheme best practice.