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# BOSNIA AND HERZEGOVINA ENERGY POLICY ACTIVITY

## ROADMAP FOR SYSTEMATIC ENERGY EFFICIENCY APPROACHES IN BIH

JULY 2022
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It was prepared by DT Global.

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## ROADMAP FOR SYSTEMATIC ENERGY EFFICIENCY APPROACHES IN BIH

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| BD BiH | Brcko District BiH |
| BiH | Bosnia and Herzegovina |
| DEA | Detailed Energy Audit |
| EE | Energy Efficiency |
| EMIS | Energy Management Information System |
| EnC | Energy Community |
| ESCO | Energy service company |
| FBiH | Federation of Bosnia and Herzegovina |
| FMERI | Federal Ministry of Energy, Mining and Industry |
| FMPU | Federal Ministry of Spatial Planning |
| Fund FBiH | Fund for environmental protection of FBiH |
| Fund RS | Fund for environment protection and energy efficiency of RS |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| KS | Canton Sarajevo |
| MCO | Microcredit organization |
| MER | Ministry of Energy and Mining of RS |
| Model SERDA | Model for improving EE in buildings in Canton Sarajevo |
| MOFTER | Ministry of Foreign Trade and Economic Relations of BiH |
| MPUGE | Ministry of Physical Planning, Construction and Ecology of RS |
| MPZ KS | Ministry of Spatial Planning, Construction and Environmental Protection of Canton Sarajevo |
| NECP | National Energy and Climate Plan BiH |
| NEEAP | National Energy Efficiency Action Plan |
| Roadmap | Roadmap for systematic approaches to energy efficiency in Bosnia and Herzegovina |
| RS | Republika Srpska |
| SERDA | Sarajevo Economic Region Development Agency |
| UNDP | United Nations Development Programme |
| USAID | United States Agency for International Development |

# SUMMARY

Investments in energy efficiency (EE) projects represent one of the greatest potentials for investment in Bosnia and Herzegovina (BiH). Although several EE improvement projects are currently being implemented in BiH, it is noticeable that there is no coordination, verification, and involvement of all actors in meeting the overall savings targets that BiH needs to meet towards the European Union (EU).

The USAID Energy Policy Activity (EPA), as part of its EE activities, proposed amendments to the EE law at the entity level and the adoption of the EE law for the Brcko District BiH (BD BiH) with the aim of introducing an EE obligation scheme as one of the ways to finance EE measures, which will ultimately lead to the fulfillment of energy saving goals in accordance with the agreement between BiH and the Energy Community (EnC).

Currently in BiH there are programs for financing the EE measures in residential buildings such as: Model for improving EE in buildings in Canton Sarajevo, USAID Residential Energy Efficiency for Low Income Households (USAID REELIH), Green Economy Financing Facilities Program (GEFF) in Bosnia and Herzegovina, BEEP Energy Efficiency Project in BiH (World Bank), but, as mentioned earlier, there is an insufficient coordination in the implementation of these programs.

Within the USAID EPA project, this roadmap for systematic EE approaches in BiH (Roadmap) is being developed, which aims to analyze the existing models for investment in EE measures in BiH, both by the implementers and financiers of these measures, in order to identify the advantages and disadvantages of the individual models, emphasizing the need for better coordination of activities, in which the introduction of the obligation schemes for energy efficiency can make a significant contribution.

The Roadmap was prepared through interviews with the implementers of the EE funding programs and the funders of these activities in order to identify the barriers they encountered in their activities. Based on the interviews, it can be concluded that most of the participants agrees on the fact that the main barriers are **lack of funding and coordination between program implementers, lack of savings verification process as an important activity in verifying saving targets BiH has towards the EnC requirements and lack of human resources within domestic institutions**.

The EE sector in BiH is financed through domestic and international sources of financing. Domestic sources of financing include commercial and public sources, while international sources of financing include international financial institutions and donors.

In accordance with the identified barriers, the document presents recommendations for overcoming them in the form of the need to establish a legal framework governing the EE at all levels in BiH, establishing a systematic approach to the implementation of EE measures with creation of an information system for monitoring the implementation of the EE measures and establishing the sustainable sources of financing (obligation schemes, energy and $CO_2$ taxes and fees).

The great potential for the implementation of EE measures in the household sector must be used as soon as possible in order to reduce the energy needs, and thus urgently start fulfilling the country's commitments, especially given the current energy crisis, which is becoming more evident every day and to which we need to react urgently. The establishment of various energy taxes is one of the ways to finance a significant volume of the planned EE measures, and the establishment and proper distribution of the same is the biggest challenge for the authorities in BiH.

Most of the barriers identified in the implementation of measures in the household sector, but also in other sectors, can be overcome by introducing an obligation scheme financing model into the EE laws.

The obligation schemes will provide **sustainable funding** for EE measures, improve the process of monitoring and **verifying savings** and meet the targets set under the EU Directive. The system established through the implementation of obligation schemes will significantly improve transparency and operability in the activities on EE measures and enable other sources of financial support for EE projects to be introduced into the system.

Achieving a systematic approach to EE projects opens the possibility of providing possible additional financial resources by international financiers, given that existing resources are currently insufficient for a systematic approach to the implementation of EE measures.

This Roadmap provides clear indicators of the current situation, barriers and recommendations for the improvement and regulation of the EE sector.

# 1. INTRODUCTION

By signing the Treaty establishing the Energy Community (EnC), BiH has committed itself to aligning its legal framework with the EU acquis in the electricity sector. Given that energy efficiency in BiH is gaining in importance, in the coming period it is necessary to adopt an adequate legal framework that would transpose the binding EU directives under the EnC Treaty, and fully enable their implementation.

The EE sector includes the housing sector, the public and commercial services sector, the industry sector, and the transport sector. The development of the EE sector should be in line with the National Energy and Climate Plan (NECP), which is soon to be adopted at the level of BiH, as well as with energy efficiency action plans on entity levels. BiH has a great potential for energy savings through the EE measures, especially in the residential buildings, which have over 50% share in the final energy consumption, most of which is the housing sector.

Part of USAID EPA's activities are related to the ***Development of the EE Obligation Schemes in BiH***, within which this **Roadmap** was developed with the aim of creating proposals for improving the institutional, legal and financial framework, to ensure a systematic approach to implementing EE measures and verification of energy savings resulting from the implementation of these measures.

The analysis of the current situation was prepared on the basis of data available in various publications dealing with EE in BiH, and on the basis of surveys and meetings with the implementers of the EE programs and projects in BiH. Based on this analysis, different types of barriers faced by the implementers and users of the EE programs and projects in BiH have been identified. In accordance with the identified barriers, this document is also providing recommendations for overcoming those.

The existing programs and models of financing the EE measures in BiH are also presented, with the aim of analyzing the EE programs and their mutual harmonization. The analysis of the situation includes the experiences of implementers and users of the EE financing programs, as well as barriers and benefits they identified.

The public and private sectors have limited access to funding for the implementation of EE measures. The limitations are mainly the result of shortcomings in the legal framework, with a lack of a systematic approach to the implementation of existing EE funding programs. These limitations are causing a low level of implementation and energy savings in the EE field, also preventing more intensive and better dealing with the EE issues.

With the introduction of adequate financing models and the improvement of the systematic approach to EE, BiH can use its potential in the EE sector, meet the obligations required by the EnC, and create conditions for job creation.

# 2. LEGISLATIVE AND INSTITUTIONAL FRAMEWORK FOR EE IN BIH

## 2.1 INSTITUTIONAL EE FRAMEWORK IN BIH

The Ministry of Foreign Trade and Economic Relations (MOFTER) defines and monitors the goals and obligations in the field of EE arising from the EU accession process.

The arrangement of the EE sector is shown in **Error! Reference source not found.**:

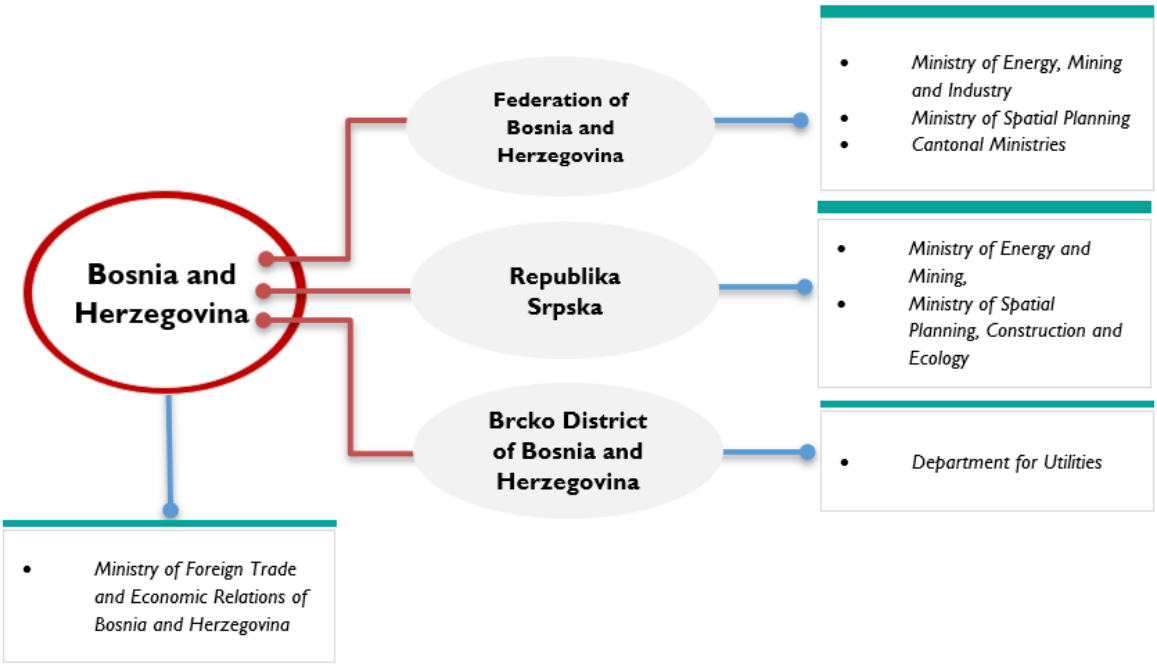



**Figure 1: Scheme of the existing institutional EE framework in BiH**

The existing institutional framework for the implementation of EE measures shows a need and a challenge for better coordination in terms of exchanging information on current and planned stakeholder programs, which would ultimately lead to the mutual cooperation and a unified approach to donors and other sources of funding.

There would also be the necessary institutional coordination in terms of exchanging information needed for quality reporting to the EnC, and the possibility of joint action with the international actors who can support the activities of local stakeholders.

The following is a brief overview of the key actors in the activities of implementing the EE measures in BiH.

The main actors in the field of EE and their activities at the Federation of Bosnia and Herzegovina (FBiH) level are shown in Figure **Error! Reference source not found.**.

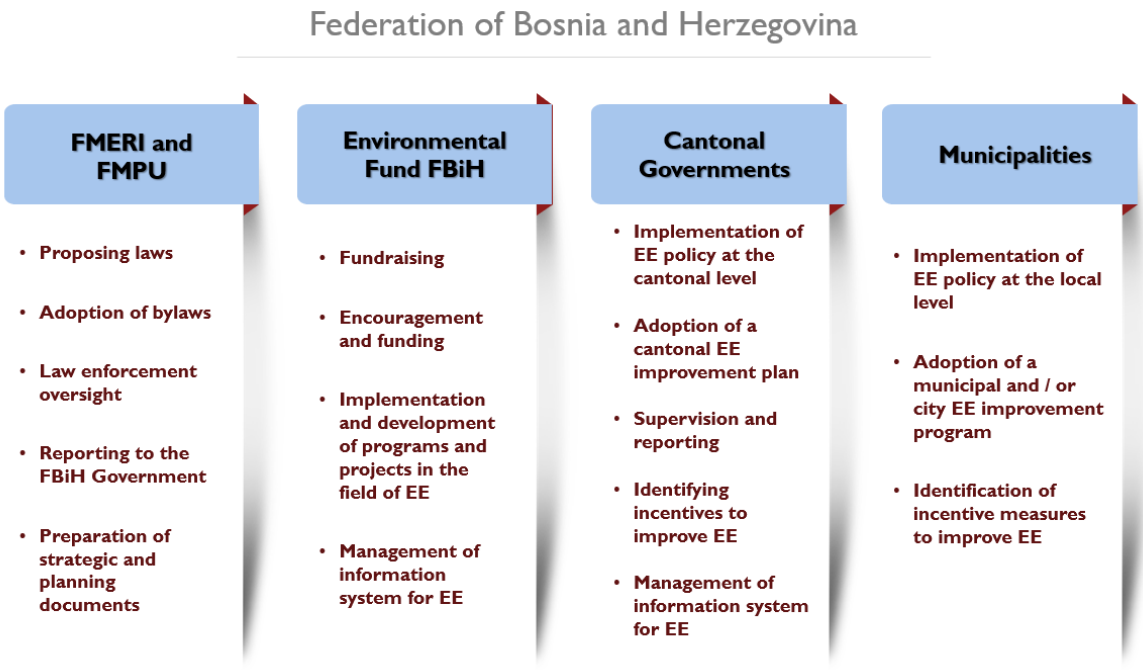



**Figure 2: The main actors in the field of EE in FBiH**

In the Republika Srpska (RS), EE issues are regulated by the competent ministries, the RS Fund, and units of local self-government, as shown in Figure **Error! Reference source not found.**.

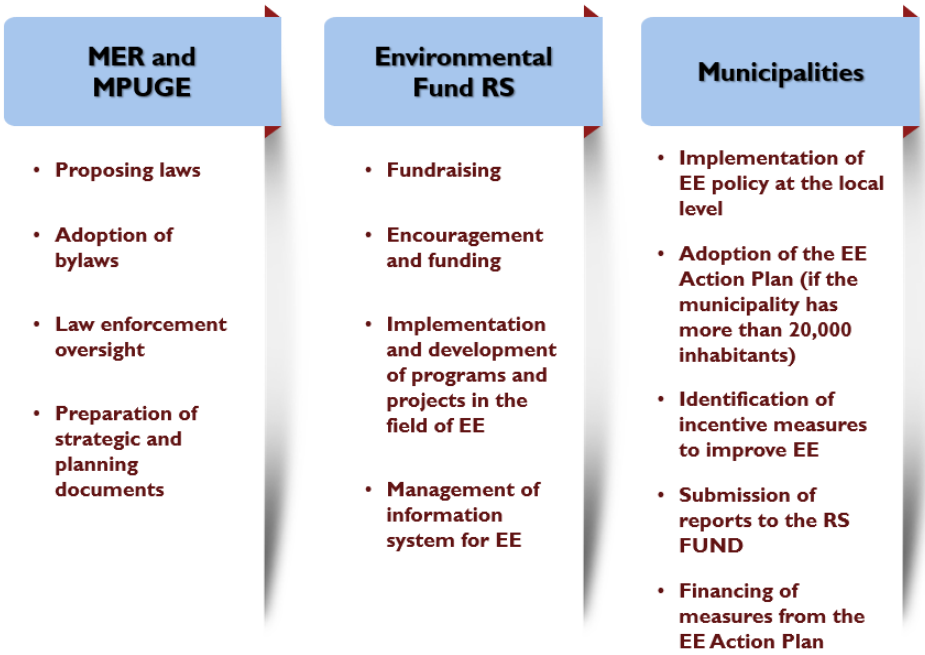



**Figure 3: The main actors in the field of EE in RS**

The **BD BiH** is drafting a law that defines and regulates the field of EE. The Department for Communal Affairs is currently coordinating activities in the field of EE in BD BiH.

## 2.2 LEGISLATIVE FRAMEWORK FOR EE IN BIH

By signing the EnC Treaty, BiH has, among other things, undertaken **the obligation to transpose the EU acquis** (acquis Communautaire) into the legal framework of Bosnia and Herzegovina. The EnC Treaty requires the parties to adopt the measures for the development of the electricity sector, taking into account security of energy supply, environmental protection, social cohesion and regional development[1].

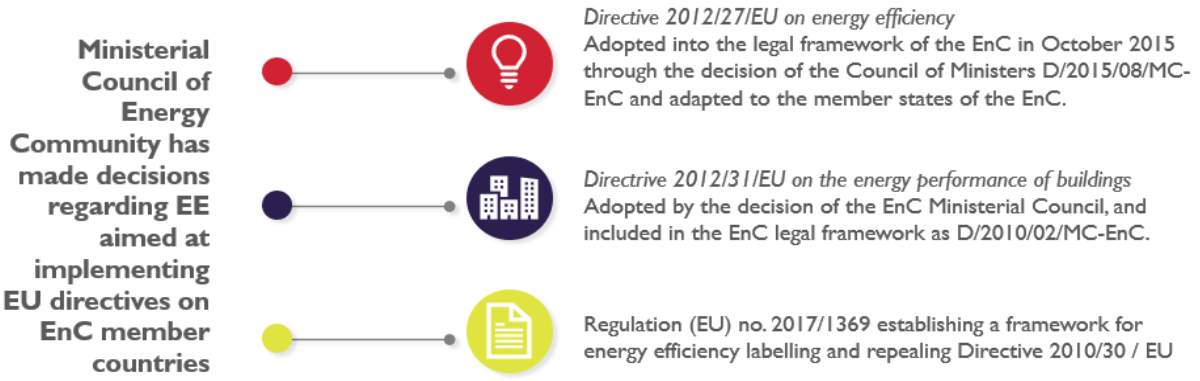



**Figure 4: EU acquis on EE transposed to EnC member countries**

According to Article 7 *of the EE Directive*, the EnC members (including BiH) **are obliged to introduce the instruments for the implementation of the EE policy and achieve energy savings by implementing these measures.**

Targeted energy savings that are set as a goal for BiH are clearly defined in the EE Directive and the way to achieve them should be elaborated in more detail in the NECP, which is being drafted, and entity level action plans for EE.

Instruments for the implementation of EE policy can be in the form of an obligation scheme for EE, alternative measures, or a combination of these instruments. The following measures can be considered as alternative measures:

- Taxes on energy or $CO_2$;
- Financial plans and instruments or fiscal incentives that lead to the application of energy efficient technology or techniques and which affect the reduction of energy consumption in the final consumption;
- Training and education, including energy advisory programs;
- Standards and norms aimed at improving the EE of products and services, including buildings and vehicles.

[1] Article 2. (d) and Article 35. EnC Treaty

In 2019, the EU completed a comprehensive update of its energy policy framework to facilitate the transition from fossil fuels to cleaner energy and to meet its obligations under the EU's Paris Agreement to reduce greenhouse gas emissions.

In this regard, a set of laws and bylaws called the **Fourth Energy Package on Clean Energy** has been published. In November 2021, the first set of legal acts from the Fourth Clean Energy Package was included in the EnC acquis, and it is presented in Figure **Error! Reference source not found.**.

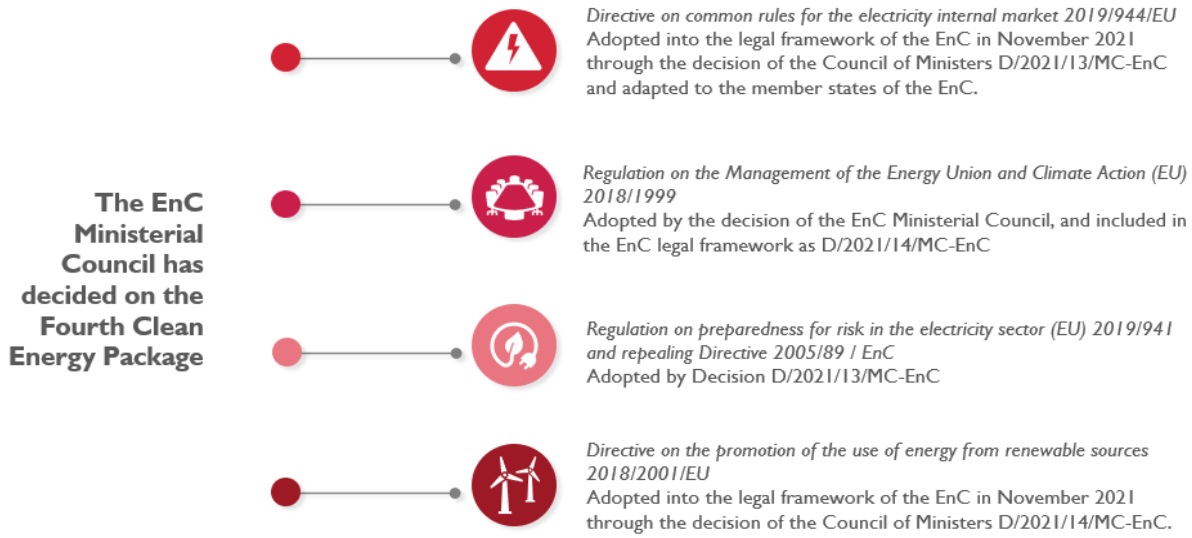



**Figure 5: EU acquis from the Fourth Energy Package transposed to EnC member countries**

Laws and regulations adopted in BiH should be harmonized with the mentioned European directives. At the entity level, laws have already been enacted that are, to some extent, in line with the above directives, and these are listed in the Table **Error! Reference source not found.** below.

During the implementation of the USAID EPA project, further improvements of these laws are planned in terms of introducing an obligation scheme for EE in the entity laws on energy efficiency.

After the amendment to this legislation and the adoption of the accompanying bylaws (rules, regulations, instructions, methodology), the preconditions for the systematic implementation of EE measures would be established.

**Table 1: Laws and Bylaws in EE in the BiH**

| Laws/bylaws | Description |
|---|---|
| **FBiH** | |
| 1. FBiH Law on Energy Efficiency [2] | Some of the most important obligations regulated by the Law are EE in the final consumption and provides guidelines for the adoption of bylaws.<br>Based on the Law, the following bylaws have been adopted so far:<br>• Rulebook on Energy Efficiency Information System in FBiH<br>• Rulebook on the procedure for calculating the optimal costs of minimum requirements for energy performance of buildings<br>• Rulebook on regular energy audit of heating and air conditioning systems |

[2] OFFICIAL GAZETTE FBiH, no. 22/17

| Laws/bylaws | Description |
|---|---|
| | • Rulebook on minimum requirements for energy performance of buildings<br>• Regulation on conducting energy audits and issuing energy certificates<br>• Regulation on the conditions for granting and revoking authorizations for performing energy audits and energy certification of buildings<br>• Decision on the maximum amounts of the fee for energy audit services<br>• Decision on determining the methodology for calculating and allocating the indicative targets of the FBiH for achieving savings in energy consumption<br>• Decision on establishing temporary policy guidelines for the implementation of energy efficiency in the FBiH |
| **RS** | |
| **2. RS Law on Energy Efficiency** [3] | Some of the most important obligations regulated by the Law: EE in the final consumption, adoption of plans for EE improvement and their implementation, organization of work on EE improvement, measures to improve EE and ways of financing EE.<br>Based on the Law, the following bylaw has been adopted so far:<br>• Rulebook on energy class of products<br>• Rulebook on the methodology for estimating the costs of offering energy services<br>• Instructions on the preparation of the annual report on the implementation of the action plan for energy efficiency of the local self-government unit |
| 3. **Law on Spatial Planning and Construction**[4] | Some of the most important obligations regulated by the Law: the system of spatial planning and providing guidelines for the adoption of bylaws.<br>Based on the Law, the following bylaw has been adopted so far:<br>• Rulebook on minimum requirements for energy performance of buildings<br>• Rulebook on the methodology for calculating the energy performance of buildings<br>• Rulebook on performing energy audits of buildings and issuing energy certificates |

Generally speaking, EU Directives have only been partially transposed into the EE sector in BiH through the legislation of the competent entity ministries.

[3] OFFICIAL GAZETTE RS, no. 59/13
[4] OFFICIAL GAZETTE RS, no. 40/13, 2/15- Decision US, 106/15, 3/16, 104/18- Decision US and 84/19

# 3. ANALYSIS OF FINANCING EE MEASURES IN THE HOUSING SECTOR IN BIH

In addition to the fact that BiH can significantly improve its economy by developing a sustainable mechanism for implementing EE measures, it is important to mention that non-compliance with the EnC requirements will eventually lead to penalties, which can already be seen through the planned introduction of $CO_2$ taxes and similar measures to all who do not comply with the international standards.

The financing of EE measures therefore needs to be provided in a systematic and transparent manner, after which it is necessary to monitor and measure energy savings in order to monitor the fulfillment of the objectives defined in the NECP, which is being drafted.

A significant number of EE projects are being implemented in Bosnia and Herzegovina, which are mainly supported by various financial institutions but also from the state budgets. These projects are currently focused on the implementation of EE measures in public buildings, while this analysis addresses the housing sector, which has significant potential for improving EE.

The next chapter provides an overview of currently available EE financing programs in BiH, with special emphasis on the analysis of their success through an overview of basic parameters such as monitoring savings, campaign success, and compliance with other funding mechanisms.

## 3.1 ANALYSIS OF EXISTING SOURCES OF EE FINANCING

Sources of EE financing in buildings in BiH can generally be divided into **domestic and international** sources of funding as shown in Figure **Error! Reference source not found.**.

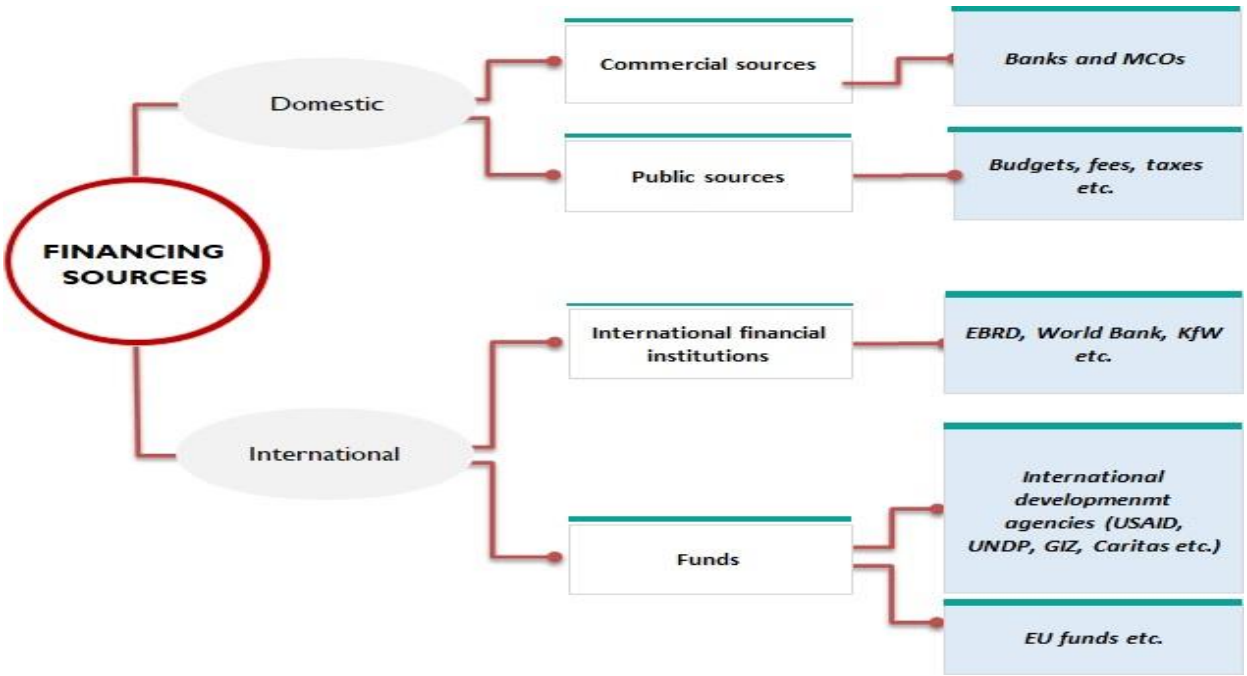



**Figure 6: Funding sources scheme in BiH**

**Domestic sources** of funding include **public** and **commercial** sources.

**Public sources** of funding include funding from public budgets and various types of environmental fees. At the level of BiH, there is currently no single model for raising funds for EE projects, but funds are provided exclusively at the level of entities, Cantons (in FBiH) and municipalities.

Fees for environmental protection, which, among other things, finance EE projects, are collected at the entity level, in the FBiH through the FBiH Fund, and in the RS through the RS Fund.

**Commercial sources** of EE financing in BiH include loans from domestic commercial banks and Micro Credit Organizations (MCOs).

**International sources** of EE financing in BiH include funds from the international financial institutions (European Bank for Reconstruction and Development [EBRD], World Bank, KfW, etc.), funds from the EU funds, United Nations (UN) funds, funds for bilateral cooperation, and other funds from international sources.

When placing international sources of financing, special lines or programs are usually created, which may include a combination of funds from two or more international sources of financing, and which are further placed through domestic banks and MCOs or in some cases directly.

The most important instruments used in the placement of funds from international sources of financing are grants, loans supplemented by a grant component or loans on favorable terms.

## 3.2 ANALYSIS OF THE EXISTING EE FINANCING PROGRAMS IN THE HOUSING SECTOR

Below are some of the existing EE financing programs, whose assessment of the implementation status was done on the basis of the set criteria from **Annex A**. Some of the most important EE financing programs, which are currently being implemented in BiH, are presented in the Table **Error! Reference source not found.**, and followed by description.

**Table 2: EE Improvement Programs in Housing Sector**

| Project name | Implementor | Source of financing | Implementation period |
|---|---|---|---|
| Model of EE improvement in buildings in the Sarajevo Canton | Sarajevo Economic Region Development Agency (SERDA) | The Ministry of Spatial Planning, Construction and Environment Protection of the Sarajevo Canton, the City of Sarajevo, the Cantonal Housing Fund, and the municipalities of Stari Grad, Centar, Vogosca, Novo Sarajevo, Hadzici, Ilijas and Ilidza | 2019 - |
| Residential Energy Efficiency for Low-income Households (REELIH) | Habitat for Humanity International | USAID | 2012 - |
| Green Economy Financing Facilities in BiH (GEFF) | EBRD in cooperation with local | European Union (EU), Energy Community Secretariat (EnCS), Austrian Ministry of | 2017 - |

| Project name | Implementor | Source of financing | Implementation period |
|---|---|---|---|
| | commercial banks and MCOs | Finance and Western Balkans Investment Framework (WBIF) | |

### Model of EE improvement in buildings in the KS area

The Sarajevo Economic Region Development Agency (SERDA) model began being implemented in 2019 and is being implemented in cooperation with the Ministry of Spatial Planning, Construction and Environmental Protection of Canton Sarajevo. The aim of the Model is to encourage citizens to implement the EE measures in the housing sector. In addition to improving the building envelope in residential buildings, the SERDA model also supports the replacement of solid fuel boilers and the transition to environmentally friendly energy sources.

The principle on which this model is based is the repayment of the costs of EE measures through the realized savings. All projects within the Model are performed in the area of Canton Sarajevo (KS), at the level of the housing sector.

This Model offers users (citizens) a grant in the amount of 45% of the total value of the investment, while the rest of the money must be provided from the user's own funds.

| Characteristics | Applicability | Assessment of implementation status | Description |
|---|---|---|---|
| Monitoring of savings | ✓ | 80% | Verification of savings is done on the basis of a detailed energy audit (DEA) before the implementation of measures. The values of savings calculated within the DEA are taken into account, in case of implementation of the proposed measures. |
| Campaign | ✓ | 100% | In addition to the electricity bill, all citizens in the Sarajevo Canton received a leaflet informing them about the financing program. Information was also provided through the TV commercials, the Internet and billboards. |
| Consistency with other programs / models | ↻ | 25% | Compliance with other models was assessed as low, because the ratio of grants and own funds in the program differs significantly from other programs, which makes other funding programs less desirable. |
| Financing model | ✓ | 100% | The grant provided by the implementer is 45% of the total value of the investment. The financing model includes covering the costs of supervision over the execution of works, as well as the preparation of energy audits and project documentation. |
| Advantage to low-income households | ✗ | 0% | The criteria for selecting candidates do not take into account the socio-economic situation of the candidates. |

### Residential Energy Efficiency for Low Income Households – USAID REELIH

The USAID REELIH program has been implemented since 2012 with financial assistance from USAID. USAID REELIH is the first significant program in BiH aimed at increasing the EE in the housing sector. The beneficiaries of the project are low-income households within collective housing buildings. The goal of the program is to overcome market, financial and communication barriers, which contributes to a significant improvement in the living conditions of low-income families. As part of this program, financial models have been developed that represent a combination of grant funds and own participation through credit lines. Grants amount to up to 50% of the value of the investment, while the rest of the funds should be provided by the owners of the facilities.

| Characteristics | Applicability | Assessment of implementation status | Description |
|---|---|---|---|
| Monitoring of savings | ✓ | 80% | Verification of savings is done on the basis of detailed energy audits (DEA) before the implementation of measures. The values of savings calculated within the DEA are taken into account, in case of implementation of the proposed measures. |
| Campaign | ↻ | 20% | Citizens were informed via the Internet (project web platform). |
| Consistency with other programs / models | ↻ | 25% | The program is harmonized with other programs only in the segment of using the same model of financing EE measures, which includes the grant component and the beneficiary's own funds. In other segments, there are no common ground such as using the same database, the same IT system or joint coordination of activities and pooling of resources (Annex A). |
| Financing model | ✓ | 100% | Grant funds provided by the implementer worth up to 50%, depending on the socio-economic status of the household. |
| Advantage to low-income households | ✓ | 100% | Admission of registered candidates is done primarily on the basis of the socio-economic condition of the candidates. The project is implemented with the aim of improving the EE in low-income households. |

### Green Economy Financing Facilities in BiH (GEFF)

GEFF is part of an international program implemented in the Western Balkans and is supported by the EU and the Federal Ministry of Finance of the Republic of Austria. GEFF is a credit line that provides financial support to the housing sector for EE and renewable energy projects. Applications for the funding program can be made by individuals, groups of individuals or housing cooperatives, managers or the service companies. GEFF provides loans through local commercial banks and microcredit organizations. Local financial institutions participating in the GEFF program in BiH are: UniCredit Bank, UniCredit Bank Banja Luka, Sparkasse Bank and Partner Microcredit Foundation. Under the GEFF, grant funds of up to 35% of the investment amount or loan amount are awarded.

| Characteristics | Applicability | Assessment of implementation status | Description |
|---|---|---|---|
| Monitoring of savings | ✓ | 80% | Monitoring of the realization of investments is carried out by the GEFF team through an application that monitors energy savings and reduction of the $CO_2$ emissions. |
| Campaign | ↻ | 40% | Citizens were informed through the Internet (web platform of the project and social networks) and leaflets. |
| Consistency with other programs / models | ✗ | 0% | Coordination with the EE funding programs in BiH has not been established. |
| Financing model | ✓ | 100% | Grant funds provided by the implementer amount to 35%. In addition to the implementation of measures to improve EE on the building envelope and heating system, the program can finance the purchase of more energy efficient home appliances and lighting, but without grants. |
| Advantage to low-income households | ✗ | 0% | Acceptance of registered candidates does not take into account the socio-economic situation of the candidates. |

## 3.3 ANALYSIS OF THE IMPLEMENTATION PERFORMANCE OF THE EE FINANCING PROGRAM IN BUILDING BY THE IMPLEMENTER

This chapter provides an overview of the experiences of a number of EE program implementers in BiH, which we gained through visiting and interviewing organizations that were directly involved in the implementation of the program.

In order to compare different programs for the implementation of EE measures, implementers were asked to give their critical view of the success of program implementation through analysis of 4 important segments: monitoring of savings, campaigns, coordination with other implementers and/or funding sources, and citizen interest. The experiences of the implementers of the EE financing programs can be useful in the implementation of new programs, but also to bring the programs closer to the citizens and encourage them to participate.

By properly coordinating the activities of institutions that finance and implement the EE programs, financial resources could be pooled, which would lead to a greater financial support to citizens, and easier reporting on savings.

The following is an analysis of the implementation of the EE financing programs by a number of implementers.

***United Nations Development Programme (UNDP)*** in BiH is currently running two active EE financing programs, focusing on the public building sector, namely: Green Economic Development (GED) and Scaling-up Investment in Low-Carbon Public Buildings (Scaling-up).

***GED*** started in 2013 and ended in February 2021, but due to the great response from the public, the time frame for the implementation of this program has been extended. GED is based on providing grant funds to the program's end users, financing the EE measures. The call for the GED building renovation program is open throughout the year, whereby data on energy consumption of registered facilities are entered into the Energy Management Information System (EMIS) program, and based on the above data and set criteria, the facilities are ranked once a year.

After the ranking of the selected facilities, energy audits are conducted, and then the cooperation of local authorities in the field of co-financing the renovation of each of the selected facilities is sought.

***Scaling-up*** **s**tarted in 2018 and is planned to end in 2026. The project aims to reduce greenhouse gas emissions in the public building sector through the EE measures and replace fossil fuels with renewable fuel. The program is planned to cover 7-8% of the total fund of public buildings.

The analysis of the programs according to the previously mentioned criteria concluded that these programs have the desired way of monitoring the savings, given that savings in energy and money before and after the implementation of EE measures are made in the EMIS program. The successful campaign, which was carried out via the Internet (through the project's web platform and social network), television and radio, led to great interest of citizens. As a result, in 2013 over 600 applications were received for a call co-financed by four facilities. Precisely such situations lead to the need for cooperation with other implementers in order to provide more funds for EE measures, for which the implementers are certainly ready.

It is important to note that cooperation with other implementers does not necessarily and exclusively mean pooling financial resources, but can also be done through the use of common databases and information systems, and better exchange of data from market analysis.

The lack of financial resources to cover all the needs of interested users is considered the biggest barrier in these programs.

***SERDA*** is implementing the **EE in Building Improvement Model program**, which provides systematic support to citizens in improving energy performance. The owners of individual housing units, as well as the representatives of apartment owners for collective housing buildings, applied for the invitation to participate in the mentioned model of financing EE measures.

Although the call stated that applications for public and housing sector facilities are possible, there were no applications from the public sector. A total of 398 participants applied for the first announced call of SERDA, which was more than expected.

Verification of savings is done based on a detailed energy audit (DEA) before the implementation of measures. The well-conducted campaign through the project's web platform, and the sending of leaflets with electricity bills, led to a great interest of citizens in this funding program.

The response of potential users was higher than expected, which SERDA representatives characterized as a Model with favorable opportunities and a good campaign, as well as proof of the increased awareness of citizens about the importance of energy savings.

No coordination with other implementers has been established during the implementation of the program, but there is a willingness to cooperate.

Here, similar to the UNDP program, the main barrier in the implementation of the EE funding program is insufficient funding for the payment of the grant component in relation to the number of interested citizens.

In addition to this, the problem of difficult public tender process was mentioned.

This primarily refers to the strict regulations related to tender procedures, appeal periods, and appeal resolution periods and criteria. This leads to significant costs in time and resources from the moment of the tender announcement to the beginning of the realization of works.

In addition, the selection of bidders is made based on the best financial bid, without taking into account the quality of materials and services offered by the bidder. In this way, it often happens that, if the principle "obtained value for money paid" is applied, the best financial offer is ultimately the most unfavorable.

The analysis of the two active EE financing programs coordinated by **GIZ in BiH (Decarbonization of the energy sector in BiH and the Building Renovation Program)**, which are focused on the public and housing sectors, confirmed the interest and readiness for better coordination between program implementers.

So far, GIZ has not implemented the EE measures and the focus of their work has been on drafting strategic documents and promoting the EE.

***Decarbonization of the energy sector in BiH*** is a program within which strategic documents (Strategy for Renovation of Buildings of FBiH, RS and Brcko District) were drafted, and promotion of EE in general, while the **Building Renovation Program,** which has not yet started, will cover the housing sector divided in two sub-programs: **the Program for the Renovation of Collective Housing Buildings** and the **Renovation Program for Individual Houses.**

The building renovation program will begin to be implemented after the adoption of the Building Renovation Strategy for FBiH, RS and Brcko District BiH.

According to surveys conducted within the ***USAID REELIH*** program, the average income in households is around 700 KM, while 43% of surveyed citizens say that they are ready to pay an installment of 50 KM per month for EE measures.

It often happens that in collective housing buildings, most tenants want to participate in the EE improvement project, but some of the tenants are not able to finance their share of the costs, so it is necessary to establish a fund for socially vulnerable groups or a credit guarantee fund.

**Table 3: Barriers Encountered by the EE Program Implementers**

| Barrier | | Description |
|---|---|---|
| Lack of financial resources for the implementation of EE measures |  | In the implementation of the EE program, one of the most significant barriers is the lack of financial resources. There is currently no sustainable source of EE funding, such as an obligation scheme for energy efficiency. In the case of establishing a sustainable source of EE funding, the necessary financial framework would be created that would provide significant amounts of funding for the implementation of the EE program. Also, creating a systematic and sustainable way of financing would provide transparency in the work, which would ultimately encourage other investors to invest money through this system. |
| Lack of credit guarantee funds |  | By establishing a sustainable source of EE financing, a credit guarantee fund could be created, and on the basis of identified social categories, subsidies would be enabled for different categories, on defined bases. |
| Difficult implementation of public procurement procedures |  | Existing public procurement laws have strict regulations regarding tender procedures, appeal periods, and complaint resolution periods and criteria, leading to significant time and resource costs from the time the tender is announced to the start of work. Also, the selection of bidders is made on the basis of the best financial offer, without taking into account the quality of materials and services offered, which often leads to more expensive payment for materials and services compared to the delivered quality. |
| Billing of thermal energy consumption based on heated area size | $m^2$ | Facilities that receive thermal energy from local heating plants pay their bills based on the heated area of the facility being heated, and not based on the actual thermal consumption. Therefore, for the owners of these facilities, the implementation of EE measures will not represent a reduction in heating costs, and therefore there will be no interest in investing in the EE measures. |
| Lack of information about EE |  | Citizens are not sufficiently familiar with the models of financing the EE measures, nor are they aware of all the benefits that can be gained from the implementation of EE measures. |
| Insufficient level of coordination between implementers |  | Implementers of the EE financing programs in BiH do not implement EE financing programs in a coordinated manner, which leads to overlapping activities in the implementation of the EE financing programs. Also, it is not practiced to pool funds from different programs, and joint campaigns would significantly contribute to increasing interest in the EE measures. |

# 4. IDENTIFICATION OF BARRIERS FOR SUCCESSFUL IMPLEMENTATION OF MEASURES FINANCING MECHANISMS AND TRANSFORMATION OF THE EE MARKET IN BIH

In order to achieve the systematic functioning of the EE financing mechanisms, it is necessary to provide a system for continuous identification of barriers that slow down the process, and it is necessary to propose recommendations for overcoming them.

In the current way of implementing EE measures, barriers have been identified and grouped into five categories. However, it is important to note that most barriers to the functioning of the EE system are interconnected and interdependent, and their grouping is not of great importance for decision making.

All barriers were identified based on the results of the primary research conducted with the representatives of competent EE institutions and implementers of EE programs. In addition, secondary data from available publications were used. The most important are MOFTER's 4th and 5th annual reports according to the EnC, the draft version of the building renovation strategies in FBiH and RS, action plans for EE, the Framework Energy Strategy for BiH and others.

## 4.1 STRATEGIC BARRIERS

Strategic barriers are the key barriers to the implementation of EE measures and overcoming them should be a priority.

BiH has accepted the "Sofia Declaration," which will follow the EU's green transition policy. As part of this EU policy, the Commission, through the Energy Community Secretariat, is preparing a study that will set targets for 2030 for all dimensions of the NECP, including EE. Goals will be defined for each country separately.

As the BiH entities and the BD BiH are preparing their own strategic plans, it is clear that it will be necessary to harmonize these plans at the level of BiH so that the goals set for BiH are met.

Strategic barriers are listed in the Table **Error! Reference source not found.**.

**Table 4: Strategic Barriers**

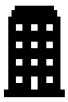
| | Description |
|---|---|
|  | Non-existence and slow adoption of certain strategic and planning documents (*National Energy and Climate Plan (NECP), Energy Efficiency Action Plans at the level of municipalities, cantons, and entities, etc.*). |

## 4.2 LEGISLATIVE AND REGULATORY BARRIERS

Legislative and regulatory barriers are a category of barriers that prevent the development of the legal and regulatory framework in the EE sector. Legislative barriers at all levels of government directly related to the implementation of EE measures are given below.

### At the BiH level:

**Table 5: Legislative and Regulatory Barriers – BiH Level**

| Description | |
|---|---|
|  | The regulation defining the field of EE is adopted at the level of the entities and BD BiH with the obligation of the state to report to the EnC in fulfilling the obligations in accordance with the EE Directive and the principles of the EU Clean Energy Package (MOFTER obligation). Some harmonization of the mentioned laws and bylaws at all levels would help in the easier process of reporting to the BiH level. |
|  | Non-compliance of EE building requirements at the entity level<br>E.g., after the implementation of EE measures on existing buildings according to the *Regulation on conducting energy audits and issuing energy certificates* for facilities in FBiH it is required to be in the energy class "B" or higher, while according to the *Rulebook on energy audits and issuing energy certificates* for facilities in RS after the implementation of EE measures, they should be in energy class "C" or higher. |
|  | Amendments to the *Law on Public Procurement* have not been adopted - the EU EE Directive, which is adapted for EnC member states, requires that public procurement regulations include selection criteria and thresholds for energy performance of products procured in the public procurement procedures. |

Legislative and regulatory barriers at the level of FBiH, RS and BD BiH appear in the form of laws and bylaws that only partially implement the obligations undertaken to implement the EU Directives and, in this regard, it is necessary to amend or supplement them, and the non-existence of certain laws and bylaws that need to be adopted.

These barriers for FBiH, RS and BD BiH are given in the tables below **Error! Reference source not found.**, **Error! Reference source not found.** and **Error! Reference source not found.**.

### At the FBiH level:

**Table 6: Legislative and Regulatory Barriers – FBiH Level**

| Description | Current Status |
|---|---|
| In April 2021, USAID EPA representatives submitted, in the form of a proposal, the amended *Law on EE*, as well as the necessary bylaws to include the obligation scheme as a systematic mechanism for EE financing in the legislative and regulatory framework. | Pending adoption. |
| *Methodology for implementing the analysis of the use of alternative energy supply systems in issuing building permits for buildings.* | Pending FMERI adoption. |
| Amendments to the *Law on Spatial Planning and Land Use* - introduction of EE criteria during the construction of new and reconstruction of the existing buildings under the jurisdiction of the FBiH. | Pending FMPU adoption. |
| Amendments (10) to cantonal construction laws - introduction of EE criteria during construction of new and reconstruction of the existing buildings under the jurisdiction of cantons and municipalities. | Pending adoption. |
| *Guidelines for the establishment of energy management in the public sector in the FBiH.* | Pending adoption. |
| Harmonization of legal regulations in the field of communal activities with the Law on EE - introduction of the obligation to conduct energy audits of communal services (e.g. public lighting, district heating, etc.). | Not executed. |

| Description | Current Status |
|---|---|
| Cantonal laws on the management of common parts of buildings are not harmonized, and they do not exist in some cantons, such as the Herzegovina-Neretva Canton and the West Herzegovina Canton. | Not exeuted. |
| Amendments to the cantonal laws on the management of common parts of the building, in the cantons where these amendments have not been adopted, in terms of granting the status of a legal entity to building managers. | Not executed. |

### At the RS level:

**Table 7: Legislative and Regulatory Barriers – RS Level**

| Description | Current Status |
|---|---|
| Representatives of USAID EPA submitted in the form of a proposal the amended Law on EE, as well as the necessary bylaws to include the obligation scheme as a systematic mechanism for financing EE in the legislative and regulatory framework. | Pending adoption. |
| The Rulebook on the energy management system has not been adopted. | Pending MER adoption. |
| The Rulebook on the implementation of training for the energy management system has not been adopted. | Pending MER adoption. |
| The Rulebook on Energy Efficiency Information System has not been adopted. | Pending Fund adoption. |
| Amendments to the Law on maintenance of buildings in order to enable easier decision-making on the renovation of residential buildings of collective housing. | Not executed. |

### At the BD BiH level:

**Table 8: Legislative and Regulatory Barriers – BD Level**

| Description | Current Status |
|---|---|
| The Brcko District BiH has approved the draft Law on Energy Efficiency in the BD BiH. | Pending adoption. |
| Lack of the Law on Property and Other Real Rights of the BD BiH in the segment related to decision-making when improving EE in common parts of buildings. | Pending adoption. |

## 4.3 FINANCIAL BARRIERS

The obstacles exclusively in the field of financing EE measures in BiH is presented below. This type of obstacle could be identified taking into account the existing legislative and institutional framework in BiH.

**Table 9: Financial Barriers**

| Description | |
|---|---|
|  | Lack of sustainable financial models / incentive mechanisms. |

| | Description |
|---|---|
|  | Lack of credit-guarantee funds with products adapted to socially vulnerable users. The lack of a register of socially vulnerable populations and the lack of these funds often makes it difficult to implement measures in collective housing. |
|  | Lack of public funds to finance measures for the renovation of residential buildings - Some cantons, cities and municipalities in the budgets plan funds for the implementation of EE measures but are mainly intended to finance measures on public buildings. The housing sector is almost underrepresented. |
|  | Underdeveloped energy services market - One of the ways to finance EE measures is through energy services and energy performance contracts, or ESCO models. These barriers are a direct result of the lack of adequate legislation. |

## 4.4 TECHNICAL BARRIERS

Technical barriers are a category of barriers that include, but are not limited to, deficiencies in consistent, standardized or integrated solutions in accordance with new and different requirements of building standards in terms of energy savings, skilled workers and deficiencies in technical solutions. Technical barriers are given in the Table **Error! Reference source not found.**.

**Table 10: Technical Barriers**

| | Description |
|---|---|
|  | Lack of adequate censuses / databases of residential and non-residential buildings in both entities and BD BiH. |
|  | Insufficient level of implementation of continuous energy management in both entities and BD BiH, both in residential and public buildings. |
|  | Lack of clear flow and exchange of information through existing information systems for EE, both within the entities and between the entities and the BD BiH to BiH. |
|  | Lack of thermal energy metering systems for a large number of district heating systems in both entities. |

## 4.5 COMMUNICATION AND COORDINATION BARRIERS

Communication barriers refer to the difficulties of the end users in joining one of the EE financing programs, and ignorance of the EE financing program and EE measures in general.

Coordination barriers also refer to barriers to coordination between different levels of government or between authorities, program implementers and the end users.

Improving communication and coordination in the development of the EE program would ensure the exchange of experiences and data on the success of the implemented EE measures, and possibly taking joint actions in terms of implementing EE measures.

The introduction of clear channels of communication and reporting on the implemented measures would significantly improve the process of monitoring and verification of savings. The above-mentioned barrier type is shown in the following table.

| | Description |
|---|---|
|  | Insufficient availability of information for program beneficiaries on EE funding programs. |
|  | Non-labeling of EE - In the territory of FBiH and RS, for all new facilities before commissioning, an energy certificate must be issued, and it must be displayed in a visible place accessible to all citizens. |
|  | Energy suppliers / distributors do not sufficiently direct customers to use energy rationally and efficiently. |
|  | Difficult implementation of EE measures in collective housing facilities - In collective housing facilities where a small number of owners do not want or are not able to co-finance energy efficiency measures, their implementation is difficult or completely suspended. |
|  | Lack of coordination in the field of EE - There is no adequate cooperation between the implementers of the EE financing programs, which is manifested in the lack of uniform monitoring, verification, application of a single financing model, combining financial resources of implementers, and avoiding overlapping activities. |

# 5. RECOMMENDATIONS FOR OVERCOMING BARRIERS TO SUCCESSFUL IMPLEMENTATION OF FINANCING MECHANISMS, MEASURES AND TRANSFORMATION OF THE EE MARKET

In the next chapter, recommendations for overcoming previously identified barriers are presented. After the defined barriers, it was found that most of the barriers stem from a lack of coordination and the inability to provide sufficient funding for EE measures.

In this regard, the focus of the recommendations concerning the establishment of coordinated work and a systematic approach to work on measures to improve EE was determined.

Although the recommendations below are given in a certain order, they are not a priority in their implementation.

The aim of the document is to list and specify the recommendations related to different administrative levels in BiH, and they can usually be implemented in an arbitrary order, bearing in mind the strategic commitments and the need for clear determination of the goal of BiH.

In accordance with the above, after listing and clarifying all the recommendations, we will try to define the next minimum steps that should be taken as a priority to ensure a systematic approach to the implementation of the EE measures.

## 5.1 RECOMMENDATIONS FOR DEVELOPMENT OF STRATEGIC AND PLANNING DOCUMENTS

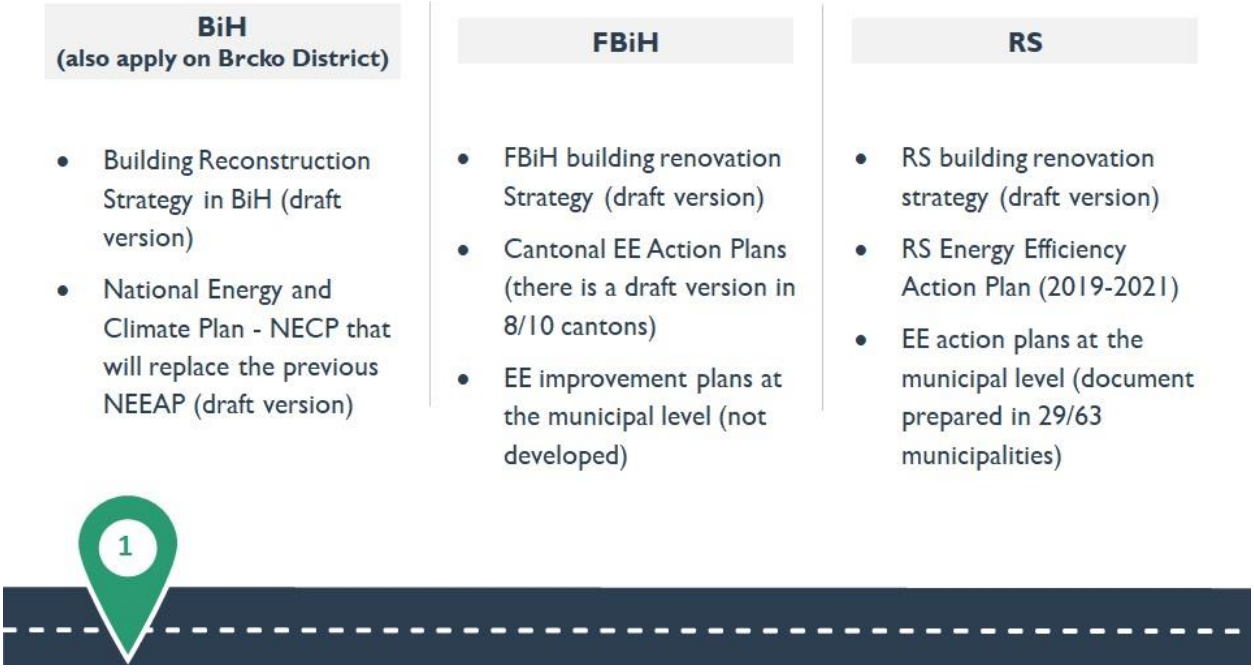
Removing barriers to strategic planning and drafting planning documents certainly represent an important barrier to the functioning of the EE improvement field in BiH, especially given the need to clearly express the state's readiness to meet the international obligations in this area.

In addition to the fact that in these documents it is necessary to clearly state the commitment to the implementation of EE measures, it is also necessary to clearly state the steps that need to be taken in order to introduce a systematic approach in this area.

This Roadmap can help determine the priorities and needs of drafting strategic documents. The strategic and planning documents that need to be developed and adopted by levels of government in order to overcome strategic barriers to successful transformation of the EE market and the implementation of various financing mechanisms are shown below.

The mentioned strategic plans should take into account all the undertaken obligations of BiH, and clearly define the ways of fulfilling the goals presented in the strategic documents and the EnC Directives.

They should also process the envisaged financing systems to meet the targeted savings facing energy suppliers, in line with the EU EE Directive.



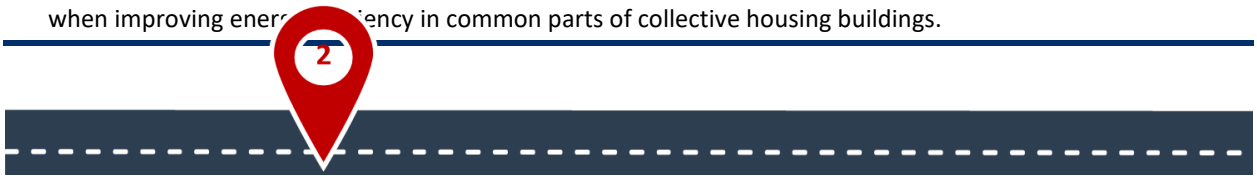

## 5.2 LEGISLATIVE AND REGULATORY RECOMMENDATIONS

As with other recommendations mentioned in this document, we have tried to list the laws and regulations that need to be amended and adopted in order to clearly define the implementation of measures envisaged in the strategic documents.

The review of the recommendations for overcoming the identified legislative and regulatory barriers in fact includes the adoption of the documents mentioned below.

By adopting these recommendations, BiH will have created the basis of the legislative and regulatory framework for EE, which will enable the establishment of a sustainable financial model, coordination between program implementers, and created a basis for overcoming technical and other barriers.

| At the FBiH level |
|---|
| • Adoption of proposals for amendments to the Law on EE and the necessary bylaws for the inclusion of the obligation scheme as a systematic mechanism for financing EE in the legislative and regulatory framework in the FBiH;<br>• Adoption of the *Methodology for the implementation of the analysis regarding use of alternative energy supply systems when issuind construction permits for buildings* - Federation Ministry for Energy, Mining and Industry (FMERI);<br>• Adoption of amendments to the *Law on Spatial Planning and Land Use at the FBiH level*;<br>• Adoption of amendments to (10) cantonal laws on construction;<br>• Development of Guidelines for the Establishment of Energy Management in the Public Sector in the FBiH;<br>• Harmonization of legal regulations in the field of communal activities with the Law on EE (cross-sectoral connection);<br>• Adoption of harmonized cantonal laws that address the issue of management of common parts of the building in collective housing facilities, and enactment of laws on this topic in the cantons where it does not exist in the Herzegovina-Neretva and West Herzegovina cantons;<br>• Changing the legal status of managers through cantonal laws on the management of common parts of the building whereby managers become legal entities with the possibility of borrowing from domestic and international financial institutions, which would speed up the process of renovation of collective housing. |
| **At the RS level** |
| • Adoption of proposals for amendments to the Law on EE and the necessary bylaws for the inclusion of the obligation scheme as a systematic mechanism for financing EE in the legislative and regulatory framework in the RS;<br>• Amendments to the *Law on Building Maintenance*[5] in order to enable simpler decision-making on the renovation of residential buildings of collective housing, in paragraph 2, Article 29, and to provide for a decision on renovation activities of buildings based on consent of more than half of the total number of apartment owners;<br>• Adoption of the *Rulebook on the energy management system* - Ministry of Physical Planning, Construction and Ecology of RS (MER);<br>• Adoption of the *Rulebook on the implementation of training for the energy management system* - MER;<br>• Adoption of the *Rulebook on Energy Efficiency Information System* – Fund RS;<br>• Development and adoption of the *Rulebook on minimum requirements for energy performance of buildings* - MPUGE;<br>• Development and adoption of the *Rulebook on performing energy audits of buildings and issuing energy certificates* - MPUGE;<br>• Development and adoption of the *Rulebook on the content of technical documentation for building permits* - MPUGE;<br>• Development and adoption of the *Rulebook on regular energy audit of heating and air conditioning systems* - MPUGE. |
| **At the BD BiH level** |
| • Adoption of a law regulating the field of EE. EE in buildings is partially covered by the *Law on Spatial Planning and Construction of the BD BiH* [6]*;*<br>• Amendments to the *Law on Property and Real Rights of BD* [7] in the segment related to the decision-making when improving ener[illegible]iency in common parts of collective housing buildings. |




[5] Official Gazette of RS, no. 101/2011

[6] Official Gazette BD BiH, no. 29/08, 18/17, 48/18, 54/18, 10/20, 29/20 and 40/20

[7] Official Gazette BD BiH, no.j 11/01, 08/03, 40/04, 19/07 and 26/21

## 5.3 FINANCIAL RECOMMENDATIONS

The following are recommendations for overcoming barriers exclusively in the field of financing EE measures in BiH.

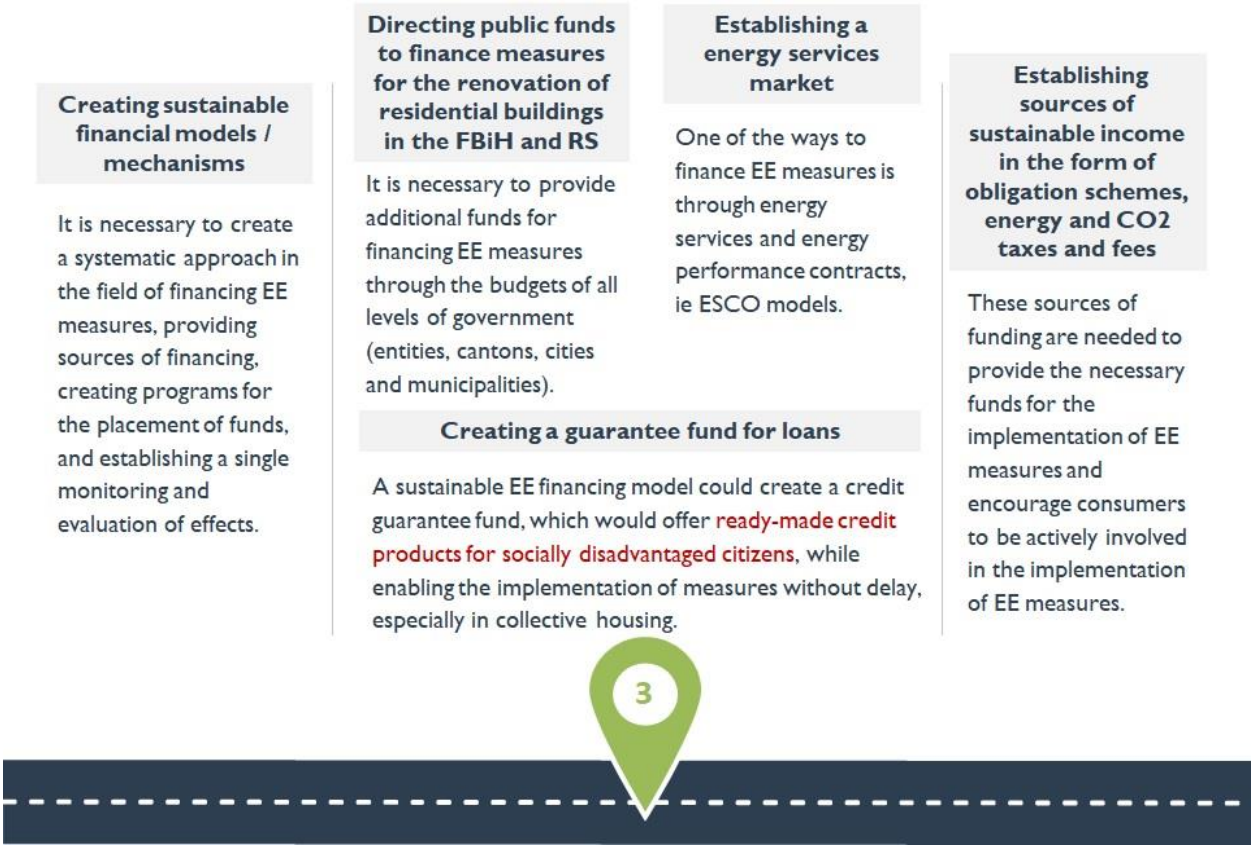
Sustainable financial models can be introduced by properly amending the legal framework at all levels in BiH, which would define in detail and regulate the ways of financing energy efficiency measures.

The basis of the model for financing EE measures in households would be obligation schemes for EE, which would be based on funds collected from the energy end users. Adopting this model in a transparent and comprehensive way would enable other entities wishing to support the financing of EE measures to invest their funds through this mechanism (budgets, donors, and other stakeholders).

Other mechanisms that should be introduced in the legislation and used to finance EE measures include the introduction of the energy service company (ESCO) model, and the possibility of introducing other energy taxes and fees.

In order to include households that are in a state of social need among the beneficiaries of EE measures, it is necessary to systematically address the establishment of credit guarantee funds for these households.

In any case, it is very important to ensure full transparency of these models and to consider and anticipate the possibility of pooling funds from different sources, and to ensure proper monitoring and verification of savings that will be reported at the level of BiH.



By establishing such models, BiH would meet a large number of recommendations from the EU Clean Energy Package, which would lead to the possibility of withdrawing resources from EU funds related to the assistance to countries in energy transition.

## 5.4 TECHNICAL RECOMMENDATIONS

For the needs of technical support to the models for the implementation of EE measures, it is necessary to prepare a series of measures that should improve existing solutions, and to consolidate information from the existing IT systems for managing EE improvement projects.

This would, among other things, enable better reporting on savings, and provide a clearer overview of savings potential, while meeting the need for transparent access to this data.

Achieving technical knowledge and skills in the process of establishing a systematic approach to the implementation of EE measures is of a great importance. The existence of already well-equipped and experienced Funds at the entity levels will be of great benefit when the implementation of measures on a larger scale begins, so special care should be taken to ensure that they are properly capacitated and trained for a larger volume of business.

For the needs of implementation of EE measures in households, it is necessary to create a special IT system for monitoring the implementation of measures financed from obligation schemes that would provide full transparency in fundraising and distribution, available measures and programs implemented.

Recommendations for overcoming the identified technical barriers are presented below.

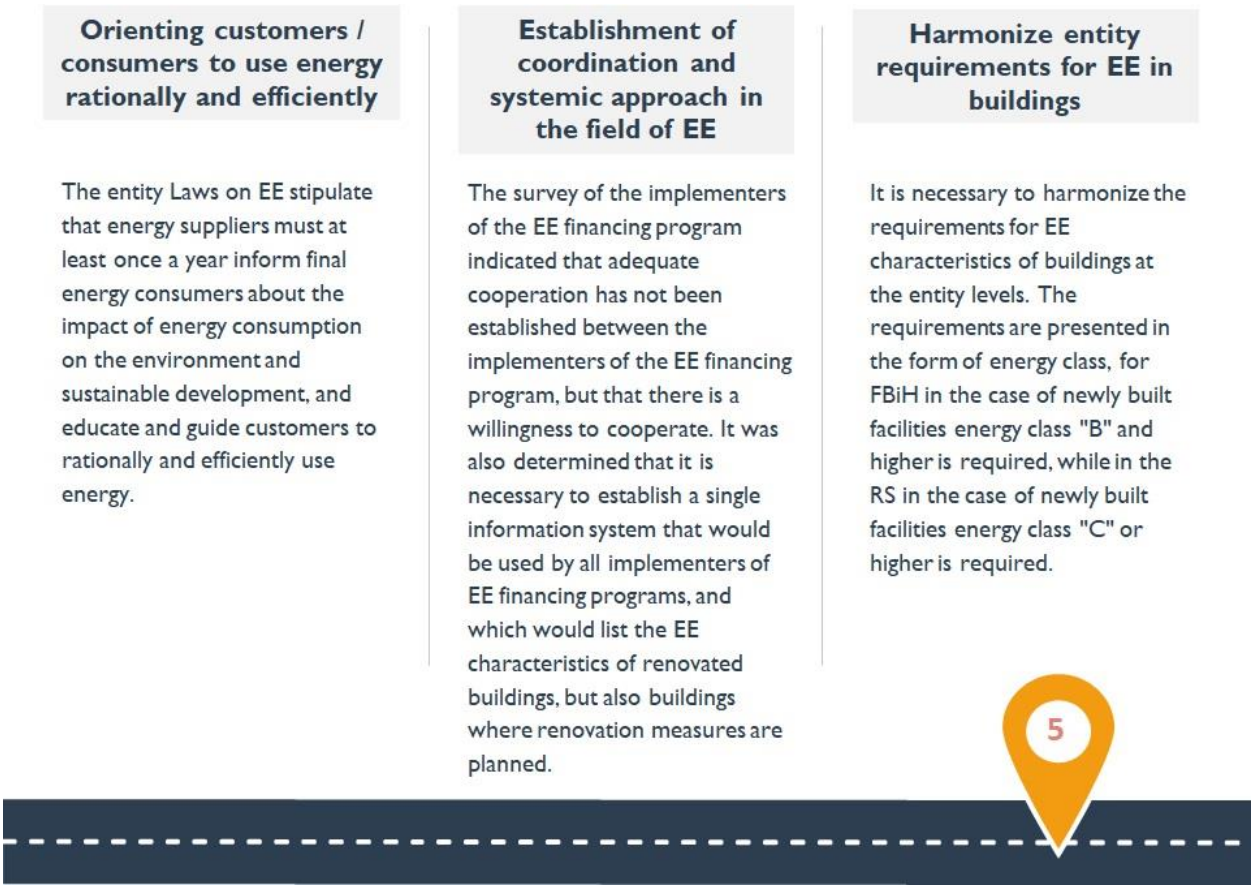
## 5.5 RECOMMENDATIONS FOR SUCCESSFUL COMMUNICATION AND PROCESS COORDINATION

The work on establishing a systematic approach in the implementation of EE measures requires clearly defined channels of communication both between the implementer and the citizens, and between the implementers themselves.

Special attention should be paid to the approach of informing citizens in order to obtain comprehensive information on the possibilities and conditions of different models of financing EE measures, and the benefits of implementing EE measures. In terms of achieving two-way communication between implementers and users, it is necessary to envisage the possibility of continuous and coordinated surveys for users in terms of examining their interest in implementing the EE measures.

The application of recommendations for overcoming communication and coordination barriers will improve cooperation between the main actors in the field of EE, which will lead to the acceleration of activities in the field of EE.

| Citizen information and implementation of adequate campaigns on EE financing programs | Establishment of mechanisms for providing one-stop-shop services to citizens | Establishment of the process for certification of facilities built before the adoption of the Law on EE in FBiH and RS |
|---|---|---|
| Citizens / users should be provided with greater availability of data on EE financing programs through radio, TV, Internet, billboards, posters, but also through the education system. | It is necessary to train local institutions dealing with EE issues in order to provide citizens with a full and comprehensive service and clarify the possibilities of implementing EE measures.Special departments should deal exclusively with the implementation of measures for citizens who are interested in them, and help citizens from the beginning to the end of the process. | For all new facilities, an energy audit and energy certificate must be issued before commissioning. The problem is the facilities built before the adopted law, most of the older facilities have not been inspected or issued a certificate. |




## 5.6 GENERAL RECOMMENDATIONS

General recommendations that would accelerate the development of the EE sector take into account the general state of EE in BiH, and the speed of development of the EE sector in BiH in order to enable its improvement.

In addition to the already mentioned need to strengthen the capacity of institutions that administratively deal with the implementation of EE measures (e.g., entity funds), the goal of implementing these recommendations is to provide the necessary capacity for the implementation of EE measures by economic entities in BiH.

Timely implementation of recommendations would lead to the strengthening and preparation of economic entities interested in the implementation of EE measures.

A special aspect of these recommendations should be dedicated to the education and retraining of the workforce that will be needed for the rapid and quality implementation of the EE measures in BiH.

A proper systematic approach to EE issues in BiH should introduce, through the legal framework, the possibility of involving and supporting legal entities that would provide training, produce materials and products that will be used in the implementation of EE measures, and implement EE measures.

Local chambers of commerce and employers' associations need to be involved in this process.

## 5.7 PRIORITIES

By developing this Roadmap, the USAID EPA project seeks to integrate all aspects of EE development in BiH (regulatory, financial and technical). The roadmap clearly shows the scope of the required changes that should lead to the introduction of a systematic solution that will support the implementation of EE measures in BiH in the long run.

As mentioned earlier, the proposed measures are often independent of each other, so in the following we will try to highlight some priority measures that would aim solely at establishing a systematic approach that would, to begin with, significantly mobilize all available resources in the implementation of EE measures in a more significant extent.

We note that these priorities do not have to be implemented in the following order, but we believe that the following steps would significantly improve the EE sector in BiH:

1. NECP - Adoption of the NECP as soon as possible would lead to a much clearer picture of the path to be taken, set clear savings targets to be met through the implementation of EE measures, and define ways and models of implementing these measures.
2. Amendments to the existing entity Laws on EE and drafting of the Law on EE BD BiH - The mentioned Laws on EE should clearly define the jurisdiction of institutions involved in the implementation of EE measures, methods and models of financing, and clearly link to the need to meet targeted savings.
3. Introduction of Obligation Schemes - The EE Laws need to introduce an obligation scheme model in a manner similar to that proposed by the USAID EPA team and submitted to the relevant Ministries.
4. The text proposed by the USAID EPA team is a draft text that provides the basis for including the model in EE laws in BiH and can be adapted to the current situation in defining the roles of key actors, as well as the introduction of other energy charges in BiH. The introduction of such a model would clearly assign competencies in the field of EE and achieve the necessary transparency that could attract capital from other sources of funding (grants, budgets, ESCO models, etc.).
5. Withdrawal of funds from international funds - Establishing a systematic approach through the implementation of the obligation scheme (in any scope) would meet a significant part of the recommendations and requirements of the EnC and create conditions to request financial assistance for the implementation of measures which would lead to achieving the objectives defined by EU Directives.
6. Capacity building - In parallel with the establishment of the system, it is necessary to work on strengthening the capacity of entities that will be the main bearers of activities. Here, in addition to strengthening the capacity of the Funds, which are the main entity in the process of developing and implementing EE programs, we also mean strengthening and analyzing the business sector to provide sufficient capacity for work, monitoring, and verification of savings (hiring energy auditors), providing construction materials, etc.
7. Adoption of laws and bylaws - Earlier in the document, a large number of laws related to construction were identified and their adoption/amendments could significantly improve and facilitate the implementation of measures. Laws concerning the rights and obligations of managers of collective housing buildings should be added here, as well as laws that define the social status of citizens and the like.
8. Development of the energy services market - It is necessary to work on the development of the ESCO model as a model for the provision of energy services, and to anticipate the existence of the so-called energy performance contracts.

9. Other sources of income - During the amendment and development of regulations that define the field of EE, it is necessary to envisage the possibility of introducing other fees for EE such as $CO_2$ charges and the like. It is necessary to consider the possibility of a new distribution of existing fees, as well as the introduction of the new fees so that EE measures can be successfully financed in the long term.
10. IT systems - A special segment in the system approach to the implementation of the EE measures is in the analysis, development and definition of IT systems, their mutual work, and data exchange. These systems should provide the necessary transparency, which is of the great importance for achieving the trust of the end users of the services from which fees are collected.
11. EE Action Plans at the Municipal Level - All previously identified priorities and recommendations should ultimately lead to the development of quality action plans at the municipal level in BiH. A systematic approach to the financing of EE measures in BiH would ensure that the plans get a new and more concrete form, and they would anticipate and monitor the distribution of collected fees, which would be distributed to the municipalities in which they are collected.

# 6. CONCLUSION

In the period of energy crisis that the world is facing, it is necessary to take urgent and decisive steps towards ensuring security of supply for all energy sources used in Bosnia and Herzegovina.

Energy efficiency has been the primary business segment of the energy sector in all developed countries for many years. Unfortunately, Bosnia and Herzegovina, despite its clear commitments, is lagging behind in the development of the energy efficiency sector, and by failing to meet its commitments to the EnC it risks not only paying penalties, but also the possibility of failing to provide the necessary energy for its population in the future.

Through the above analysis, which was based on interviews with implementers of EE measures and donors of funds for these purposes, a number of different obstacles were identified in different segments of the energy efficiency sector in BiH. In accordance with the same, recommendations were given in various areas. The implementation of the proposed recommendations can lead to the establishment of a systematic approach in the implementation of programs, measures, and projects in the field of energy efficiency in BiH, which is crucial for the development of this sector.

The conducted analysis indicates that the problems in the energy efficiency sector are almost identical in all administrative units in BiH. There is a possibility of creating a decentralized systematic approach in this sector, where the institutions of the entities and the BD BiH would act systematically in accordance with the commitments made at the level of BiH.

All types of proposed recommendations are interdependent, in the sense that the implementation of one recommendation may lead to the implementation of one or more other recommendations and vice versa. Thus, it is not possible to conclude that a particular recommendation(s) is more important than others.

From the analysis of obstacles and experiences in the implementation of energy efficiency programs and projects in BiH, it can be concluded that after collecting or allocating funds for energy efficiency, energy efficiency programs and projects are created and implemented without sufficient coordination and harmonization. In this way, there is an unsynchronized creation and implementation of overlapping programs, inefficient spending of funds, and unsystematic and non-strategic activities where a large number of programs are not in line with BiH's international obligations in the field of energy efficiency.

Another problem is that for most of these actors, creating energy efficiency programs is not their core business for which they have the capacity.

Therefore, in order to provide a systematic approach in this area, it is necessary to create (or strengthen existing) bodies that would have a role in strategically creating short-term and long-term energy efficiency programs that will lead to energy savings, in line with BiH's international obligations. There are two obstacles to the faster development of this sector, namely: asynchronous program creation and implementation of available funds, and insufficient amount of funds.

The introduction of an obligation scheme may release the second brake on the insufficient amount of funds for energy efficiency. The obligation scheme has the potential to raise a significant amount of funding that could intensify investments in the energy efficiency sector, while also launching an entire system in this area. With the assistance of USAID, conditions have been prepared for the introduction of the obligation scheme, which will depend on the timeliness of the competent institutions in BiH.

Simplified, the legal regulations stipulate that the money, on the basis of the obligation scheme, is collected from energy consumers for all energy sources through the invoice for the delivered energy. This fee may be collected within another fee, from the income of energy suppliers and/or in another way as decided by the relevant Government, with the recording of the location from which it was collected in order to spend the funds in the same place. Then, EE programs are created in consultation with the competent institutions for EE, and public calls for program implementation are announced.

Given the potential of the obligation scheme, this implementation system needs to be considered when creating a systematic approach to energy efficiency in BiH. However, the obligation scheme is only one of the mechanisms for raising funds for energy efficiency.

Based on the above, it can be concluded that the key step in intensifying the development of the energy efficiency sector in BiH is the introduction of a systematic approach in the creation and implementation of energy efficiency programs and projects. This can be achieved through the priority establishment of the EE bodies (or strengthening the capacity of existing bodies) and the introduction of an obligation scheme, and through the implementation of the above recommendations.

Here, the possibility of introducing the obligation schemes in a smaller capacity should be taken into account, in order to create a legal, administrative and financial framework that would later be used for a larger volume of business in this segment.

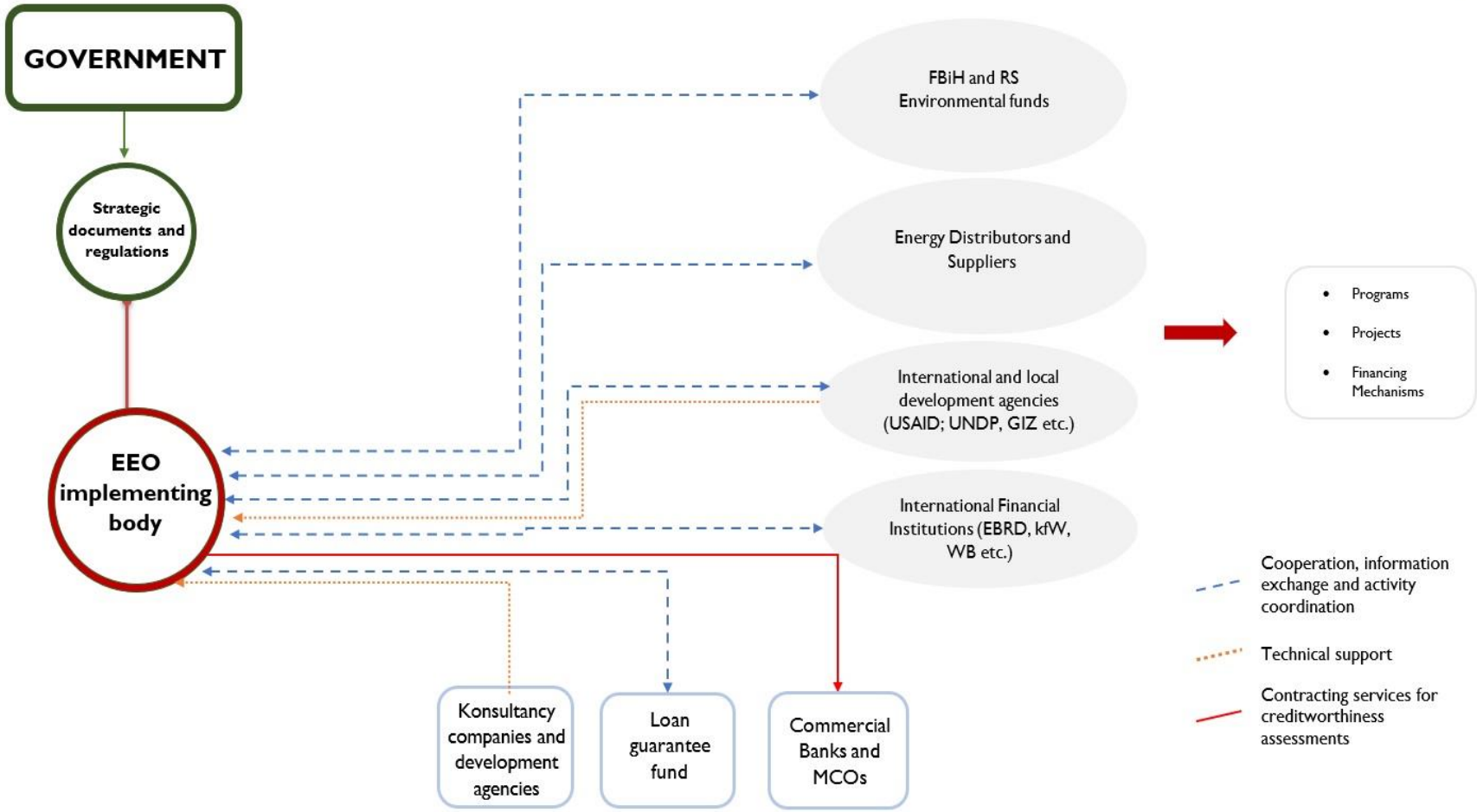
The introduction of the obligation scheme in the legislation defining energy efficiency in BiH could open the door to additional sources of funding for EE measures, because the adoption of amendments to the entity laws on EE in terms of introducing the obligation scheme would fulfill part of the commitments to the EnC and negotiations on additional financial assistance could be launched.

In accordance with these negotiations and the possibility of finding additional funds for financing EE measures, a Regulation would be developed which would, among other things, define in more detail the amount of fees that should be collected from the energy end users.

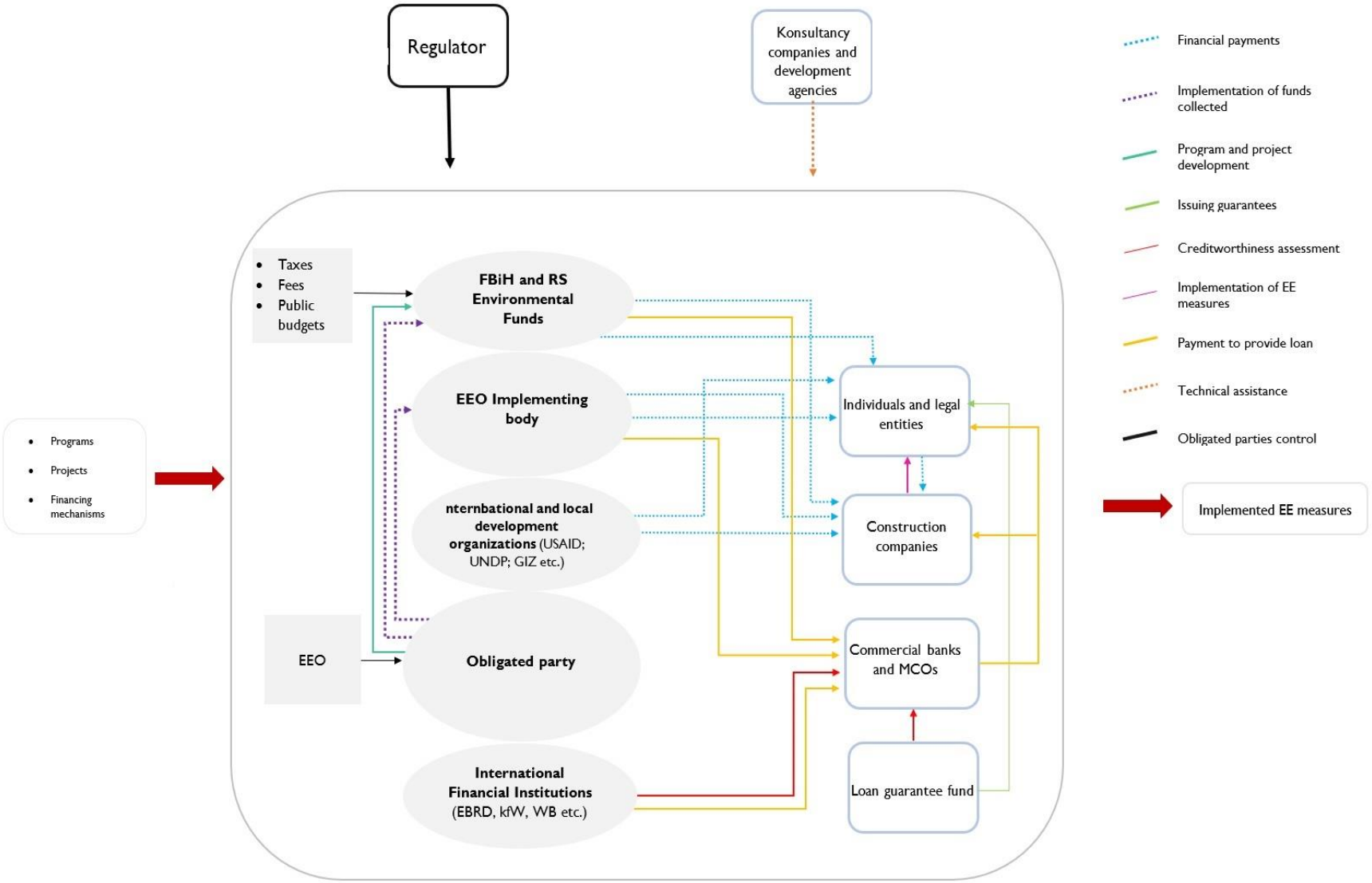
After the adoption of this Regulation on the implementation of the obligation scheme, the accompanying Rulebooks would be drafted, which will more precisely define the obligation schemes, after which the collection of funds for financing these measures would begin (through the EE fee, combining the fee with other sources of funding, etc.). These steps should certainly be among the first steps in the realization of this Roadmap.

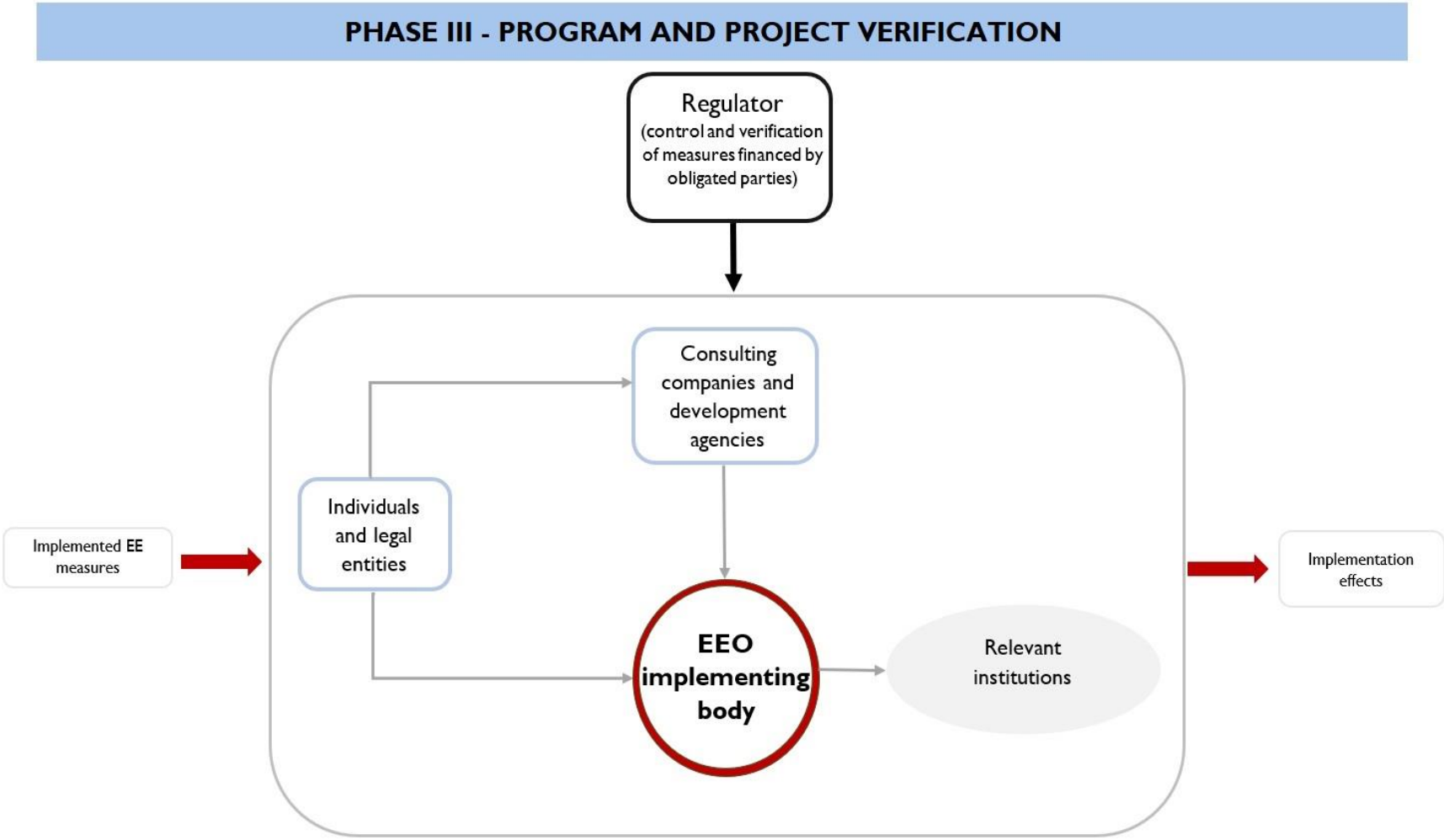
A possible way of a systematic approach to energy efficiency is given in the following figures, which represent three phases in the possible implementation of a systematic approach in the financing and implementation of the EE measures.

## PHASE I - PROGRAM AND PROJECT DEVELOPMENT



## PHASE II - PROGRAM AND PROJECT IMPLEMENTATION




PHASE III - PROGRAM AND PROJECT VERIFICATION
Regulator
(control and verification of measures financed by obligated parties)
Consulting companies and development agencies
Individuals and legal entities
Implemented EE measures
EEO implementing body
Relevant institutions
Implementation effects

As shown in the previous figures, the systems approach would consist of three basic phases, namely: the program and project creation phase, the implementation phase, and the verification phase of the implemented programs and projects' effects. This systematic approach would be implemented separately at the level of both entities and BD BiH with the need to report on the savings made to the competent institutions at the state level.

In the phase of creating programs and projects, a key role would be played by the EE body (an EE agency that can be established or existing Funds at the entity levels), which would have the capacity in this area. This body would create short-term and long-term programs and projects in accordance with the strategic documents and assumed international obligations of BiH. On the other hand, it would continuously cooperate with institutions that collect money for energy efficiency, such as entity funds, budget organizations, and international development organizations, in order to determine the level of available funds for energy efficiency.

Also, cooperation of this body is needed with commercial banks and microcredit organizations in terms of identifying the conditions for providing credit analysis services and placement of credit funds, as it is possible that certain funds (e.g., budget, funds, etc.) will be placed through loans.

Cooperation is also envisaged with the credit-guarantee fund, which needs to be established, and whose goal would be to provide guarantees on loans to socially vulnerable users.

Cooperation with consulting companies and development agencies is also of great importance here in terms of their availability to provide technical support in various segments. The result of the first phase would be the creation of programs and projects based on climate regions, different technologies, measures to be financed, creation of criteria under which beneficiaries can receive funds, creation of financing mechanisms (e.g., grant, grant + credit funds, etc.), and the publication of a call for the end-users to finance EE measures.

The second phase involves the implementation of programs and projects. At this stage, each of the fundraising institutions would implement them in accordance with the programs and projects established in cooperation with the EE body.

It is important to note here that different entities involved in the implementation of the EE program can now combine different sources of funding. Also, in case of introduction of the obligation scheme model, the obligated party may implement measures through the entity Fund or other party implementing EEO programs, with the possibility of combining EEO funds with other funds coming through the credit guarantee fund and / or other international donors and/or local budget.

Consulting companies and development agencies would provide technical support in various segments of implementation, while banks and microcredit organizations would provide the service of creditworthiness analysis and eventual lending, and the credit guarantee fund would guarantee loans to socially vulnerable users. Detailed roles of different acters in the implementation phase are shown in the previous figure. The result of this phase would be the implementation of energy efficiency measures, the effects of which need to be verified.

Verification of the effects would be done in the third phase. Based on the results of the verification, the EE body can report to the competent institutions and those further through the prescribed reporting path to the international bodies with which BiH has signed various agreements. The results of the verification would also be used to assess the effectiveness of certain programs and projects, which would be corrected and improved accordingly.

The systematic approach described in this document would clearly define the participants in the process of implementing the EE measures, cash flows and information between them and to the public. This would ensure full transparency and regular, quality reporting.

# 7. ATTACHMENTS

## ATTACHMENT A

**Assessment of the status of implementation of the existing funding programs**

The assessment of the status of implementation of the existing financing programs was performed on the basis of the following five characteristics: monitoring of savings, campaign quality, compliance with other programs / models, financing model, preference for low-income households.

The level of performance evaluation of each of the above characteristics was done as following:

**Monitoring of savings**

- Post-implementation monitoring based on actual data - 100%
- Monitoring after implementation based on theoretical assessment methods - 80%

**Campaign**

- Implementation of the campaign via the Internet - 20%
- Implementation of the campaign via TV and radio - 20%
- Leaflet campaign - 20%
- Promotional flyers with electricity bills - 20%
- Promotion via billboards - 20%

**Compliance with other programs/models**

- Use of a common database - 25%
- Use of a single information system - 25%
- Use of the same financing model (e.g., grant + own funds) - 25%
- Willingness to coordinate with other implementers of EE funding programs - 25%

**Financing model**

- Partial grant funds (part provided by the financier, part by the household) - 100%
- Full grant funds (100% provided by the financier) - 80%. (A higher percentage of grant funds is considered less desirable because it has a disincentive effect on future implementers of the EE measures (households and companies), who will expect to receive the same percentage of grants as previous implementers. Also, as the percentage of the grant component grows, the number of implementers decreases and vice versa)

**Preference for low-income households**

- The socio-economic condition of households for the mentioned facility is analyzed, and based on that, the selection of facilities is made - 100%

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