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UPDATED PROJECT DOCUMENT

Green Economic Development Project

Phase III

1st Revision May 2023

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***Project Title**: Green Economic Development Project – Phase III*
***Project Number**:* Output ID: 00124748 (Atlas Award ID BIH10/00132013)
***Implementing Partner:** UNDP*
***Start Date:** March 01, 2021* ***End Date:** February 29, 2024* ***LPAC Meeting date:** 15 December 2020*
Implementation modality: Direct Implementation (*DIM)*

Brief Description
The proposed project will contribute to Bosnia and Herzegovina EU accession process, targeting the accomplishment of the targets in accordance with the Energy Performance Building Directive, Energy Efficiency Directive and Renewable Energy Directive by enabling all levels of government to monitor, analyse and evaluate energy consumption, costs, emission, energy investments and savings data from public sector buildings, as well as to support Bosnia and Herzegovina's related energy efficiency and renewable energy targets (in accordance with the Energy Community Treaty and its obligations) by providing financial support to energy efficiency/renewable energy sources infrastructure projects and contributing to enable a favourable environment for energy efficiency/renewable energy sources investments in Bosnia and Herzegovina. Moreover, the state level (Ministry of Foreign Affairs and Economic Relations) would be empowered with consolidated, valuable, and reliable data for further submission to Energy Community Secretariat and reporting in line with other multilateral agreements (for example – United Nation Framework Convention on Climate Change). With Sweden's involvement in Green Economic Development (GED) 3rd phase project, the promotion of more economical, social, and environmentally sustainable management of resources in Bosnia and Herzegovina would be enhanced significantly.

Linkage with SDGs: SDG Goals 1, 3, 5, 7, 8, 9, 12, 13
Linkage with EU accession agenda: EU Acquis, Chapter 15 – Energy, Chapter 27 - Environment
Linkage with UNDP Strategic Plan: Advance poverty eradication in all its forms and dimensions and accelerate structural transformations for sustainable development.
Contributing Outcome 1 (UNSDCF/CPD): By 2025, people benefit from resilient, inclusive and sustainable growth ensured by the convergence of economic development, and management of environment and cultural resources.
Output (with gender marker): Favourable environment created for investing in Energy Efficiency and Renewable Energy Sources RES measures in Bosnia and Herzegovina – GEN2.

Total resources required in USD:		*19,774,619.70*
Total resources allocated in USD:		
	UNDP TRAC:	
	Sweden:	*8,329,640.78*
	Government:	*7,301,978.92*
	Parallel:	*4,143,000.00*
Unfunded:		*0*

Agreed by (signatures):

UNDP
Steliana Nedera *Resident Representative, UNDP Bosnia and Herzegovina* DocuSigned by: Steliana Nedera AF106929161D46E...
Date: 25-May-2023

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LIST OF ABBREVIATIONS

BD	Brčko District
BEEP	Bosnia Energy Efficiency Project
BiH	Bosnia and Herzegovina
DEA	Detailed energy audits
DIM	Direct Implementation Methodology
EBRD	European Bank for Reconstruction and Development
ECT	Energy Community Treaty
EE	Energy Efficiency
EEAPs	Energy Efficiency Action Plans
EED -	Energy Efficiency Directive
EMAS	Eco-Management and Audit Scheme
EMIS	Energy Efficiency Information System
E-Mobility	Electro mobility
EnC	Energy Community
EPBD	Energy performance of buildings directive
ESCO	Energy Service Company
EU	European Union
EUR	Euro
FBiH	Federation of Bosnia and Herzegovina
FBUR	First and Second Biennial Update Reports
GCF	Green Climate Fund
GDP	Gross domestic product
GHG	Greenhouse gas
GiZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IFI	International Financial Institution
INDC	Intended Nationally Determined Contributions
IPSAS	International Public Sector Accounting Standards
ISEE	Energy Efficiency Information System for FBiH
KfW	German development bank
LCCA	life-cycle cost analysis
LEAP	Long-range Energy Alternatives Planning
LED	Light-emitting diode
MoFTER	Ministry of Foreign Affairs and Economic Relations
MVR	Measurement Verification Reporting
NECP	National Energy and Climate Plan
NEEAP	National Energy Efficiency Action Plan
NREAP	National Renewable Energy Action Plan
NZEB	Nearly Zero-Energy Buildings
OECD	Organization for Economic Co-operation and Development
PC	Project Component
PV	photovoltaic
QA	Quality Assurance
RED	Renewable Energy Directive
RES	Renewable Energy Sources
RS	Republika Srpska
SBAA	Standard Basic Assistance Agreement between UNDP and the Government of *BiH*
SC	Sarajevo Canton
SDG	Sustainable Development Goal
SERDA	Sarajevo Regional Development Agency
SMEs	Small and medium-sized enterprises
SSTrC	South-South and Triangular Cooperation
ToR	Terms of Reference
UNFCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	US Dollar
WeBSEFF	Western Balkans—Sustainable Energy Finance Facility
WHO	World Health Organization

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1 DEVELOPMENT CHALLENGE

1.1 Wider country context

Looking from the energy consumption angle, Bosnia and Herzegovina is characterized as a country with very high inefficiency within the residential, non-residential/public, industry, and service sector. At the same time however, Bosnia and Herzegovina has one of the most significant energy conservation potentials in the region and could base its further mid-term economic development and generation of new employment on energy efficiency improvement measures in the residential and public sector. Currently, Bosnia and Herzegovina consumes about 20% of its GDP on energy, which is three times higher than in the U.S. and EU countries. According to the Report "Regular Review of Energy Efficiency Strategies in Bosnia and Herzegovina" prepared under the obligations of the Energy Charter Treaty, gross total primary energy consumed per unit of GDP is 0.938 toe/USD 2000, which is 2.5 times the average of 27 EU countries and higher than almost any other country in the South-eastern Europe region. Moreover, the average energy consumption of a public building in Bosnia and Herzegovina is three times higher than the EU average, categorizing them as completely energy inefficient buildings (in accordance with EU Eco-Management and Audit Scheme – EMAS). In order to meet this energy intensive consumption demand, a significant amount of budget funds must be allocated for energy expenditures of public buildings (educational, health, cultural, municipal and entity/state institutions etc.) representing a major proportion of the already inadequate public budget.

Most of the western economies base their economic development on strategic documents incorporating energy efficiency measures in the public and residential sector and the utilization of renewable energy sources, while contributing to fight climate change, fulfil EU and United Nations Framework Convention on Climate Change (UNFCCC) multilateral binding agreements and goals, and simultaneously generate new employment through mid/large scale public works. The unemployment rate in December 2019 was 15.70%[1], and after the outbreak of the COVID-19 pandemic we witness rapid increasing in number of unemployed. The unemployment rate rose by 5.8 percent from March to July, as reported by the Bosnia and Herzegovina Statistics Agency, and by the end of 2020 it is expected that the percent rises even more. Bosnia and Herzegovina needs to utilize this crisis as an opportunity to speed up its efforts focused on establishing a forward-looking development agenda as it ensures a well-balanced and immediate response to the crisis.

Some efforts are being made to increase employment by encouraging investment in strategic projects such as energy facilities and systematic decrease of energy consumption, the potential of these investments which have been traditionally linked with the concept of public works employing a sizeable proportion of workforce is currently significantly limited.

Due to stated facts, limited and therefore relatively slow state-level planning processes, the complexity of state-entity interactions and the country's administrative divisions and responsibilities, this situation analysis argues that further enforcement of energy efficiency/renewable energy in Bosnia and Herzegovina should continue to focus on a bottom-up (local-ministries/canton/entity-state) rather than top-down (state-ministries/canton/entity-local) approach while creating measuring, verification and reporting system, market and financial mechanisms for energy efficiency/renewable energy sources in Bosnia and Herzegovina. This approach has been successfully proven by the GED project, and its results, implemented from 2014 to 2020. This would contribute to faster creation of an environment attractive for energy efficiency/renewable energy sources investments in the public and residential sector, generation of new employment for men and women, and would result in the creation of clear energy monitoring and targets achieving mechanisms within the country. Acquired knowledge and benefits of energy efficiency should be adequately transferred to the general public – men and women equally.

[1] Agency for Statistics of Bosnia and Herzegovina

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1.2 Sector-specific analysis

In accordance to conducted energy studies, most of the energy in Bosnia and Herzegovina is consumed within the public and residential building sector – about 55% of total final energy consumption. The industry, service and transportation sector consume the rest. The energy characteristic of public and residential sector is described as very energy-intensive due to high energy inefficiency.

The Energy Efficiency Action Plan in Bosnia and Herzegovina (NEEAP 2019-2021, drafted) defines national targets for reducing final and primary energy consumption for the three-year period 2019-2021. The goals are defined based on the trajectories of final and primary energy, which are the result of the official LEAP model (Long-range Energy Alternatives Planning) of the energy sector in Bosnia and Herzegovina. The model ensures continuity in planning until 2030 and is the basis for integrated energy and climate planning, defined by the National Energy and Climate Plan (NECP). Both documents are in development phase, and are not adopted yet, but the foundation for development of both documents is Framework Energy Strategy for Bosnia and Herzegovina until 2035.

The Framework Energy Strategy for Bosnia and Herzegovina has proposed strategic priorities and guidelines for the field of energy efficiency in public buildings such as improvement of energy efficiency in the segment of public building through developing programmes for long-term renovation of buildings and preparing cost-optimal methodologies for all categories of buildings and reconstruction of central government buildings and public buildings, in accordance with the requirements of Article 5 of the Energy Efficiency Directive. Beside the public building the Framework Energy Strategy envisions increasing savings in the industry sector on an annual level through increasing the energy efficiency of industrial processes and the renewal of plants (compressed air, boilers, fireboxes, cooling systems etc.), promoting cogeneration on biomass and introduction energy management.

With regards to energy efficiency, although Bosnia and Herzegovina still did not adopt the Action plan for energy efficiency, it is expected to achieve energy saving of 12,47 PJ, that are calculated as a sum of savings on the entity level. Bosnia and Herzegovina has adopted the Renewable Energy Action Plan, and committed itself to reach a 40% share in final consumption by 2020. Furthermore, Bosnia and Herzegovina has undertaken to reduce SO_2 emissions by 95%, NOx by 60% and solid particles for 90% until 2028 in respect to 2014. With regard to reduction of CO_2 emissions, the goal has only been set at the Bosnia and Herzegovina level. There are two scenarios for reduction until 2030, in accordance with the Bosnia and Herzegovina Intended Nationally Determined Contributions-INDC:

- Moderate scenario under which the CO_2 emissions level being 18% above the 1990 value should be reached
- Strict scenario under which the CO_2 emissions level being 3% below the 1990 value should be reached, with international assistance.

From the data from Typology of public buildings in Bosnia and Herzegovina, the average annual required energy for heating of typical public building is about 220 kWh/m^{2}a[2], categorizing them completely energy inefficient (if we exclude buildings constructed after 2010 because one can assume, they should meet the minimum requirements for thermal protection).

In Bosnia and Herzegovina, according to the data from 2008 about 90%[3] of the current building stock does not meet the current technical standards in Bosnia and Herzegovina. Due to its inefficiency, the average public building in Bosnia and Herzegovina can achieve an energy consumption reduction of up to 60% with investments resulting in a rather short pay-back period (up to six years). However, a systematic approach and allocation of investments into energy efficiency and the utilization of renewables is missing. In EU, depending on the Member State, about

2 Typology of public buildings in BIH, Green Economic Development Project, UNDP 2017

3 Energy sector study in BIH, 2008

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0.4-1.2%[4] of the stock is renovated each year, and in Bosnia and Herzegovina assumption is that less than 0.2% of the stock is renovated each year, which is significantly lower than EU average. The current state of energy (in)efficiency in Bosnia and Herzegovina is characterized by the non-harmonized Laws and the lack of by-laws in the field of energy efficiency and especially renewable energy sources, as well as the energy price policy.

In the public sector in recent period there has been an increase in investments in energy efficiency measures and renewable energy sources on public sector buildings, which makes the public sector a good example in the country. Acquired knowledge and benefits of energy efficiency should be adequately transferred to the general public.

Up to day, clear legislation framework, strategy and action plans, as well as reporting and monitoring mechanisms, are not fully established, which makes it harder to enable an investing environment, a systematic and comprehensive undertaking to increase energy efficiency and utilize renewables in the public sector in Bosnia and Herzegovina. Since the legislation on energy efficiency/renewable energy is only partially drafted and has not been fully adjusted to BiH context during the drafting stage, once adopted (Law on energy efficiency adopted in RS in 2013, and in FBiH adopted in 2017, but bylaws are jet to be harmonized and adopted), an additional concern is that it will not be ready for implementation and will require additional interventions by line Ministries. Moreover, one major concern is that, once adopted, the primary and secondary legislation framework will not be implementable due to lack of human and technical resources, lack of understanding and planning on various authority/government levels, as well as fragmented energy related cost covering jurisdictions (and therefore responsibilities) of public buildings throughout BiH. Even though a lot has been done during the past period (Energy Efficiency Information System (EMIS) introduced into public sector buildings, energy efficiency laws under force, information system rule book is adopted, decision on establishment of energy management system in state level institutions is adopted, public buildings typology is conducted, and cost optimal levels analyzed), there is still a lack of data and overview of current public building stock, which is the most challenging and basic issue to address energy efficiency and utilization of renewable energy in BiH public sector. The fragmented and complex inter-authority jurisdictions, especially in FBiH, only adds to the struggle to have a clear overview of public sector buildings. Without implemented EMIS in public sector buildings, authorities and line ministries, would not have enough data on energy and water related consumption as well as costs they bear on a monthly/annual basis, and would not be able to submit reports on energy consumption and other requested data stipulated in adopted energy efficiency laws.

Therefore, due to omission of lower level governments during and after energy efficiency/renewable energy legislation drafting, the fragmented jurisdiction over different types of public buildings and lack of communication, knowledge and information sharing on expected obligations and actions which have to be undertaken, it is highly recommended that further energy efficiency/renewable energy activities focus on a bottom-up approach in order to be in the position to achieve and communicate energy savings while creating sustainable energy monitoring and reporting mechanisms on entity and state level in BiH, and a systematic approach to decision making process on energy efficiency and renewable energy. This would highly contribute to BiH obligations under the Energy Community Treaty.

1.3 Target groups and their specific needs

Based on the experience from previous project implementation phases, and the current state in the energy efficiency sector, target groups are:

- Public end-users
- Households living in rural areas off the power grid
- Small and medium-sized enterprises (SMEs)
- Wider society

4 Commission seeks to improve Energy Efficiency of Buildings, web - accessed on Sep 2017, from link

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Public end-users represent the base of the pyramid in a bottom-up approach to energy management capacity building and legal obligation understanding, as well as in the development of a sustainable monitoring and reporting mechanisms. Due to the many years of neglect towards public buildings, and the condition that those buildings are in, they are gasping for energy efficient reconstruction, and they represent the basis of the energy management system.

Households living in rural areas off the power grid are targeted since they are lacking the basic services needed for decent living, access to the electricity. By providing them with the photovoltaic solar system (electricity generation) the households can produce electricity for their own needs, which significantly facilitate their living conditions. The access to energy will result in decrease of women unpaid domestic labor, reduce time spent on household work and increase learning opportunities for both women and men.

Implementation of energy efficiency measures in facilities and production processes of small and medium-sized enterprises (SMEs) are one of the targets set by the Framework Energy Efficiency Strategy with the purpose of increasing the energy efficiency and reducing final energy consumption.

In order to increase knowledge, change perceptions, and to introduce the benefits of energy efficiency the wider society is included in public awareness campaigns about energy efficiency and renewable energy sources while promoting the economic, environmental, and social advantages to men and women living in urban and rural areas throughout the country.

1.4 Lessons learnt from previous experiences

Based on the experience from the previous implementation phases of the Project, lessons learnt can be summarized as follows.

Lesson 1: ***Generating interest and motivation of end-users to invest into energy efficiency/renewable energy by promoting co-financing and project results are the basis to achieve success***

Through previous phases, the project worked on raising decision-makers' awareness and knowledge on benefits energy efficiency projects bring municipalities, citizens, economic development, carbon reduction targets, and the country in fulfilling the EU requirements. The annual increase in the number of implemented projects and the constantly increasing level of government co-financing clearly showed that the project contributed to increased interest and motivation. Politicians and decision-makers must understand the overall scale of energy efficiency and renewable opportunities and the associated benefits. Since the level of funding allocated to energy efficiency/renewable energy projects is a political decision, completed infrastructure projects and success stories will be further promoted so it can help decision-makers to clearly see the benefits. GED 3rd phase will continue to further promote results of interventions, raising awareness and knowledge on benefits energy efficiency/renewable energy projects of different levels of government, achieved energy and cost savings through implemented energy efficiency/renewable energy projects, improving air quality, and generated employment and economic development of the country through the implementation of the infrastructure projects.

Lesson 2: ***Achieving budget cost savings through implementation of energy efficiency/renewable energy projects and reinvesting savings into energy efficiency/renewable energy infrastructure projects***

So far, through 1st and 2nd phase of the project, energy efficiency/renewable energy measures were implemented on 229 public buildings across the whole territory of Bosnia and Herzegovina, as well as energy efficiency measures on 11 public lighting systems, which resulted in a direct energy cost savings in the amount of USD 3.8 million in local budgets, reduction of about 14,500 tons of CO_2. The achieved energy cost savings from already implemented projects were reinvested into energy efficiency/renewable energy projects. New planned investments in the 3rd phase of the project will generate new energy cost savings which will be reinvested into new energy efficiency/renewable energy projects, and thus will enable the creation of additional benefits. The project also directly contributed to the generation of at least 2,090 green jobs from previous phases, while the third phase will enable the additional generation of at least 1.080 green jobs based on the planned number of infrastructure

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projects. This will ensure that medium and long-term objectives and targets for development are met, since activities of increasing energy efficiency directly or indirectly affect all areas of human activity, as well as the social and economic progress of country.

Lesson 3: ***The availability of information about building energy intensity and real energy costs is essential to estimate financial returns of proposed investments***

The availability of information about building energy intensity and real energy costs is essential to estimate the financial returns of proposed investments, but such data often prove impossible to obtain. Building on the successes of an earlier project in Croatia, UNDP, therefore, prioritized investment in establishing and initial operationalization of a comprehensive Energy Management Information System (EMIS) for public buildings in BiH, combined with a national buildings database that now covers 5,800 (out of 7,600) buildings across the country. An effective EMIS is an important tool in catalyzing additional investments in energy efficiency as it can prioritize different investments by energy savings, capital requirement, and by pay-back period, making it easier to prioritize between different investment opportunities. The UNDP-supported EMIS is currently the only available source of information and data about public buildings in BiH, their real energy use/GHG emissions, and energy-related expenditures.

Moreover, the recent Analysis "Developing the methodology and tools for calculation of EMIS savings" conducted by Energy Institute Hrvoje Požar Croatia in 2020, for Agency for Transactions and Mediation in Immovable Properties (APN) established by the Croatian Ministry of construction and physical planning. Ministry is using EMIS for strategically planning and reporting progress to Energy Community, as the database contains almost all public buildings with a history of energy consumption in Croatia. The Analysis showed that the energy consumption that would happen without the impact of monitoring consumption through the EMIS would be 5% higher, or reduction in energy consumption only with the usage of EMIS as a monitoring tool is 5% without any other implemented energy efficiency measures.

Lesson 3: Decreasing grant (donor) financing, advocating the „ energy efficiency/renewable energy is revenue generating fact and ***creation of ownership by end users through their participation***

Benefits of energy interventions have been recognized, and interest and motivation of end-users, different levels of the government, have been created to invest into energy efficiency/renewable energy measures. As a result of that, the project gradually decreased the percentage of grants for energy efficiency/renewable energy refurbishments and gradually increased co-financing from the entity, cantonal and local government levels, which is a reflection of not only the level of understanding cost-benefits of energy efficiency investments, but most important creation of ownership by the end-users'/institutions' and their readiness to timely plan and execute these projects (Table 7 Level of co-financing ratio by end-users in comparison to the total investment into energy efficiency infrastructure).

Based on the previous experience through the GED project, the largest portion of the co-financing comes from the local governments and end-users. The maximum grant provided by Sweden in GED 1st phase project was up to 50%, while in GED 2nd phase project was up to 33% of the total investment. However, the utilized Sweden's grant is far less than the requested 50% from 2015 until 2018 (during 1st phase), and 33% (during 2nd phase), i.e. in 2018 the average percentage of the grant provided by Sweden was 25%, with leveraging local co-financing in amount of 75%, while in 2020 the average grant provided by Sweden was in amount of 18%.

Based on these previous experiences, the proposed level of grant provided by Sweden in 3rd phase of the project is up to maximum 25% for implementation of energy efficiency/renewable energy measures in public buildings. While the proposed level of grant provided by Sweden for solar systems in public sector and public lightning systems is 33.3%, in comparison to 50% grant from previous phase of the project.

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Ownership by end-users was assured during the implementation of the first and second phases of the project through their participation in co-financing energy efficiency/renewable energy investments. GED's 3rd phase project will foster multiple strategies to increase the pace of retrofits, including continuing cooperation and co-financing within WB/BEEP project and UNDP's GCF project (30 public buildings were jointly retrofitted so far by mentioned projects/donors), which will enable scaling-up results in energy efficient retrofits of public buildings, mutually relying on a variety of decentralized delivery mechanisms and creating win-win situation for all different international donors and local governments.

Lesson 4: ***Further strengthening the involvement of the entities' Environmental Protection and energy efficiency Funds to operationalize the revolving fund or other financing schemes that could emerge in close future***

The Environmental Funds (EFs) of FBiH and RS are also engaged in financing cost-effective EE-RE projects in public buildings by providing matching grants to public (80%-20%) or private actors (70%-30%). With the support of UNDP, the EF of FBiH was moved away from pure grant financing towards a revolving loan approach. In 2016, the first call for proposals for financing energy efficiency projects on concessional loan terms (both for the private and public sector) was announced and two projects were successfully implemented in 2017 through established Revolving Fund. The public call for financing infrastructure projects with non-grant through the Revolving Fund on energy efficiency in FBiH was announced during the whole 2018, and partially in 2019. Although there were many inquiries and initial interest expressed by companies, public utilities, etc. at first, no applications were officially submitted to the Env. Fund in 2018. Due to this, the public call was not extended throughout whole 2019.

However, UNDP advised the Env. Fund not to publish two parallel public calls in 2018 with grant and non-grant (Revolving Fund) schemes. Despite this recommendation, two parallel calls were published by Env. Fund, leading to less or no interest in non-grant (Revolving Fund) scheme. UNDP had no influence on this decision which was made by the management of the Env. Fund. Env Fund management decided to freeze the Revolving Fund in 2019 and 2020 and to concentrate only on grants. However, taking into account that the Environmental Fund of FBiH will provide 500.000 BAM in 2021 for co-financing pilot ESCO projects in cooperation with UNDP's Low Carbon Urban Development project, with possibility through established Revolving Fund, there is possibility that Revolving Fund could be unfrozen and operational again. This would be enabling new synergies and implementation strategies for financing energy efficiency/renewable energy measures in public sector and SMEs by Sweden incentives through the 3rd phase of the project. Moreover, the UNDP will try through inception phase of the 3rd phase to further involve Environmental Fund management to operationalize the Revolving Fund.

Lesson 5: ***Governments still need technical assistance and capacity building since they are not fully capacitated for implementation energy efficiency/renewable energy investments to ensure sustainability and quality of investments***

Human capacity of entity, cantonal and municipal level authorities has been limited, resulting in limited success of energy efficiency/renewable energy projects in BiH. Absence of effective state or entity-level policy implementation frameworks leads to inefficiencies and fragmentation in how the structural barriers to investment in energy efficiency/renewable energy projects are being addressed. Having experienced those issues first-hand, the project worked on capacity development and strengthen skills of Ministry of Foreign Trade and Economic Relations, Environmental Funds, various cantonal and municipal stakeholders through different trainings, technical assistance, conferences and consultations on various topics in relation to energy efficiency, renewables, energy management, EU directives as well as creating defined mechanism regarding data collection, monitoring, verification, and reporting mechanisms which are harmonized with obligations from adopted Energy Efficiency Laws and bylaws in FBiH and RS.

Project provided technical assistance and capacity building for adoption of the bylaws regarding Energy Efficiency Information System for FBiH and mandatory data entry and regular reporting, which positioned EMIS for the first

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time as obligatory software for monitoring and reporting regarding energy consumption in public sector in BiH. Through the 3rd phase the project will continue with development of capacities and strengthen skills of governments and policy development assistance for different levels of government.

Lesson 6: ***Investments need a cost-effective opportunities for improving energy efficiency and introducing RES in public facilities in order to maximize savings and minimize emissions/pollution***

A key aspect of the project is the institutionalization of energy management activities within public sector buildings, notably through the preparation of detailed energy audits and by enabling building managers to monitor energy consumption through EMIS. The necessary data to support and prioritize energy efficiency/renewable energy investments are made and will also be made in 3rd phase of the project based on data and indicators from the Energy Management Information System (EMIS) and full technical, economic and financial assessment and prioritization of investment from conducted detailed energy audits. This comprehensive system will offer a set of technical data generating the necessary information for the classification of buildings, public lightning systems and energy efficiency/renewable energy investments based on energy savings potential but also socio-economic benefits.

Lesson 7: ***Supporting full-service projects, from design, revision, supervision, and implementation of energy efficiency/renewable energy measures that provide substantial savings, helps to create demand among different stakeholders***

The project will continue to provide the full range of required support activities to building end-users to ensure quality and timely implementation of selected EE/RE measures in public buildings, public sector and public lightening systems, including preparation and organization of tenders, and work supervision until the commissioning of the building. This will also include technical and financial assistance to municipalities/cantons to identify appropriate financing, guidance and implementation of projects.

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2 STRATEGY

2.1 Impact hypothesis/theory of change

From an energy consumption perspective, Bosnia and Herzegovina is characterized as a country with very high inefficiency within the residential, non-residential/public, industry and service sector. BiH consumes about 20% of its GDP on energy[5], which is three times higher than in the U.S. and EU countries. The energy characteristic of public and residential sector is described as very energy-intensive due to high energy inefficiency.

Based on the latest data from the study Typology of public buildings in Bosnia and Herzegovina in 2018[6], the average annual required energy for heating of typical public building is 217,6 kWh/m^2a , (if we exclude buildings constructed after 2010 because one can assume they meet the minimum requirements for thermal protection), categorizing them completely energy inefficient.

According to the mentioned Typology of public buildings, the average age of buildings and technical systems is 49 years (year of construction 1971). Most facilities have not been adequately maintained, nor have energy efficiency measures been implemented since their construction. Technical systems in buildings exceeded their service life, leading to high energy consumption and frequent breakdowns and interruptions in heating. This tells us that we have completely energy inefficient facilities, but on the other hand also shows how much potential we have for savings.

The primarily goal of Green Economic Development 3rd phase project is to contribute to the creation of a favorable environment for investing in energy efficiency and RES measures in BiH.

Short-term aim of the GED 3rd phase project is to create interest and motivate end-users to invest into energy efficiency/renewable energy sources infrastructure projects by promoting co-financing, strengthening the capacity and skills of Environmental Funds (systematic approach to decision making processes of energy efficiency/renewable energy sources investments), while generating green jobs and reducing CO_2 emissions, and achieve budget cost savings through implementation of efficiency/renewable energy sources projects and reinvest savings into efficiency/renewable energy sources or other infrastructure projects.

Mid-term aim of the GED 3rd phase project is to generate employment of domestic workforce, increase public awareness and understanding of energy efficiency/renewable energy sources benefits, develop and adopt sustainable financial mechanisms for energy efficiency/renewable energy sources project financing (performance based granting, ESCO Fund window), contribute to BiH's EU accession (EPBD, EED and RES directives) and lower the risk to enter energy efficiency/renewable energy sources investments/provide loans for energy efficiency/renewable energy investments in BiH.

The Project will apply adequate mitigation measures, such as signing agreements with sub-national and national level authorities, thus formalising their commitment and contribution, and continues dialog, awareness raising and capacity development activities with sub-national and national level authorities.

In terms of potential delay in implementation caused by COVID-19, the Project will use all available tolls and approaches, and, if needed, develop additional tools and approaches to enable distance learning and remote implementation of activities in times of such events. In addition to this, all necessary steps to ensure all recommendation from the official authorities and epidemiological services will be taken. The project will also contribute to COVID "green recovery" by providing technical and economic stimulus to GHG emission reduction, air quality improvement, creation of new jobs, budgetary savings/ re-generating resources for investment etc.

At the following Figure 1, the theory of change diagram is presented.

[5] World Bank data

[6] Typology of public buildings in Bosnia and Herzegovina, UNDP BiH, 2018.

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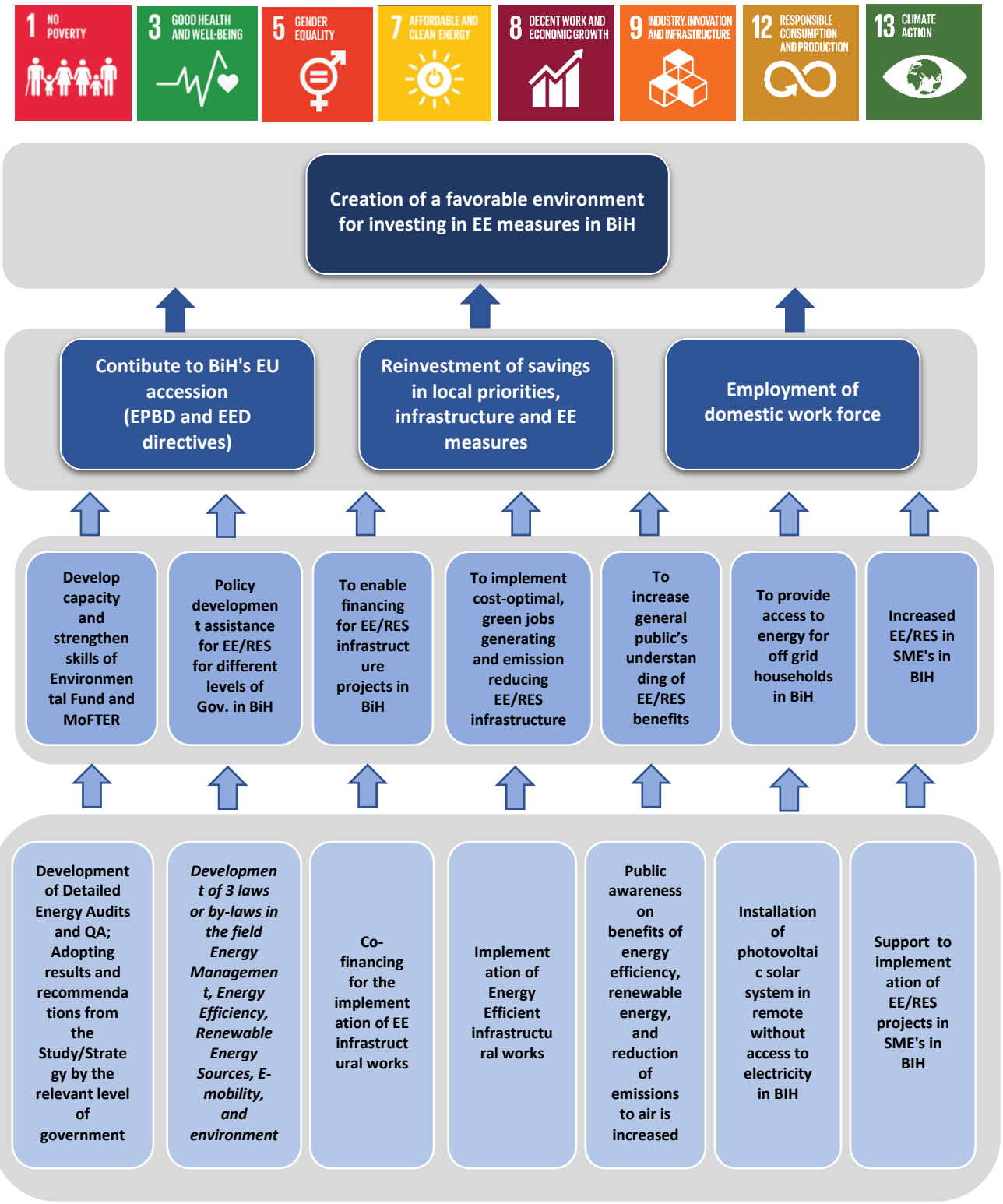


Figure 1. Theory of change diagram

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2.2 Relevance to international and national policies/strategies and frameworks

BiH is a member of the Energy Community (EnC) and a signatory of the EnC Treaty, thus required to adopt the core EU energy legislation. The requirements set forth by EU Directive 2009/28/EC on the promotion of the use of energy from renewable sources have been introduced into the EnC legislation through Decision 2012/04/MC-EnC of the EnC Ministerial Council.

To boost energy performance of buildings, the EU has established a legislative framework that includes the Energy Performance of Buildings Directive 2010/31/EU (EPBD) and the Energy Efficiency Directive 2012/27/EU. Together, the directives promote policies that will help:

- achieve a highly energy efficient and decarbonized building stock by 2050
- create a stable environment for investment decisions
- enable consumers and businesses to make more informed choices to save energy and money

Energy Performance of Buildings Directive (EPBD) 2010/31/EU covers a broad range of policies and supportive measures that will help national EU governments boost energy performance of buildings and improve the existing building stock. For example

- EU countries must establish strong long-term renovation strategies, aiming at decarbonizing the national building stocks by 2050, with indicative milestones for 2030, 2040 and 2050. The strategies should contribute to achieving the national energy and climate plans (NECPs) energy efficiency targets
- EU countries must set cost-optimal minimum energy performance requirements for new buildings, for existing buildings undergoing major renovation, and for the replacement or retrofit of building elements like heating and cooling systems, roofs and walls
- all new buildings must be nearly zero-energy buildings (NZEB) from 31 December 2020. Since 31 December 2018, all new public buildings already need to be NZEB
- electro-mobility is supported by introducing minimum requirements for car parks over a certain size and other minimum infrastructure for smaller buildings
- smart technologies are promoted, including through requirements on the installation of building automation and control systems, and on devices that regulate temperature at room level
- health and well-being of building users is addressed, for instance through the consideration of air quality and ventilation
- EU countries must draw up lists of national financial measures to improve the energy efficiency of buildings

In 2012, the EU established an **Energy Efficiency Directive (2012/27/EU)** that determined a set of binding measures to help achieve a 20% energy efficiency improvement by 2020. In 2018, the EU noticed that the efforts that were made were not sufficient and amended the directive, publishing a new Energy Efficiency Directive (2018/2002). The key element of the 2018 Directive is the new overall target, which goes from 20% improvement in energy efficiency by 2020 to **32.5% by 2030**.

Key points of the Energy Efficiency Directive related to the project:

i) The most concrete output of the EED requirement for the central government to serve an exemplary role is Article 5 of the directive titled “Exemplary role of public bodies’ buildings”.
ii) To tap the energy savings potential in certain market segments where energy audits are generally not offered commercially (such as small and medium-sized enterprises (SMEs)), Member States should develop programmes to encourage SMEs to undergo energy audits. Energy audits should be mandatory and regular for large enterprises, as energy savings can be significant. Energy audits should take into account relevant European or International Standards, such as EN ISO 50001 (Energy Management Systems), or EN 16247-1 (Energy Audits), or, if including an energy audit, EN ISO 14000 (Environmental Management Systems) and thus be also in line with the provisions of Annex VI to this Directive as such provisions do not go beyond the requirements of these relevant standards.

With a view to showing global leadership on renewables, the EU has set an ambitious, binding target of **32% by 2030** for renewable energy sources in the EU’s energy mix. The **recast Renewable Energy Directive (2018/2001/EU)** entered into force in December 2018.

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The current target for cutting greenhouse gas emissions in Europe, setting a reduction goal of at least **40% by 2030**.

In September 2020 European Commission presented plan to reduce EU greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. This level of ambition for the next decade will put the EU on a balanced pathway to reaching climate neutrality by 2050. The new 2030 climate target will help to focus Europe's economic recovery from the coronavirus pandemic. It will stimulate investments in a resource-efficient economy, promoting innovation in clean technology, fostering competitiveness and creating green jobs. In the Member States can draw on the €750 billion NextGenerationEU recovery fund and the EU's next long-term budget to make these investments in the green transition. To support the necessary investments, the Commission has also adopted the rules for a new EU Renewable Energy Financing Mechanism, to make it easier for Member States to work together to finance and deploy renewable energy projects. Reducing GHG emissions by at least 55% by 2030 will require significant additional investment, to decarbonize power generation, industry and transport, and to improve the energy efficiency of buildings.

Implementation of the project activities is in line with the targets and the conclusions of the BiH's strategic documents and is contributing to achievements of set targets. The project envisions the targets from:

- The House of Representatives of the Parliamentary Assembly of BiH issued **Recommendations for energy sector reform** in July 2018. These recommendations, as one of the priorities define the commitment to energy efficiency as a key element of the energy transition and the role of regulatory bodies in the implementation of this policy needs to be defined.
- **Building renovation strategy of Bosnia and Herzegovina for the period until 2050** is drafted and is expected to be adopted. The strategy will provide the long-term renovation plan for buildings in BiH based on the renovation scenario modeling and building stock renovation benefits.
- **Climate Change Adaptation and Low Emission Development Strategy** adopted in 2013 is currently undergoing a revision as has set a goal for BiH to become a sustainable and prosperous green economy by 2025.

Other relevant conventions/protocols BiH is a signatory to:

The project is in line with the requirements set down by international agreements signed and ratified by Bosnia and Herzegovina. BiH signed the United Nations Framework Convention on Climate Change (UNFCCC) in 2000 and the Kyoto Protocol to the UNFCCC in 2008, as a non-Annex I country. BiH has to date:

- adopted the Climate Change Adaptation and Low Emission Development Strategy for BiH (2013),
- adopted the Initial, Second and Third National Communication on Climate Change (2009, 2013 and 2016 respectively),
- established the Designated National Authority for implementation of the Clean Development Mechanism in the Kyoto Protocol, and
- prepared the First and Second Biennial Update Reports (FBUR) of BiH under the UNFCCC (2014 and 2016 respectively),
- submitted in October 2015 to the Conference of the Parties its Intended Nationally Determined Contributions (INDC) towards achieving the objective of the Convention as set out in its Article 2.

Contribution to the EU accession agenda and national strategies

EU integration is crucial to Bosnia and Herzegovina's pursuit of democracy, rule of law and sustainable economic development. However, due to its administrative complexity, political lock-down and lack of human and financial resources, Bosnia and Herzegovina needs substantial assistance on its path to EU accession in form of capacity building and strengthening of EU related processes and the transposition of EU directives into national legal framework.

If EU directives and primary and secondary legislation on energy efficiency and renewable energy are expected to be enforced in BiH, it is essential that lower level governments understand BiH's obligations on targeted energy savings, in particular goals set for public buildings, and develop energy management decision making capacities within their jurisdictions. In the BiH given complex administrative context, only if municipalities, and cantonal and

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entity line ministries, have an understanding and are enabled to manage energy related issues, Bosnia and Herzegovina will be able to fulfil its multilateral obligations and create sustainability of required energy efficiency/renewable energy undertakings in the public sector.

The project would directly contribute to BiH's EU accession process and would continue to support BiH state and entity level Ministries to fulfil the Energy Community Treaty obligations of Bosnia and Herzegovina. Moreover, as UNDP CO BiH is a member of the Energy Community Secretariat's Coordination Group on renewable energy and energy efficiency, all project goals and results will be coordinated with the Secretariat (for example, GED project results are presented on annual basis to Energy Community Secretariat and its results are presented in official Energy Community Secretariat Annual Reports). The Green Economic Development 3rd phase project would support BiH to fulfil following EU directives:

- Energy Efficiency Directive - EED
- Energy Performance Building Directive - EPBD
- Renewable Energy Directive – RED

Project will contribute to BiH's EU accession process, targeting mentioned directives by enabling entity Environmental Protection Funds to monitor, analyse and evaluate energy consumption, costs, emission, energy investments and savings data from public sector buildings, as well as to support BiH's related energy efficiency and renewable energy targets (in accordance with the Energy Community Treaty and its obligations) by providing financial support to energy efficiency/renewable energy infrastructure projects and contributing to enable a favourable environment for energy efficiency/renewable energy investments in BiH. Moreover, the state of BiH (MoFTER) would be empowered with consolidated, valuable, and reliable data for further submission to Energy Community Secretariat and other multilateral agreements (for example – United Nation Framework Convention on Climate Change).

Energy Efficiency Directive (EED)

Bosnia and Herzegovina, with technical assistance provided by the UNDP, have previously conducted Detailed Energy Audits for 16 Public Buildings Under the Jurisdiction of Central BiH Institutions, the "Energy Efficiency Study of Public Buildings Under the Jurisdiction of Central BiH Institutions" and the "Action Plan for Increasing Energy Efficiency in Facilities Under the Jurisdiction of Central BiH Institutions". In 2019 the required bylaws were adopted, and energy management system is institutionalised in all public buildings/institutions at state level of Bosnia and Herzegovina, and Federation of BiH. In 2020 the extension of the Study on the state of energy efficiency for buildings owned or used by State government institutions, together with extended Energy efficiency Operational Plan, and installation metering equipment in buildings owned by state government institutions for automatic monitoring of energy and water consumption and reporting will be conducted. Beside the state level of Bosnia and Herzegovina, Energy Efficiency Operational Plan for Federation of Bosnia and Herzegovina is going to be created in 2nd half of 2020. In parallel, for each building in the inventory, it is being collected the data of the floor area and data on energy characteristics, relevant energy data that implies energy consumption or data from the energy audits, energy efficiency Studies, energy certificates, etc. Considering that through the mentioned project, and through other activities carried out at the level of BiH and the entities, a certain number of buildings have already passed the process of energy efficient renovation, after completion of the inventory of the central government buildings, a clear picture will be obtained. Administratively, the annual target of 1% of the total area of use for Bosnia and Herzegovina should be subliming targets for the following administrative units:

i) state level central government institutions,
ii) central government institutions in the Federation of Bosnia and Herzegovina,
iii) central government institutions in the Republika Srpska, and
iv) central government institutions in the Brčko District of BiH.

Although there is still no official consensus around the number of the central government institutions by relevant ministries (state and entity), since there is still no established official technical working group for Article 5. Until now the draft inventory has been created and will be delivered to relevant ministries/technical working group in order to obtain the official consensus around the number of the central government institutions. The preliminary inventory comprises in total 92 buildings (**Error! Reference source not found.**), on the state level of Bosnia and H erzegovina 43 buildings were identified, in Federation of Bosnia and Herzegovina 26 buildings, in Republika Srpska

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6 buildings and in Brčko district 17 building. In total they occupy area of 396,226 m2, and 1% of total floor area amounts 3,962 m^2. Bosnia and Herzegovina already decided to follow the default approach, and upon obtaining the consent on number of the buildings, and the total floor area from relevant ministries (state and entity)/working group, the action plans for achieving the set goal will be created.

Table 1: Overview of the implementation of energy efficiency targets, by final consumption sectors, for the period 2010-2018, with expected targets in 2021

	Number of buildings	Floor area m2	1% of total floor area m2
State level of BiH	43	244,993.86	2,449.94
Federation of BiH	26	71,593.07	715.93
Republika Srpska	6	60,008.00	600.08
Brcko District	17	19,631.46	196.31
Total	**92**	**396,226.39**	**3,962.26**

Energy Performance of Buildings Directive (EPBD)

As a contracted party of the Energy Community Bosnia and Herzegovina has to develop Roadmap for implementation of energy efficiency directives among which is Directive on Energy Performance of Buildings (EPBD). This Directive introduces Nearly Zero Energy Buildings (NZEB). Nearly zero energy buildings are not defined in enforced regulation in BiH and drafting /updating regulation regarding definition of the Nearly Zero-Energy Public Buildings is conducted through GED 2nd phase of the project. Project also provided technical assistance in definition of the minimum energy performance requirements for public buildings in FBiH i RS, as it was requested from relevant entity ministries.

Renewable Energy Directive (RED)

BiH has submitted in April 2017 to the Energy Community Secretariat its National Renewable Energy Action Plan (NREAP). According to the NREAP - within the heating and cooling sector, an increase in the share of renewable energy sources from 43.3% to 52.4%, or an increase of 9.1% in 2020. In order to achieve the set goals in the heating and cooling sector in Bosnia and Herzegovina, besides using biomass for domestic heating, it is also necessary to use other forms of renewable energy that have not been sufficiently used so far, with the aim reducing the share of energy from fossil fuels.

Therefore, based on the National Renewable Energy Action Plan of BiH, the entity action plans, and as well the integrated energy and climate planning defined by the National Energy and Climate Plan (NECP) which is in drafting phase, the goal to utilize solar and biomass energy is clearly marked, which is one of the planned activities under Project Components 4, 6 and 7 of GED 3rd phase. The project will directly contribute to these goals by setting up public sector with PV and solar thermal systems, fuel swich projects, and contribute to the targets sets in the National Renewable Energy Action Plan and coming National Energy and Climate Plan (NECP).

BiH's framework energy strategy

The BiH's framework energy strategy was adopted by the Council of Ministers of BiH on 29th August 2018. The strategy introduces energy efficiency as one of the main pillars of the energy sector in BiH. Therefore, in the coming period it is necessary to adopt a set of decisions and measures that would not only transpose the binding EU Directives under the Energy Community Treaty but would also fully enable their implementation.

The BiH's framework energy strategy identified following Directives related to energy efficiency:

- The Directive on Energy Efficiency and three key Articles of the Directive to which the quantified targets are to be linked, are:
  - Article 3 – refers to the indicative target of each country expressed in the consumption of primary or final energy in 2020, primary or final energy savings or energy intensity indicators
  - Article 5 – refers to the renovation of central government buildings

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- Article 7 – refers to the obligation schemes and/or alternative measures and the quantified required savings expected as of the beginning of 2017

GED project provided technical assistance to governments on transposition and implementation of the requirements from Article 5 which is explained in more details in upper section "Energy Efficiency Directive (EED)" and Table 1. Moreover, the already and planed implemented energy efficiency/renewable energy measures also contributes to achieving primary or final energy savings targets defined in Article 3.

- The Directive on Energy Performance of Buildings and following key parts of the Directive:
  - Requirements for energy efficiency of buildings
  - Cost optimal methods of renovations
  - Energy certification
  - Overview and control of HVAC systems
  - Long-term programs of building reconstructions

GED project provided technical assistance to governments on definition of the Nearly Zero-Energy Public Buildings is conducted and in definition of the minimum energy performance requirements for public buildings in FBiH i RS through GED 2nd phase of the project.

The BiH's framework energy strategy proposed programmes for achieving saving in final consumption, which are given in following table.

Table 2. Proposed programmes for achieving saving in final consumption (from BiH's framework energy strategy)

Sector	Measures/programmes for improving energy efficiency
Buildings	Renovation of central government/public buildings
	Implementation of Long-term strategy for mobilising investment in the renovation buildings
	Renovation of public buildings, with the help of donors and technical assistance
	Introduction of energy management into public buildings
Industry	Increasing the energy efficiency of industrial processes (fuel substitution, combustion optimisation, frequent control of pumps, compressors and fans, replacement of old and oversized pumps, etc.)
	Promotion of cogeneration
	Introduction of energy management in industrial plants
	Mandatory energy audits of large consumers (over 10 GWh per year)
	Promotion of the introduction of energy management in small and medium enterprises
Transport	Infrastructure measures on the road network with energy saving effects (construction of bypasses and roundabouts, improvement of the traffic signalling system, improvement of the public transport infrastructure, etc.)
	Replacement of old vehicles with energy efficient vehicles in public and freight transport

As it can be seen from the Table 2, the GED project is already directly implementing proposed measures/programmes from building sector, and will be continued through the 3rd phase of the project:

- Renovation of central government/public buildings
- Introduction of energy management into public buildings
- Renovation of public buildings, with the help of donors and technical assistance and
- Contributing with its activities on implementation of long-term strategy for mobilizing investment in the renovation buildings

Proposed measures/programmes for industry and transport sector will be tackled through proposed activities within 3rd phase of the project. For more information, please see section of the document "*3.1 Detailed description of activities and expected results, project duration*".

Linkage with the Agenda 2030 and the SDGs

Bosnia and Herzegovina has endorsed and committed to the implementation of the Agenda 2030 and localizing the 17 SDGs in its path to EU integration.

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The project has made tangible contribution to a number of SDGs, including to poverty reduction (SDG1), improvement of health (SDG 3) and education (SDG4), gender empowerment (SDG5), access to sustainable energy (SDG 7) and fight against climate change (SDG 13).

SDG 1: End poverty in all its forms everywhere
Target 1.4: By 2030 ensure that all men and women, particularly the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership, and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services including microfinance.

SDG 3: Good health and well-being
Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

SDG 5: Achieve gender equality and empower all women and girls
Target 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all
Target 7.1: By 2030 ensure universal access to affordable, reliable, and modern energy services

Target 7.3: Double the global rate of improvement in energy efficiency by 2030

SDG 8: Promote inclusive and sustainable economic growth, employment and decent work for all

Target 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

Target 9.3: Increase the access of small-scale industrial and other enterprises, particularly in developing countries, to financial services including affordable credit and their integration into value chains and markets.

Target 9.4: By 2030 upgrade infrastructure and retrofit industries to make them sustainable, with increased resource use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, all countries taking action in accordance with their respective capabilities.

SDG 12: Ensure sustainable consumption and production patterns
Target 12.c: Rationalize inefficient fossil fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities

SDG 13: Take urgent action to combat climate change and its impacts
Target 13.2: Integrate climate change measures into national policies, strategies, and planning

Target 13.3: Improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning

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2.3 Hierarchy of objectives (including a visual snapshot)

In accordance with the overall project goal, creating a favourable environment for investing in energy efficiency/renewable energy sources infrastructure measures in BiH, which will be achieved through seven interlinked and supplementing project components with associated results (figure 2):

I. **Capacity Building (PC1)** – Strengthening capacities and skills of MoFTER and environmental funds staff and energy professionals, introduction of Green Public Procurement and Development of Sustainable Urban Mobility Plan (SUMP)
II. **Institutionalization of energy management (PC2)** – Establishing energy monitoring and reporting mechanisms in BiH
III. **Legislative framework (PC3)** – Adopting three laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment by the relevant authorities
IV. **Infrastructure measures (PC4)** – Implementing cost-optimal, green jobs generating and emission reducing energy efficiency/renewable energy infrastructure projects in BiH
V. **Public awareness / marketing campaign (PC5)** – Increasing general public's understanding of energy efficiency/renewable energy benefits
VI. **RES off-grid solutions (PC6)** – Providing access to energy for off grid households in BiH
VII. **RES/EE in SME's (PC7)** – Supporting implementation of at least 18 EE/RES projects in SME's in BIH

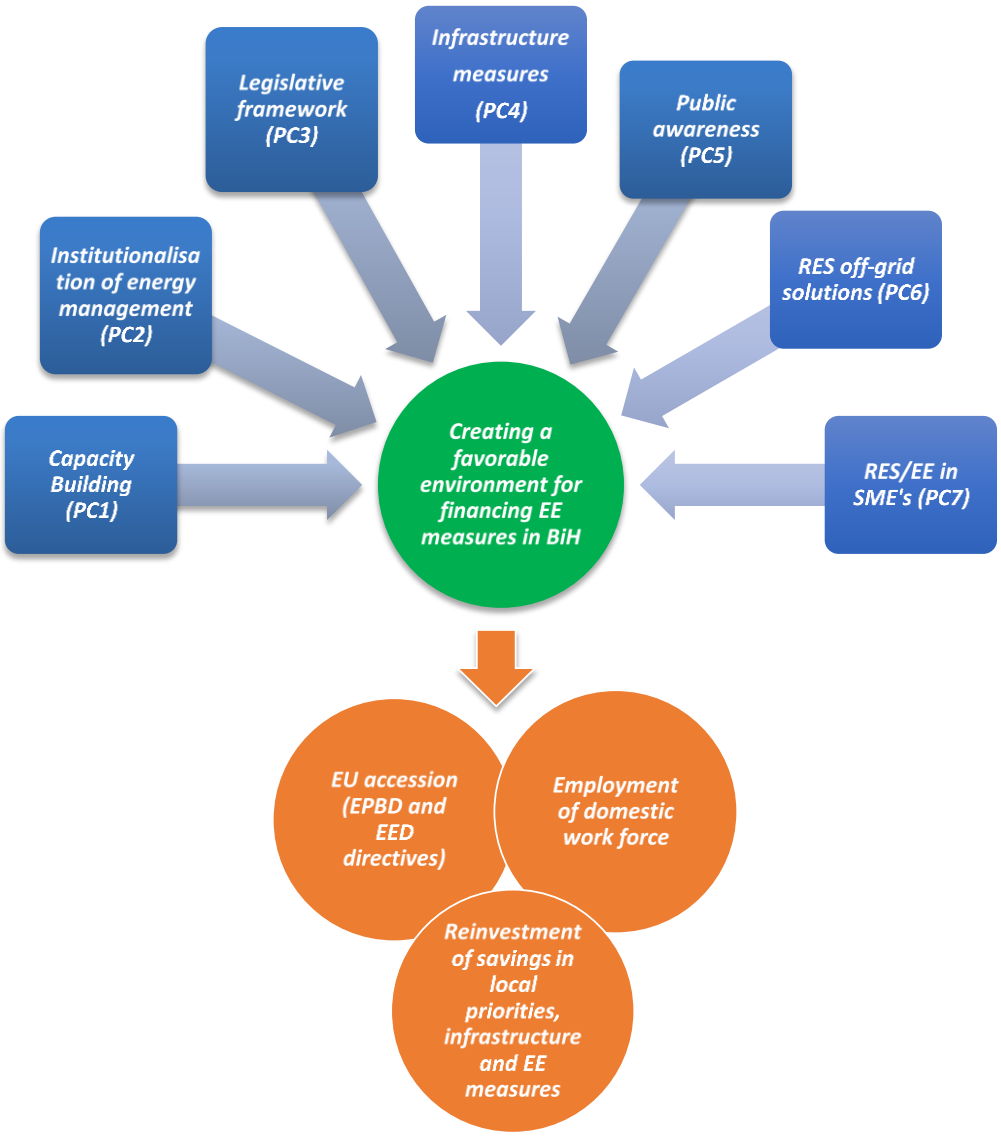


Figure 2. Visual snapshot of seven interlinked and supplementing project components and objectives

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3 RESULTS AND PARTNERSHIPS

3.1 Detailed description of activities and expected results, project duration

The overall goal of the project is to create a favourable environment for investing in energy efficiency/renewable energy infrastructure measures in BiH.

The project will be articulated in the following components, results and activities:

Component 1. Capacity Building

Result 1. Strengthened capacities and skills of MoFTER and environmental funds staff and energy professionals

During the GED II project, UNDP provided technical assistance, capacity building and skills development trainings to Environmental Protection Funds, Ministry of Foreign Trade and Economic Relations and Ministries in Energy sector. Even though activities conducted under GED II project are and will provide Funds and MoFTER with methodologies and internal acts, it will be necessary that UNDP continues providing technical assistance to the MoFTER staff and all other energy professionals in Funds as well as in the Ministries in Energy sector in the field of energy efficiency, energy management and management of EMIS (Energy Management Information System), understanding of Laws, by-laws and EU directives. Assistance will be conducted in the form of consultative, advisory and technical support. Also, UNDP staff will provide technical assistance throughout project implementation and skills development via on-the-job training/assistance on all phases of project:

- Analysis, evaluation and development of energy indicators and reports out of EMIS database;
- Analysis, evaluation and development of prioritization list of public sector buildings and public lightning systems for energy audits;
- Analysis, evaluation and development of technical, economic, financial, environmental and social parameters/factors (including co-financing from end-users) and development of ranking list of public sector buildings for the implementation of energy efficiency infrastructure measures;
- Monitoring and verification of energy and costs savings, emission reduction;
- Tracking of indicators;
- Decision making process cycle/methodology for energy efficiency infrastructure investments (identification, evaluation, decision, implementation and monitoring/reporting).

Continuous assistance is still very important, since it will provide understanding of energy savings potential, improve knowledge and understanding of relevant EU directives, laws and by-laws regarding energy management, as well as public lightning efficiency and usage of renewable energy sources. This also provides practical help in understanding energy indicators, decision making process and evaluation of public sector buildings and public lightning systems for the implementation of energy efficiency infrastructure measures.

Activity 1.1 Conduct Forty-two Detailed Energy Audits and QA activities

Evaluation process and development of priorities/rankings based on detailed energy audits are necessary for choosing the most cost-effective investments, as well as to justify the investment decision and to assure transparency throughout the process. As a start of promoting energy efficiency, public sector buildings are great example to show how both, comfort and savings could be achieved. A prioritization list of public sector buildings and public lightning systems for the conductance of detailed energy audits, based on technical and economic parameters, collected energy consumption and costs data, as well as energy conservation potential and emission reduction emission potential (all based on EMIS database and analysis) will be developed by energy professionals in Environmental Protection Funds, Ministry of Foreign Trade and Economic Relations and Ministries in Energy sector with the support of UNDP.

***Sub-activity** – Develop detailed energy audits for public sector buildings and public lightning systems*

During project implementation 30 buildings will be chosen to conduct detailed energy audits and 12 public lightning systems (combined in FBiH and RS). UNDP will develop ToRs for delivery of

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energy audits, in accordance with internal procedures, applicable laws and regulations and will tender the conductance and development of energy audits. DEA (detailed energy audits) will provide an in-depth analysis of the current baseline situation of a:

a). public sector buildings:

- determine energy losses,
- current energy efficiency of the heating,
- cooling and lightning system (including all other energy forms and/or energy usage purposes)
- analyze and propose possible measures of increasing energy efficiency of the building and perform a comparative analysis of different scenarios (combination of measures), based on technical, economic and environmental related indicators.

b). public lightning systems:

- analyze energy characteristics of the street lighting and characteristics of energy consumption and cost management,
- analyze energy and maintenance costs and projections of further energy consumption,
- analyze possible measures of increasing energy efficiency of lighting system,
- propose measures of increasing energy efficiency of the lighting system,
- analyze energy, economic and environmental related effects of proposed measures.
- Perform comparative analysis of energy consumption indicators.

Development of the detailed energy audits for public sector buildings and public lightning systems will contribute also to strengthening skills of energy professionals which will be engaged.

Sub-activity *– Conduct QA activities on detailed energy audits*

During project implementation Quality Assurance activities will be performed over the developed DEAs for 30 buildings and 12 public lightning systems (combined in FBiH and RS), by qualified and licensed companies. UNDP will develop ToRs for delivery of QA activities over developed detailed energy audits, in accordance with internal procedures, applicable laws and regulations and will tender the conductance QA activities over developed DEAs. QA activities will evaluate, provide feedback and verify if detailed energy audits for public buildings and public lighting systems are completed in quality manner and conducted in accordance with all relevant laws and regulation (in similar way as detailed designs are revised by registered/licensed companies).

Activity 1.2 Develop Studies/Strategies and adopt results and recommendations from the Studies/Strategies by relevant authorities

Sub-activity *– Develop E-mobility Study/Strategy related to the installation and use of Renewable Energy Sources (solar photo voltaic systems) for charging of electric vehicles*

The development of the E-mobility Study/Strategy will allow the BiH to assess the short to medium term market potential and readiness to roll out electric vehicles in selected cities as well as the development and design of the associated charging infrastructure.

the Study/Strategy is to eliminate some of the most common barriers for deployment of electric mobility in an effort to:

- Reduce emissions,
- Reduce the dependency on fuel imports and subsidies,
- Set base for creation of the policies to incentivize the usage of electric vehicles.

The foreseen outputs from the E-mobility Study/Strategy are:

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- Market (Macro) and Policy Study: To perform an analysis of the current e-mobility policies (if any), the market potential, the national readiness and policy framework in order to provide the Bosnia and Herzegovina with an opinion regarding the appropriateness of charging infrastructure and electric vehicles. Provide a critical assessment on the technical aspects (proposed size, electricity requirements, costs, configuration, etc.) as well as project risks, ownership and actors involved. (A);
- Charging infrastructure Investment assessment: To set out alternative charging infrastructure business models, based on an analysis of business models in countries that are very successful with the introduction of electric vehicles and charging infrastructure (e.g. the Sweden) (B);
- Task Plan and Economic Impact of the strategy (A + B): To assess the potential economic benefits (including reduced energy use and environmental benefits on air quality and emissions) of the document and its recommended policy measures (C).
- Market (Micro) and immediate private and public sector opportunities: To identify the additional investment needs and benefits (in terms of reduced energy use and reduced environmental impacts) of electrifying specific captive fleets. This should include a fleet analysis and assess opportunities for electric buses in public fleets, e-vans, and electric taxis (D);
- Energy Sector Impact: To assess the overall impact of the strategy and take up of EV's on energy demand, explore the links between electrification of transport sector and accelerating renewable energy deployment, with a view to scaling up the use of renewables in e-mobility, and identify potential network constraints of the implementation of the e-mobility study (E);
- Stakeholder awareness raising: To disseminate the results of the study to wider range of stakeholders in Bosnia and Herzegovina, raising awareness and ownership of the results.
- Adoption of the recommended policy measures at state level government

Sub-activity *– Perform market penetration Study/Strategy on new technologies in SMEs in BiH*

- GAP analysis in industry / private sector / SMEs
- Review of barriers and risks to green investments in SMEs in BiH
- Challenges for governments pursuing green growth
- Identification of the cost-effective technologies
- Analysis of possibilities of their effective application in SMEs
- Existing incentives and role of the national development banks, IFI's, bilateral development banks and blending mechanisms
- Recommendations for new financial mechanisms
- Conclusions and policy recommendations
- Adoption of the recommended policy measures at state level government

Partners: MoFTER, Entity ministries of energy, Foreign Trade Chamber of Bosnia and Herzegovina, Chamber of Economy of FBiH, Chamber of Economy of RS.

Sub-activity *– Develop a Model for subsidizing the replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households in Sarajevo Canton*

This activity aims to reduce air pollution, especially in suburban settlements where the dominant sources of pollution are solid fuel domestic furnaces. This target will be achieved by subsidizing the replacement of furnaces and small solid fuel boilers (preferably those that use coal) used to heat houses, which are, for the most part, inefficient and have high emissions of pollutants into the air, especially sulphur dioxide and solid particles. Procurement and installation of certified furnaces and boilers for solid fuels (pellets) and heat pumps (the type of heat pump will be determined depending on the conditions at specific facilities) will be subsidized, which will reduce air pollution, energy consumption for heating and heating costs for citizens.

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The piloting of the model is already agreed with the Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton. Ministry provided 550.000 BAM for this activity. However, with additional financing from Sweden Government, as well as other donors, the model could be replicated and scaled-up not only in Sarajevo Canton, but as well as to other locations in BiH.

- As part of the implementation of this activity, a Working Group will be formed which, in cooperation with the Ministry and UNDP, will develop a Model for subsidizing the replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households in SC.
- After the harmonization, the Model will be piloted, and depending on the available budget and the interests of citizens, at least 80 projects will be implemented. Exact number of the projects and subsidy amount will be determined after adoption of the Model.
- The Model will:
    - elaborate in detail all activities with clearly identified stakeholders and procedures of individual activities and the time frame for their implementation.
    - include mechanisms for ensuring and inspection of the characteristics of installed furnaces and heat pumps, supervision of works, and methods for disposal of replaced furnaces.
    - define the criteria and procedure for the selection of users, designers, and suppliers of certified furnaces and heat pumps. In that sense, the public calls will be created and disseminated to locations of the interest.
- Depending on the interest of the citizens, i.e. the number of applications, the amount of subsidy for the replacement of the furnaces will be determined as a percentage of the total replacement cost or as a fixed amount. The Working Group will prepare a report on the implemented activities which will contain information on the scope of implemented activities, type of replaced furnaces, assessment of air pollution reduction, reduction of solid fuel consumption in SC, and recommendations for further implementation of the Model.
- Replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households is intended to be financed by the:
    - Local governments (cantons, municipalities, cities - i.e. 60% grant for replacement of coal and other solid fuels furnaces with certified furnaces, 40% for installation of the heat pumps in households),
    - End-users (i.e. up to 40% co-financing for replacement of coal and other solid fuels furnaces with certified furnaces, 60% for installation of the heat pumps in households)
    - NOTE: Exact contract amounts will be known after the tendering procedure is concluded, and some of the activities might be revised (increased or reduced), in accordance with available funds
- This intervention is in line with the EU decarbonization strategy, the ongoing development of the Strategy for restrictions on the use of coal and other solid fuel in Sarajevo Canton in the period 2021 – 2031 (which is co-financed by Sweden Government), Cantonal Environmental Action Plan, etc.
- In agreement with the Ministry, in 2021, the goal is to achieve synergies between this Model and SERDA's Energy Efficiency Model in Canton Sarajevo, where energy efficiency measures could be combined on selected households in order to achieve full potential of the implemented measures, and reduction of emissions.

Activity 1.3 Develop documentation for the implementation of the Energy Efficiency through the ESCO modality

***Sub-activity** – Develop in situ screening, and necessary documentation/project designs for the implementation of the Energy Efficiency through the ESCO*

Several municipalities from the FBiH and RS reached to UNDP and asked about the possibility of receiving the technical assistance in defining the necessary documentation and developing the set

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of documents needed for the public call, and engagement of the company for the installation of Energy Efficient LED lighting system in their municipalities using the ESCO financing mechanism.

FBiH and RS, are in process of developing the ESCO model that is applicable and functional in Bosnia and Herzegovina. Upon development of the model the rulebook is going to be created and adopted, and since ESCO mechanism is sustainable model for implementation of Energy Efficiency measures, especially for the municipalities high level of indebtedness, supporting the municipalities willing to finance energy efficiency measures through ESCO mechanism would prepare them for the intervention once the model is developed.

UNDP would provide technical assistance for 6 municipalities throughout BiH for development of documentation for the implementation of the Energy Efficiency through the ESCO modality. First step in implementation of this activity would be detailed screening of existing documentation, possibilities and needs of the municipalities which would be conducted by consulting expert, and based on the identified needs, and the recommendations, UNDP would conduct procurement process to engage the Consulting company for development of necessary documentation.

It is expected that, by the end of the project, minimum two municipalities implement Energy Efficient LED lighting system using ESCO financing mechanism.

Activity 1.4 Introduction of Green Public Procurement criteria

Contracting authorities in Bosnia and Herzegovina are major consumers, spending annually nearly Eur 1.5 billion (excluding VAT) in public procurement, and contributing an average of between 8 to 10% of nominal GDP. Also, public sector buildings are major energy consumers. By using their purchasing power to choose environmentally friendly goods, services and works, they can make an important contribution to sustainable consumption and production. Green Public Procurement (GPP) can provide financial savings especially if life-cycle costs are considered and not just the procurement price. By purchasing energy efficient or water saving products it is possible to contribute a significant reduction in utility bills and reduction of air pollution.

Current Public Procurement Law in Bosnia and Herzegovina (Official Gazette of BiH, No. 39/14) was adopted in 2014 and is partially harmonized with Directive 2004/18 EC on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts and Directive 2004/17 EC harmonizing the procurement procedures of entities operating in the water, energy, transport and postal services sectors. In the meantime, the European Union adopted new directives in the field of public procurement, namely Directive 2014/24 EU and Directive 2014/25 EU.

BiH is lagging in the introduction of the 2014 Directives for more than 5 years now compared to the European Union Member States. Member States were required to transpose these new directives into their legislation by 18 April 2016 at the latest.

The aim of this activity is to:

a) Provide support for introduction of GPP criteria in three service groups:

   i) Office Building Design, Construction and Management

   ii) Electricity

   iii) Road lighting and traffic signals

b) Conduct training activities and develop training materials on GPP to support procurement of product/service groups for which GPP criteria and procurement documentation models have been developed. Provide recommendations for amendment of the official training for procurement professionals provisioned by the Public Procurement Agency with the GPP topics.

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In parallel with training process the aim is to establish a GPP network to foster information exchange and capacity building of public institutions, CSOs, and private sector in the field of GPP. An online platform, brochures and annual meetings should be organized in view of fulfilling the goals of the network. This could be led by Public Procurement Agency of BiH under its training function. Support networking and knowledge exchange with *European and international networks* and initiatives.

c) Transpose EU strategic and policy framework on GPP, developing GPP action plan, building capacities of Public Procurement Agency of BiH to lead the process (study visit, trainings, and other types of exchanges with e.g. Croatian and Slovenian public procurement agencies).

The expected results of the GPP activity can have positive impact and raise environmental awareness in addition to being the generator of domestic economy toward "greener" solutions.

This activity will result with prepared recommendation for amendment of relevant public procurement legislation, and through training programs, developed brochures, and information sharing platform, strengthened capacities of relevant stakeholders in further adoption and implementation of GPP criteria.

The institutions that apply green public procurement will be better prepared to respond to the growing challenges of environmental protection, for example reduction of greenhouse gas emissions or transition to a circular economy.

Activity 1.5 Development of Sustainable Urban Mobility Plan (SUMP)

Sustainable urban mobility plan (SUMP) is an excellent tool to create best transport solutions for citizens. SUMP is a strategic planning instrument for local authorities that is used to foster the balanced development and integration of all transport modes while encouraging a shift towards more sustainable modes of transport. This will contribute to meet long-term climate change policy goals.

The crucial elements of these documents include the following:

- Plan for sustainable mobility in the entire functional urban area
- Cooperate across institutional boundaries
- Involve citizens and stakeholders
- Assess current and future performance
- Define a long-term vision and a clear implementation plan
- Develop all transport modes in an integrated manner
- Arrange for monitoring and evaluation
- Assure quality.

So far, only Sarajevo Canton and City of Sarajevo adopted its plan in 2020. UNDP has been developing e-mobility project that will be completed in 2022, and the conclusions and recommendations from the E-mobility Strategy will be incorporated in development of urban mobility plan, which will enable introduction of e-mobility as mandatory part of urban mobility sector. The aim of this activity is to develop SUMP for the City of Banja Luka, which has expressed a will to develop SUMP as a continuation of a Government of Sweden supported Improvement of air quality and air quality management in BiH (IMPAQ) project, which significantly strengthened City's environmental governance, especially in the area of air quality. As traffic is identified as one of the main causes of air pollution, development of SUMP would be based on excellent result of IMPAQ project and further strengthen with e-mobility component, which can be efficient only if it is a part of sustainable mobility for entire urban area.

Component 2. Institutionalization of energy management (PC2) – *Institutionalization of energy, costs and emission management and monitoring in public sector buildings of BiH.*

Result 2. Established energy monitoring and reporting mechanisms in BiH

Easiest way of monitoring, evaluating and making analysis of energy consumption is by using one single application. Energy efficiency laws in both entities include information system for energy consumption monitoring and

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reporting under their provision, and EMIS is recognized to be that system. “Rulebook on Energy Efficiency Information System for FBiH” (ISEE, http://www.iseefbih.ba/) has been adopted in January 2019, and “Decision on the establishment of energy management system and information system of energy efficiency in institutions at the state level BiH and mandatory data entry and regular reporting” (Decision) has been adopted by Council of Ministers of BIH in June 2019, supported by the technical assistance of the GED project, which positioned EMIS for the first time as obligatory software for monitoring and reporting regarding energy consumption in public sector in BiH. The Rulebook for Republika Srpska is prepared, but not adopted yet. It is expected to be adopted in the following period.

Activity 2.1 Use Energy Management System (EMIS) for the ranking and selection of public buildings and public lightning systems with highest energy conservation potential

***Sub-activity** – Select public buildings and lightning systems for development of the Detailed Energy Audits by energy and environmental indicators from Energy Management System (EMIS)*

The UNDP staff is preparing technical, economic and environmental parameters and energy conservation potential indicators within EMIS database. EMIS provides the ability for monitoring and reporting of achieved energy and cost savings (kWh, KM), CO_2 emission (t CO_2) reduction and other specific indicators.

By using a software which enables a continuous monitoring of energy consumption and costs (monitor parameters before/after energy efficiency measures implementation) additional energy savings can be achieved (for example, it has been proved in public sector buildings in Croatia that just using EMIS brings energy consumption down up to 5%, since the awareness of users is improved, and they know that every usage is monitored). By expanding EMIS modalities on MRV, it will also become the tool for obligatory reporting on energy savings

By developing a database of public sector buildings and public lightning systems it is possible to choose ones with the highest energy conservation potential for conducting detailed energy audits and to monitor parameters before/after measures implementation, which is possible only if public representatives pass the training and keep updating information about energy consumption (monitoring and reporting is part of obligation in accordance to Law on energy efficiency, while EMIS provides the tool for monitoring energy consumption in public sector buildings and public lightning systems).

Activity 2.2 Introduce Energy Management System (EMIS) into public lightning systems in BiH

***Sub-activity** – Introduce Energy Management System (EMIS) into public lightning systems in BiH*

Same as it is with public sector buildings, easiest way of monitoring, evaluating and making analysis of electricity consumption in public lightning systems is using one single application. This provided clear view of electric energy consumption for public lightning, as well as possibilities of savings. Within the EMIS module for monitoring the electricity consumption of public lighting, data are entered on metering points of the public lighting system. The electricity distributors issue bills to the end users (municipalities) for the consumed electricity of public lighting according to the metering points. Since each measurement is related to the total consumption of one metering point, measurements also have to be entered in this way. Consumption of one metering point is the total consumption of more light sources. The metering point may cover one or more streets with the same or different type of lamps.

Up to-day, it is estimated that up to 5% of public lightning systems in BiH are already created in EMIS (the exact number of public lightning systems or luminaries in BiH is not known). Environmental Funds and UNDP will extend this database through annual Call for Proposals for identification of public lightning systems interested in energy efficiency investments, as well as through sub-national partner involved in GED.

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Up to now majority of the municipalities (or other authorized institutions) in FBiH have appointed a person that will be responsible for timely entering the data on energy consumption of public lighting system in EMIS database, and the Municipalities that to not have the person appointed already (Majority in RS) will submit application to EF/UNDP by filling out pre-defined survey of interest with basic public lightning data and co-financing potential. Following the creation of the account for the public building, that should be done by the Funds and MoFTER with the support of UNDP, input/information on consumption and costs of energy and water in the last 36 months period is collected and entered into EMIS. During this process, Funds and UNDP staff will provide technical support and assistance to contact persons. EMIS provides the ability for monitoring and reporting of achieved energy and cost savings (kWh, KM), and other specific indicators.

By using a software which enables a continuous monitoring of energy consumption and costs (monitor parameters before/after energy efficiency measures implementation) additional energy savings can be achieved. On an example of public lightning systems automatic remote gauges could show when energy is unnecessary spent.

By developing a database of public lightning systems it is possible choose the public lightning systems with the highest energy conservation potential for conducting detailed energy audits and to monitor parameters before/after measures implementation, which is possible only if municipality representatives pass the training and keep updating information about energy consumption (monitoring and reporting is part of obligation in accordance to Law on energy efficiency, while EMIS provides the tool for monitoring energy consumption).

***Sub-activity** – Conduct trainings for end-users on EMIS public lightning systems, energy efficiency and energy management*

Trainings will be provided for end-users on EMIS regarding public lightning systems, as well as energy efficiency and energy management in general for public sector end-users and government representatives. UNDP will organize training facilities throughout BiH, in person or online (depending on corona pandemic restrictions), if needed equipment (laptops) and travel arrangements, contact all identified end-users, provide information, conduct training on EMIS and provide technical support and assistance to trained persons throughout project implementation.

These activities will provide sub-national governments with the ability to monitor and report on energy consumption, energy savings and reduced CO_2 emission from public sector buildings and public lightning e.g. in accordance and obligation with Law on energy efficiency, Rulebooks and defined. Moreover, the Environmental Funds are envisaged per Law to enable and conduct reporting activities through IT systems.

Component 3. Legislative framework (PC3)

Result 3. Three laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment adopted by the relevant authorities

Bosnia and Hercegovina legislation still lacks harmonisation of numerous legal documents with EU regulations and transposition of the EU Directives into BiH's legislation system. This outcome will enable relevant decision makers to develop and adopt 3 laws or bylaws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment which are crucial for total transposition of EU Directives and fulfilment of obligations set by Energy Community.

Activity 3.1 Develop 3 laws or by-laws in the field Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment

***Sub-activity** – Provide policy development assistance in Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment for different levels of Governments in BiH*

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After agreeing on the document that needs to be developed, UNDP will prepare the ToR for the development of law or bylaw, and, in accordance with internal procedures, will engage one, or more, experts, depending on the scope of legislation. The Experts will in coordination with the relevant Ministry or Institution develop the document and participate in all steps that lead to adoption of the documents.

Component 4. Infrastructure energy efficiency measures (PC4)

During the duration of the project, under this component the project will facilitate implementation deep energy retrofit for at least 30 public buildings, installation of solar hot water systems and photovoltaic systems in at least twelve public buildings/ facilities or systems, and improvement of energy efficiency of public lightning systems on at least six locations throughout BiH.

On the basis of technical, economic and environmental parameters, from detailed energy audits, infrastructure measures will be implemented in up to ten public sector buildings per year in order to conduct so called "Deep retrofits" (in accordance with the requirements of EU directives EED and EPBD) and respecting newly developed and adopted construction and energy conservation standards (EPBD directive). The ranking list/evaluation will include the best-case techno-economic scenarios developed under Activity 1.1 Detailed Energy Audits and QA activities.

A large energy saving potential remained unused together with unrealized environmental benefits which could be obtained by the installation of solar hot water systems and photovoltaic systems. Solar hot water systems or photovoltaic systems do not pollute and they are helping to avoid carbon dioxide, nitrogen oxides, sulfur dioxide, and the other air pollution and wastes created when the local utility generates power or fuel is burned to heat domestic water. Solar hot water systems would be connected to existing building heating systems as back-up, when solar energy is not available or when hot water demand exceeds the solar-heated supply. Solar hot water systems can efficiently serve up to 80% throughout the year of hot water needs depending on location and surroundings. Solar systems are with no fuel cost or pollution and with minimal operation and maintenance expenses. Solar PV panels often have a 25-year power production warranty guaranteeing that their solar panels will continue to generate electricity at a certain capacity for the warranty's duration. Some of the oldest solar panels manufactured 60 years ago are still working above 90% efficiency. At times when system produces more electricity than needed at the moment, the energy can be stored by using batteries, and thus providing a reliable backup system as well as savings up to 50% or more, depending on case to case and technical parameters.

Public lighting (beside heating energy costs) is one of the biggest expenses for a communities/local government budgets, and implementation of the LED lighting projects could permanently reduce budget expenses through monthly savings on utility bills up to 60%. During planning phase, attention will be paid on possible street lighting control and smart management system which will enable additional savings and environmental benefits. By this activity, targeted will be areas that have an existing public lighting infrastructure, with inefficient light bulbs, in which cost of regular maintenance and repair of those systems could be sidestep by installing LED fixtures.

The public sector building, and public lightning systems that will go through the process of deep energy retrofit will be selected based on the "Methodology on selection of public sector buildings for the implementation of measures to increase energy efficiency" that has been developed through GED project activities. Based on the methodology, decision making process for deep energy retrofit of public buildings flows efficiently for the last 8 years. Under the GED project the methodology on decision making process for public lightning was also developed and adopted by Environmental Funds and is efficient for the past 4 years. Key Methodology steps are given in following Figure 3:

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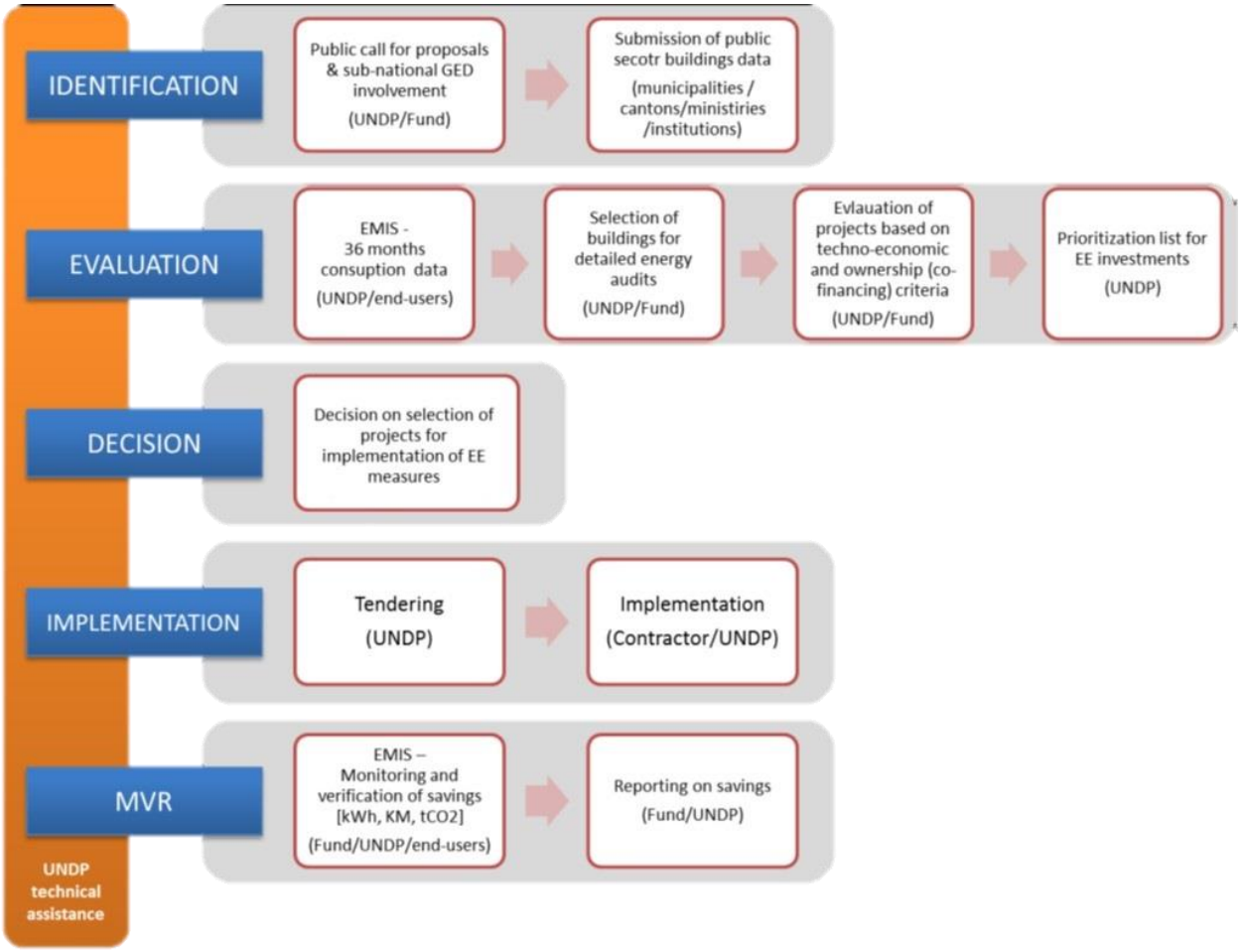


Figure 3. Methodology steps on selection of public sector buildings for the implementation of measures to increase energy efficiency

After the project has been designed, built, and commissioned, its energy consumption needs to be measured. This will be achieved by installing metering equipment for energy consumption monitoring (heating, electricity and water) and its integration with EMIS system. This is very important part of the project, since concrete measures are implemented, and possibility to measure before/after indicators is enabled and gives visible outputs that are easily demonstrated to public. The generated savings will be reinvested into other energy efficiency projects.

Result 4. Cost-optimal, green jobs generating and emission reducing energy efficiency/renewable energy infrastructure projects implemented in BiH

Implementation of cost-optimal, green jobs for women and men generating and emission reducing energy efficiency/renewable energy infrastructure projects in BiH will be conducted through three types of energy efficiency/renewable energy infrastructure projects in BiH municipalities:

- Energy efficiency in public sector buildings (EED i EPBD) implemented on at least ten public buildings annually
- Solar hot water systems and photovoltaic systems implemented on at least four public sector buildings/systems annually (RES)
- Energy efficient public lighting systems implemented on at least two locations annually (EED)

Activities under Activity 2.1 will provide EMIS and energy audits-based evaluation of energy and cost saving potential as well as financial calculations based on which a ranking of public sector buildings and public lighting systems will be developed in order to make decision on infrastructural energy efficiency investments.

Implementation of infrastructure energy efficiency measures will require additional co-financing which will be ensured through end-users (municipalities, sub-national governments, and institutions), e.g. through a competitive ownership-based co-financing ratio evaluation. Achieving this outcome will require organization of several meetings with relevant stakeholders such as relevant cantonal ministries, municipalities, or with end users in order

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to agree on the public buildings/systems and the scale of retrofit. In order to insure the ownership by end-users the grant financing for the implementation of infrastructural energy efficiency projects by the Project will be 1:3 for the energy efficiency/renewable energy in public sector buildings, 1:2 for the solar hot water systems and photovoltaic systems in public sector and 1:2 for Energy efficient public lighting systems.

Sub-activity *- Enable co-financing by end users:*

- *Development of Agreement on co-financing the implementation of infrastructural energy efficiency measures:*
  After prioritization of the public buildings/systems which is done based on the results of Detailed Energy Audits the indicative budget and the initial list of the public buildings/systems is created. Upon creation of the initial list of the public buildings/systems, UNDP's engineers will conduct the field visit and create the assessment of the investment needed.

- *Signature and entry into force of the Agreement on co-finance measures to increase energy efficiency of end-users:*
  Based on the developed assessment the final list of the public buildings/systems and the scope of the works is agreed, and the Financial Agreement is drafted and signed. The agreement is supported with the Annex which contains the description of the activities which will be undertaken, and the co-financing ratio for the implementation of agreed infrastructure works. Upon signing the Agreement, the implementation phase can begin.

Activity 4.1 Develop project designs and revision

Upon signing the financing agreements and agreeing on the buildings/systems that are going to be energy efficient retrofitted, the next phase is followed by procurement process for development of design documentation which includes publication of a public tender/call for qualified bidders, evaluation of bids and Contract signing. As per UNDP's Financial Regulations and Rules, the main principles which guide UNDP procurement are: Best Value for Money, Fairness, Integrity, Transparency, Effective International Competition and the Interest of UNDP.

After contract has been awarded, the contractor will start working on development of design documentation (architectural, construction, mechanical, electro etc.), technical descriptions, drawings, bill of quantities etc. During design process UNDP will hire independent revision in order to ensure quality assurance of designed technical documentation.

Activity 4.2 Implement infrastructural energy efficiency in public sector buildings

After completing the design documentation, the procurement process for the purpose of engaging the company for implementation of the deep energy retrofit starts. Common energy retrofit measures in buildings are: improvement of the thermal insulation of the building envelope (insulation of external walls, roofs, windows replacement), improvement the efficiency of building equipment, installation of the heat recovery ventilation systems for improvement of indoor air quality, improvement of the automatic control systems and use renewable energy generation sources (fuel switch from fossil fuels to renewables).

Activity 4.3 Implement Solar systems in public sector

After completing the design documentation for s*olar systems*, the procurement process for the purpose of engaging the company for installation of PV or hot water solar systems in public sector is initiated. The PV solar system is used for producing the electricity which can be used for the needs of the facility or building that is installed on, through direct consumption, or by storing the electricity in batteries and using it when the need occurs. Hot water solar system is mainly for preparation of hot water for the facility, or for heating the facility or building.

Activity 4.4 Implement infrastructural energy efficiency in public lighting systems

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After completing the design documentation for installation of highly efficient LED public lightning, the procurement process for the purpose of engaging the company for implementation replacement of existing luminaries with highly efficient LED luminaries is initiated. Installing LED public lighting, the local governments achieve savings of >50% in energy and in needed budgetary allocations. This activity improves the security of all women and children in selected areas.

Activity 4.5 Ensure supervision of works by professional companies

The quality of site supervision has a major influence on the overall performance and efficiency of construction projects. Inadequate supervision is believed to be one of the major causes of rework. Therefore, quality assurance will be ensured by an independent on-site quality control (works supervision) through the licensed company, which will closely monitor all executed works, materials used and absence of the work schedule/plan. This company will be independently contracted just for this purpose. Supervision will be present on the field and will oversee monitoring the works and progress and informing UNDP of any discrepancy from the contracted works or plans.

Moreover, UNDP through an independent on-site quality control (works supervision) engineer who will closely monitor all executed works, materials used and absence of the work schedule/plan. This engineer/s will be independently contracted just for this purpose. Additionally, Investors (UNDP) supervision will be present on the filed who will additionally monitor the works and progress and inform of any discrepancy from the contracted works or plans.

Activity 4.6 Ensure supervision by UNDP Engineers (civil/architect, mechanical and electrical engineer)

In addition to the licensed supervision company UNDP will engage works supervision) engineer who will closely monitor, who will serve as additional control of all executed works and materials used. This engineer/s will be independently contracted just for this purpose.

Payments will be done upon the works completion and following signing of monthly payment certificates by both construction supervisory entities: licensed independent company for supervision of works hired by UNDP and UNDP Engineer. Moreover, warranty period for the works performed will be 2 years following the technical acceptance of the works, during which period the contractor will remove all eventual defects relating to their work.

Activity 4.7 Implement pilot project of replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households in Sarajevo Canton

For many years, during the winter, the air in the Sarajevo Canton has been very polluted. This is caused by numerous factors which are clearly visible in cadastre of pollutant emissions, where the trend of the emission growth can be seen in many parts of Sarajevo Canton. The biggest sources of pollution in Sarajevo canton are solid fuel furnaces (firewood and coal) and traffic.

Analyses show that in Sarajevo Canton the 50% of all emissions impacting air pollution during the winter come from individual furnaces. In suburban areas and slope settlements, that percentage is unquestionably much higher. It is estimated that there is approximate 50,000 individual households in Sarajevo Canton that are using coal or other solid fuels as the heating sources in their homes.

The aim of the project is to reduce air pollution in the Sarajevo Canton, especially in suburban settlements where the dominant sources of pollution are solid fuel domestic furnaces. The reduction of air pollution will be achieved by subsidizing the replacement of furnaces and small solid fuel boilers (preferably those that use coal) used to heat houses, which are, for the most part, inefficient and have high emissions of pollutants into the air, especially sulphur dioxide and solid particles. Subsidy will be provided for procurement and installation of certified furnaces and boilers for solid fuels (firewood and pellets) and heat pumps (the type of heat pump will be determined depending on the conditions at specific facilities), which will reduce air pollution, energy consumption for heating and heating costs for citizens.

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First step in the implementation was development of the Model for subsidizing the replacement of coal stoves and other solid fuels with certified furnaces and heat pumps in households in Sarajevo Canton, for which purposes the Working Group consisted of three consultant experts, representatives from Sarajevo Canton and GED Project was formed. The model elaborates in detail all activities with clearly indicated stakeholders and procedures of each activity and contains mechanisms for ensuring the characteristics of installed furnaces and heat pumps, supervision of works, and methods of disposal of replaced furnaces. The model defines the criteria and procedure for selecting users, designers and suppliers of certified furnaces and heat pumps.

The public call announced based in this model resulted in ranking list of 998 users who had valid complete applications, of which 947 for pellet stoves/boilers and 51 for the installation of a heat pump.

The users will be called to engage the companies, authorized for project design, for development of project designs for the replacement of solid fuel stoves / boilers with certified pellet stoves / boilers or heat pumps. Upon development of the project designs UNDP will conduct revision of project designs in order to ensure quality implementation and engaged construction companies for the implementation of envisioned works, and conduct the procurement process, provide the technical supervision during the implementation and conduct final verification of every system. It is expected that this activity will result with fuel switch in 500 households in Sarajevo canton. This intervention helps all the citizens of the Sarajevo Canton, especially the most vulnerable groups of children and women. Subsequent analysis will show the effects by determining qualitative impacts of this activity.

Component 5. Public awareness / Visibility (PC5)

Result 5. General public's – men's and women's understanding of energy efficiency/renewable energy benefits increased

Activity 5.1 Increase public awareness on benefits of energy efficiency, renewable energy, and reduction of emissions to air and print educational and promotional materials

***Sub-activity** – Conduct awareness raising campaign - guest appearances at broadcast media, organization of events, disseminating media advisories and press releases, administration of social networks related to awareness raising campaign, press clipping*

GED project will build on the previous efforts and continue to further promote positive aspects of implementation of energy efficiency measures and usage of renewable on economic development of the country. Public awareness campaign will strive to raise knowledge and understanding of BiH citizens and businesses about energy efficiency and renewable while promoting the economic, environmental, and social advantages. At the same time, the Project will contribute to increased visibility and public knowledge of Swedish support to protect the environment and reduce negative effects of climate change in BiH. The primary focus of the campaign will be on communities where project activities will be implemented. The following activities are envisioned:

Visibility, Communications and Marketing Plan

This Visibility Plan will set out the communication rules and guidelines regarding the implementation of the visual identity, communications principles and promotion of the GED project activities, its results and impact. It will also contain regulations regarding the acknowledgement of the Government of Sweden funding of the project activities.

The Communications and Marketing Plan will be developed annually, in line with the project's planning process and schedule. The Plan will define objectives, target audiences, key messages, optimal channels and tools, spokespersons, monitoring mechanisms while addressing gender dimension by targeting women groups in order to increase their resilience to the impacts of energy poverty and other aspects. All communications activities will be conducted in close cooperation between the Embassy of Sweden in Bosnia and Herzegovina and partners while focusing on high visibility of outputs and the impact of the activities. The GED project will continue to use project

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logo and prominently apply it on all materials that will be developed within the scope of the Project. Swedish logo will be applied on all communications material.

In line with the latest trends, GED project will select the most effective channels to communicate its messages depending on audience and the context they will be receiving it. Thus, the campaign will deploy various tools (but not limited to) events, promotional and educational materials, media relations, digital marketing. Project will provide structured and well targeted communications and visibility campaigns to increase public knowledge about the importance of environment protection. Target groups are citizens, public officials, municipal authorities, small and medium enterprises, and media.

Events

The project will organize a number of outreach activities for different audiences such as trainings, workshops, conferences, presentations, official ceremonies, contests, exhibitions, etc. to increase the awareness and knowledge of different target groups about the overall benefits of energy efficiency. The project will use the opportunity to mark the important dates such as World Environment Day, Day of Clear Blue Sky, and other as appropriate.

Media Relations

GED project will ensure the background information and any relevant materials are shared with the media representatives. Different forms of the communications forms targeting media representatives will be organized such as press conferences, media advisories, press releases, media appearances. Beside the standard public relations activities, GED will engage with the media and share human development stories to feature women and men. Public employees/beneficiaries where GED Project implemented energy efficiency efforts will be invited to share their experiences as they have seen with their own eyes what it means to have a building that is energy efficient and that uses renewables.

Small Scale Campaigns

Targeted awareness raising campaigns at the public level and at the level of officials or businesses, are an effective means to initiate behavioural changes. Thus, the Project will deploy campaigns to promote a shift in behaviours. The implementation of the campaign will look to integrate officials, citizens, artists, businesses and to promote champions.

Digital Assets

To support the Project with the public campaign and marketing activities, in line with the latest trends different tools will be deployed to reach out to target groups such as audio-visual material, photography, print and online ads, video stories paid search, social media, web banners, web platforms, etc. Audio-visual material will focus on the human aspect and how the project has benefited citizens. The www.ged.ba website will be regularly updated, and certain categories expended to include new target groups.

Sub-activity *- Develop and print project related publications, guidelines and raising awareness materials, translations, interpreters for publications and official meetings*

Educational and Promotional Materials

The existing promotional and educational materials will be updated, and new materials developed for a small and medium enterprises to provide decision makers with the information they need to make informed choices. Based on the specific needs and beneficiaries (men and women, businesses, public officials, media. etc) different positive aspects of energy efficiency measures will be highlighted while reducing pollution and costs will be prevailing theme. The following materials will be developed factsheet, leaflets, infographics, brochures, guides, professional publications,

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human development stories, also commemorative plaques will be placed at beneficiary premises. The GED project will continue to use exposure platform for publishing the photo stories https://ged.exposure.co/

Component 6. Renewable energy off-grid solutions (PC6)

Result 6. Access to energy provided for off grid households in BiH

Activity 6.1. Install fifteen photovoltaic solar systems in off grid households in remote areas in BiH

Large number of returnees and marginalized families in rural areas without access to electricity (almost 3,000 households in the country).

High investment costs are needed for bringing electrical grid to scattered households in rural areas. For illustration, a village in North-West BiH (Veliko Ocijevo), with some 20 households, would need a total of 350,000 € to be connected to the electricity grid. UNDP, through past initiatives implemented a Global Renewable Energy Challenge in 2012 seeking renewable energy solutions for war-returnee/marginalized families living in rural areas off the power grid. The successful proposal had to cover the energy needs of an average family and cost only 5,000 Euros, more than 3 times cheaper than what it would cost for commercial electricity installation. It also had to be flexible, reliable, easy to install, maintain and replicate, with good battery life and hot water capacity, and low maintenance costs.

Already installed solar systems through the second phase of the GED project have helped 24 families to supplement their income by selling cheese and other dairy products, which was impossible before the renewable energy system was installed. In total there was 71 beneficiaries (family members), out of which 40 men (or 55%) and 31 (or 44%) women. General income of targeted 24 households through GED 2nd phase project was 193,07 BAM per month/beneficiary (family member).

Without access to electricity, there are decreased opportunities for education of children. For adults and children, electric lighting in homes enables them to study after their daytime activities (Education - SDG 4). A lack of adequate, reliable and affordable supplies of modern energy disproportionally impacts women and children (Inequality – SDG 10). Energy also allows access to knowledge and information. No connection to social life (TV, radio, etc.).

On the basis of primary target area (global irradiation and solar electricity potential cross-checked with the area where most such returnee families live), vulnerability factor, number of family members (children, woman, man, elderly, etc.) UNDP will select families to be supported by the project.

Once the list of beneficiary families is developed UNDP will perform detailed assessment, in terms of identifying exact needs for installation of renewable energy kits. In some cases, certain works needs to be performed prior to installation of renewable energy kits (small scale reconstruction: plumbing, electrical installations – works that were not part of post-war reconstruction, but needed for full functionality of renewable energy kits). The next phase is followed by procurement process for design documentation which includes publication of a public tender/call for qualified bidders, evaluation of bids and Contract signing. Wherever possible and feasible, UNDP will seek for other party co-financing (municipalities, local organizations etc.). Should co-financing materialize, project savings will be directed to additional number of families that will be supported by this project activity. After contract has been awarded, the contractor will start with implementation of works on site. The quality of site supervision has a major influence on the overall performance and efficiency of projects. Inadequate supervision is believed to be one of the major causes of rework. Therefore, quality assurance will be ensured by UNDP through an independent on-site quality control (works supervision) engineer who will closely monitor all executed works, materials used and absence of the work schedule/plan. This engineer/s, engineering company will be independently contracted just for this purpose.

Component 7. Renewable energy sources and energy efficiency in SME's (PC7)

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Result 7. Supported implementation of at least 18 energy efficiency/renewable energy projects in SME's in BIH

The SMEs sector in BiH consumes on average up to 35% more energy for their production processes than required (based on conducted energy audits for various projects in the SMEs industry sector in BiH). Small and medium enterprises (SMEs)[7] represent a majority of businesses globally, as they account for around 90% of them and employ around 60% of OECD workers, which is likely to be even more in middle-income countries. In BiH itself, SMEs represented around 99% of all enterprises (with 90% employing less than 10 people) in the nonfinancial sector in 2015[8]. Therefore, they are crucial to the economy of every country. At the same time, they are amongst the most vulnerable victims of the global COVID-19 pandemic. For many reasons, such as their limited access to financing, heavy credit dependency, or their small cash reserves, they are far more susceptible to such crises than large enterprises.

Sweden's support will be provided for following project activities.

Activity 7.1 Implementation of Green Finance Incentive Scheme, conduction of detailed energy audits and introduction of the Energy management System ISO 50001 / EN 16001 in SMEs

***Sub-activity** - Implement Green Finance Incentive Scheme - Interest rate subvention for implementation of energy efficiency/renewable energy measures in SMEs to generate low carbon and renewable heat and electricity*

The incentives will be used for **interest rate subvention/return** as financial de-risking instrument. Financial de-risking instrument will be supplemented by direct policy de-risking instruments[9] (Activity 4 and Activity 9).

To be eligible for an interest rate return/subvention, the SME (project owner) must ensure the following:

- Project is approved by credit institution (commercial banks, IFI's, etc., if a project is financed by a loan) and UNDP, as effective in reduced environmental impact through implementation of the energy efficiency/renewable energy measures. The minimal threshold for energy/environmental indicators will be defined through adopted selection criteria for financial support, prior to the launching of the public call.
-
- After submission of project proposal, evaluation and approval, the proposed project must be completed and put into operation after which the interest rate subvention/return could be repaid. Maximum amount which could be repaid by GED Project for interest rate subvention/return as financial de-risking instrument, is up to 23,900 USD per SME. Maximum amount of the loan, which the SME will receive from the credit institution for eligible energy efficiency/renewable energy measures, is not limited. Proposed incentives could leverage minimum additional 3.58 million USD of loans for implementation of eligible energy efficiency/renewable energy measures through commercial banks and eliminate the interest rate risk, especially for women, who have reduced access to finance

- Eligible energy efficiency/renewable energy measures for financing are given in the following Table 3 Eligible EE/RES measures for financing through Green Finance Incentive Scheme

Table 3 Eligible EE/RES measures for financing through Green Finance Incentive Scheme

Operational Efficiency and Behavioral Change	Industrial/Process Energy Efficiency

[7] The following classification criteria has been used: small enterprises are those that employ up to 9 persons, medium enterprises employ from 10 to 49 persons

[8] Eurostat

[9] UNDP, Derisking Renewable Energy Investment (DREI)

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Low-cost measures through: • Implementation of the measuring and monitoring of energy use within SMEs • Support to introduction of the Energy management System ISO 50001 / EN 16001* *support for this measure will be provided separately through Activity 21	Investment in new industrial technologies and processes including: • Motors & drives • Compressed air • Refrigeration • Process heating • Process control
Building Energy Efficiency	**Renewable Energy**
Investment in new building technologies including: • Controls & automatization • LED Lighting • High efficiency heating, ventilation & air conditioning	Investment in new equipment to generate local low carbon and renewable heat and electricity: • Biomass • Heat pumps • Solar (thermal/PV) • Combined Heat &Power • Waste to energy

Process to be followed by SMEs, supported by the GED project, for interest rate subvention is given on **Error! Reference source not found.**:

Figure 4. Process to be followed by SMEs through Green Finance Incentive Scheme for interest rate subvention

Future activities of the project should be aimed towards higher mobilization of the private financing for energy efficiency/renewable energy measures by Sweden incentives through SMEs, ESCOs and other private financing sources by offering dedicated loans at local commercial banks, portfolio guarantees by Sweden, as well as other IFI's and international donors and higher leveraging energy efficiency financing provided by Sweden and other development partners. The project already started communication with EBRD in this regard, and in future mutual agreement between Sweden, EBRD, other interested Donors and IFI's, and UNDP the best options will be considered as well as the next steps between interested parties.

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Sub-activity *- Conduct detailed energy audits in SMEs*

The EU Energy Efficiency Directive obliges the Member States to develop programs to encourage SMEs to improve their energy efficiency by implementing energy audits and the recommendations that stem from these audits.

The EU Energy Efficiency Directive in Article 8, it addresses the requirements and promotion of energy audits. More specifically, it requires Member States to promote and ensure the use of high quality, cost-effective energy audits and energy management systems to all final customers. This covers both large as well as small and medium sized enterprises (SMEs).

The EU Energy Efficiency Directive in Article 8 provide transparent and non-discriminatory minimum criteria for energy audits including those carried out as part of energy management systems.

In Sweden, SMEs may obtain a subsidy of 50% of the cost of an energy audit[10], including the cost of their own staff effort up to a value of approximately EUR 5,000.

The Minimum criteria for energy audits including those carried out as part of energy management systems are given in Annex VI of the EE Directive. The energy audits shall be based on the following guidelines:

- be based on up to date, measured, traceable operational data on energy consumption and (for electricity) load profiles;
- comprise a detailed review of the energy consumption profile of buildings or groups of buildings, industrial operations or installations, including transportation;
- build, whenever possible, on life-cycle cost analysis (LCCA) instead of Simple Payback Periods (SPP) in order to take account of long-term savings, residual values of long-term investments and discount rates;
- be proportionate, and sufficiently representative to permit the drawing of a reliable picture of overall energy performance and the reliable identification of the most significant opportunities for improvement.

Energy audits shall allow detailed and validated calculations for the proposed measures so as to provide clear information on potential savings. The data used in energy audits shall be storable for historical analysis and tracking performance.

Sub-activity *- Introduce Energy management System ISO 50001 / EN 16001 in SMEs*

The EU Energy Efficiency Directive in Article 8, it addresses the requirements and promotion of energy management systems. The EED allows the establishment of support schemes for SMEs and calls for highlighting concrete examples of how energy management systems could help their businesses.

Through this activity, Sweden will support introduction of the Energy management System ISO 50001 / EN 16001 in SMEs in BiH in the amount up to 10,000 EUR through partial co-financing of the consultancy services. Introduction of the Energy management System is planned to be co-financed by respective SME. This activity could be combined with Activity 18 - Support to development of detailed energy audits in SMEs, since one of the key steps in introduction of the Energy management System is energy review – energy audit.

[10] ENERGY MANAGEMENT FOR SMEs, BEST PRACTICES FROM ENERGY EXPERTS, Dexema, Spain 2016

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3.2 Methodological approach

The project is building upon the findings, conclusions and recommendations of the Green Economic Development 2nd phase project, containing detailed overview of the measures that need to be taken in the country, institutional responsibilities for the measures and the necessary resources required for attaining the overall project objective.

The project will be implemented under UNDP's Direct Implementation Methodology (DIM) modality, in partnership and collaboration with respective partner institutions from the Government and international community. The proposal considers roles, responsibilities, and needs of various key ministries, institutions, and agencies in Bosnia and Herzegovina. Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MoFTER), Environmental Protection Fund of Federation of Bosnia and Hercegovina and Environmental Protection and Energy Efficiency Fund of Republika Srpska are the main stakeholders from the Government guiding the project implementation and are highly committed to contribute to project implementation and generate ownership on planned activities and resulting outcomes. In addition to these stakeholders, the project will involve the Ministry of Physical Planning of FBiH and the Ministry of Physical Planning, Civil Engineering and Ecology of Republika Srpska in the project implementation.

Considering that the main objective of the project is to create a favourable environment for investing in energy efficiency/renewable energy infrastructure measures in BiH, the project will seek to engage all partners into active participation of all implementation phases, and shall identify their roles, and take into account the data and information roles, responsibilities, and needs of various other relevant institutions and private sector where possible.

Adaptive collaborative management will be used as an approach to engage stakeholders as collaborators in the design and implementation of project activities, considering envisaged risks that may arouse, as well as gender issues to ensure equal participation of women and men in all activities and project structures. Wherever possible, subject to project preparation, gender-disaggregated indicators will be included in the project's monitoring and evaluation plans.

The project will use lessons learned from related projects, developed strategies and regional best practices to optimize project activities and results. Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/ or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

3.3 Target groups, beneficiaries

Based on the experience and the conclusions from the previous phases of the Project, beneficiaries of the project will be in both the public and private sectors, starting from the wider society, general public, workers, educators, students, vulnerable groups, and children. Target groups also include business entities and Small and medium-sized enterprises in BiH who seek to improve energy efficiency of their business buildings or their business processes.

Public end-users are targeted group which directly experiences the benefits of energy efficiency investments. End-users/ public sector buildings are the base in a bottom-up approach to increasing energy management capacities, understanding of legal obligations and developing sustainable monitoring and reporting mechanisms.

- During the implementation process the project will affect 9,600 women as direct beneficiaries of energy efficiency/renewable energy project benefits

Households living in rural areas without access to electricity or the power grid are targeted by project component 6 which aims to provide photovoltaic solar system (electricity generation) solutions to such remote areas. Installation of the PV solar systems gives those households opportunity to produce their own electricity free of charge and to use it for the basic household needs.

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- It is planned that during the duration of the project 5 households receives PV solar systems per year, which in total will make at least 15 beneficiaries across BiH.

Implementation of energy efficiency measures in facilities and production processes of SME's, are currently not directly supported via GED project co-financing, but implementation of energy efficiency measures for SME's can be supported by soft loans through established energy efficiency Revolving Fund. The GED 3rd phase project will support the development of technical documentation (feasibility studies, designs, detailed energy audits) for installation of solar system (electricity and thermal heat generation) solutions and energy efficiency measures in SME's in BiH, or provide either the Interest rate subvention or credit risk mitigation (Credit Guarantee Mechanism).

- By implementing these activities, during the duration of the Project, 18 SMEs will have direct benefit.

Wider society is included in public awareness campaigns with aim to increase knowledge and change perceptions, attitudes, and behaviours of BiH citizens about energy efficiency and renewable energy sources while promoting the economic, environmental, and social advantages to women and men living in urban and rural areas throughout the country. The GED 3rd phase project will continue with public awareness campaigns on benefits of energy efficiency, renewable energy, energy management and reduction of emissions to air.

- The Public awareness campaign will aim to reach at least 22,000 women and 20,000 men.

3.4 Geographical area of intervention and territorial demarcation with other relevant interventions (if relevant, particularly for local/regional/area-based programmes)

Project geographical area of intervention covers the entire territory of Bosnia and Herzegovina. The project is highly relevant for the energy efficiency sector in Bosnia and Hercegovina due to its overall goal of creating the favourable environment for investment in RE/ EE projects in BiH. The importance of this project is reflected in its objectives and the fact that the project is supporting the institutions of Bosnia and Herzegovina at all levels to manage energy efficiency, to plan, invest and create budgetary savings. In addition to this, the Project contributes to reduction of the number of households without access to electricity in BiH. Successful project implementation should play an important role in future independent decision making and investment in energy efficiency.

3.5 Resources Required to Achieve the Expected Results

Indicative budget overview for Project Components, based on contribution from Sweden and expected matching potential from end-users (municipalities/sub-national governments and institutions) is given below in the

Table 4.

Total contribution from Sweden, for next three years, is in amount USD 8,329,640.78.

However, within the GED 3rd phase project it is clearly required and mandatory to have co-financing from local governments/end-users in order to be eligible for implementation of the energy efficiency/renewable energy measures (application to the public calls, public sector buildings and public lightning systems registered in the EMIS, based on the indicators form EMIS analysis, ranking and selection for conducting detailed energy audits, conducting techno-economic evaluations, decision on investing, entering financial agreements, project design, project revisions, tendering, and finally infrastructure works and commissioning).

Sweden's contribution would be co-financed by end-users, municipalities, state, entity and sub-national governments and institutions for implementation of energy efficiency/renewable energy infrastructure measures (Project Component 4). Co-financing ratio of energy efficiency/renewable energy infrastructure investments by local governments/end users are as following:

- Energy efficiency/renewable energy measures in public sector buildings minimum 75%
- Solar systems in public sector minimum 67%
- Energy efficient public lighting systems minimum 67%

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Based on above co-financing ratio from local governments/end users the direct additional leveraged co-financing would be in amount of USD 7,301,979 for implementation of energy efficiency/renewable energy infrastructure measures (Project Component 4).

Moreover, through Project Component 7, with implementation of the Green Finance Incentive Scheme - Interest rate subvention for implementation of energy efficiency/renewable energy measures in SMEs the proposed incentives could leverage indirectly additional co-financing in amount of USD 4,143,000 for implementation of eligible energy efficiency/renewable energy measures through commercial banks.
Total contribution from Sweden in amount USD 8,329,640.78 will leverage directly or indirectly additionally USD 11,444,979. This leveraged amount, through direct or indirect co-financing by local governments/end users, represents 173% increase of Sweden's contribution.

Table 4. Indicative budget overview for Project Components with SWEDEN's involvement

Project Component	SWEDEN [USD]	End-users/sub-national governments [USD]	TOTAL [USD]
PC1	47,053	-	47,053
PC2	-	-	-
PC3	42,282	-	42,282
PC4	909,855	2,293,900	3,203,755
PC5	55,923	-	55,923
PC6	26,243	-	26,243
PC7	30,412	430,120	460,532
Total Year 1	**1,111,767**	**2,724,020**	**3,835,788**
PC1	473,773	-	473,773
PC2	-	-	-
PC3	42,282	-	42,282
PC4	2,871,138	2,983,900	5,855,038
PC5	63,516	-	63,516
PC6	75,847	-	75,847
PC7	297,803	1,290,330	1,588,133
Total Year 2	**3,824,359**	**4,274,230**	**8,098,589**
PC1	118,642	-	118,642
PC2	-	-	-
PC3	42,282	-	42,282
PC4	1,682,047	2,296,179	3,978,226
PC5	63,516	-	63,516
PC6	51,045	-	51,045
PC7	329,219	2,150,550	2,479,769
Total Year 3	**2,286,751**	**4,588,950**	**6,733,480**
Project Management	**389,769**	**-**	389,769
Evaluation	**23,621**	**-**	23,621
DPC - Direct Project Costs 1%*	**76,363**	**-**	76,363
GMS	**617,010**	**-**	617,010
TOTAL	**8,329,641**	**11,444,979**	**19,774,620**

3.6 Partnerships (stakeholders' engagement)

Project will continue partnership with the following institutions: (starting from the State Government level):

- **State Government level**, the Ministry of Foreign Trade and Economic Relations of BiH (MoFTER).
- **At entity level,** the Environmental Protection Fund of FBiH and the Environmental Protection and Energy Efficiency Fund of RS

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- Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska, Federal Ministry of Spatial Planning, Federal Ministry of Energy, Mining and Industry and Ministry of Industry, Energy and Mining of Republika Srpska
- **Cantonal and municipality level**, project so far collaborated with all levels of government in BiH.

Ministry of Foreign Trade and Economic Relations of BiH

Ministry of Foreign Trade and Economic Relation of BiH is one of total nine state ministries in the Bosnia and Herzegovina. According to the Law Ministry, MoFTER is, among other things, responsible for defining policies and basic principles, coordinating activities and consolidating entity plans with those of international institutions in the areas of agriculture, energy, protection of environment and use of natural resources and tourism.

Department for secondary energy and projects, within the Ministry, is one of the project partners. Department is in charge for sustainable energy (renewable energy and energy efficiency) issues, as well as for creation, coordination and/or implementation of energy projects together with relevant entity ministries.

Environmental Protection Fund of FBiH

The Environmental Protection Fund of FBiH derives its operating income mainly from fees charged to polluters and natural resources users, as well as from fees levied on motor vehicle registration and donor funds from international cooperation. Total income for the Fund amounted to about BAM 60 million (about USD 36 million) in 2016. The Fund has about 35 employees, and the administrative budget represents 6.7% the Fund's annual income. It has implemented 800 projects over the 2010 – 2017 period.

The Fund requires at least 20% co-financing by the end-user of a project (30% is required if the end-user is a private sector entity). The Fund is managed by a Steering Committee/Management Board and controlled by the Supervisory Board. The day-to-day operations are managed by the Director, who is appointed and by the Management Board with the approval of the Government of FBiH. The Fund is audited by auditors appointed by the Federation.

The Fund is administratively, economically, and technically capable of working with energy efficiency and already participates in the GED Project. UNDP has entered into a five-year agreement with the Fund to implement the GED Project.

Environmental Protection and Energy Efficiency Fund of RS

The Environmental Protection and Energy Efficiency Fund of RS currently has only one income source, which is an allocation of 10% of the feed-in tariff that is accorded to energy producers that utilise renewable energy sources. The Fund is also allocated 15 % of the the water protection fees levied in RS on owners of motor vehicles, once this mechanism is enforced (which is expected beginning of 2015). Other potential sources of income are 'polluter pays' fees and fees for waste disposal as well as donor funds. Total income for the Fund amounted to about BAM 6 million (about USD 1.8 million) in 2016. The Fund has around 30 employees.

The Fund requires at least 30% co-financing by the end-user of a project. So far, the Fund has only financed projects related to water quality, mainly in the private sector. The Fund is managed by the Steering Committee, which consists of seven members that are appointed by the Government of RS. The members are representatives of relevant ministries and authorities. The Director of the Fund is appointed by the Government of RS on the basis of a public competition.

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Table 5. Stakeholder analyses

	Stakeholder	Assumptions	Expected results
Government Institutions	Ministry of Foreign Trade and Economic Relations of BiH (MoFTER)	MoFTER will be involved in its capacity as the State Ministry directly responsible for BiH's participation in UNDP-assisted projects and as well as in effective coordination and communication between the established working groups. Activities with MoFTER are primarily on the institutionalization of energy management, energy monitoring, planning, reporting mechanisms and capacity building.	Established effective coordination and communication between the working groups members. MoFTER will enable directly or indirectly implementation of all other activities within Project on the short/mid-term i.e.: EE Action Plan for public buildings on state level, implementation of the requirements stipulated in the Decision on mandatory data entry and regular reporting for end users, EE investments in public buildings on state level directly through co-financing or Revolving Funds (EF's), public awareness, etc.
	Environmental Protection Fund of FBiH Environmental Protection and Energy Efficiency Fund of RS	The Environmental Funds' in BiH are project implementation partners whose role is to develop capacities and gradually contribute more and more to project implementation activities as their skills raise during project implementation. Environmental Funds' representatives work on closely with UNDP project staff, where technical assistance in the field of energy efficiency, renewable energy, energy management and management of EMIS (Energy Management Information System), understanding of Laws, by-laws and EU directives is provided.	Environmental Funds' absorb the assistance in the form of consultative, advisory and technical support, through annual training for Fund staff and project implementation and skills development via on the job training/assistance on all phases of project.
	Ministry of Spatial Planning, Construction and Ecology of RS Federal Ministry of Spatial planning of FBiH Federal Ministry of Energy, Mining and Industry Ministry of Industry, Energy and Mining of Republika Srpska	Consultation the ministries will be conducted to identify specific needs, development and environment related sectoral policies, regulations and guidelines, as well as to identify a range of potential investment projects in each of the targeted sectors. In addition, through cooperation with the ministries the project will identify specific needs, synergies within energy efficiency and renewable energy projects, ESCO projects, related sectoral policies, regulations and guidelines.	Identified specific needs, developed environment related sectoral policies, regulations and guidelines, and identified a range of potential investment projects in each of the targeted sectors.
	Cantonal ministries and municipalities	Cantonal ministries and municipalities need financial support due to low affordability to conduct EE/RES investments without co-financing.	Cantons, ministries, and municipalities have important role in implementing all project components and activities within the GED Programme, direct benefit to participate in the development and establishment of monitoring and reporting mechanisms due to legislative obligation and resulting financial support due to low affordability to conduct EE/RES investments without co-financing.
Project board	Embassy of Sweden in BiH; Ministry of Foreign Trade and Economic Relations of BiH (MoFTER); Environmental Protection Fund of FBiH; Environmental Protection	A Project Board will include representatives of relevant Government ministries and provide strategic direction and oversight to project management. Membership will also include Embassy of Sweden in BiH	Project oversight and guidance. Provided overall guidance and ensured coordination between all parties. Provided overall supervision for project implementation, monitor

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	Stakeholder	Assumptions	Expected results
	and Energy Efficiency Fund of RS; Ministry of Spatial Planning, Construction and Ecology of RS; Federal Ministry of Spatial planning of FBiH; UNDP	and UNDP representatives. PB will meet at least semi-annual to review project progress, approve workplans and budgets, provide direction and guidance, and assist in project implementation, as well as provide synergies with other complementing initiatives.	project progress, guide project implementation and to support the project in achieving its listed outputs and outcomes. Additional approvals (progress reports, budget reports, etc.)
Target groups	The target groups cover governments at all levels, municipalities, Energy Service Companies (ESCOs), public facilities, building owners, public utilities, small and medium enterprises, producers, distributors, installers, as well as engineers and professionals.	Public awareness campaign is needed in order to increase knowledge and change perceptions, attitudes and behaviours of BiH citizens and other targeted groups about energy efficiency and renewable energy sources while promoting the economic, environmental and social advantages to citizens living in urban and rural areas throughout the country.	Designed Communications Plan will define objectives, target audience, key messages, optimal channels and tools, visibility guidelines, spokespersons, monitoring mechanisms. Monitoring mechanisms will track improved awareness and behavioural changes among target groups. The focus will be given on increasing of understanding of target groups about sustainable development impact of energy efficiency, renewables investments on improved comfort, health and education impact, gender dimension and other.
Private Sector	Private companies/ Small and medium-sized enterprises	SMEs in BiH represented around 99% of all enterprises (with 90% employing less than 10 people) in the nonfinancial sector in 2015. They are crucial to the economy of every country and incentives for implementation EE/RES measures would significantly support them in fighting against losses due to the global COVID-19 pandemic, as well as their limited access to financing, heavy credit dependency, or their small cash reserves, they are far more susceptible to such crises than large enterprises.	Implementation of the new projects under Green finance incentive scheme window which will help SMEs to increase their energy efficiency, increase share of renewable energy, to decrease they carbon footprint, lower they energy costs which will increase they competitiveness on the local, regional and EU market.
Media	Social media/ web portals	Media will announce information about the Project's activities and disseminate the achieved outputs, results and benefits.	Promotion of the Project to a wider public audience.
Other Organizations	NGO sector	NGO sector can be involved in the project, if needed, for awareness rising activities and after initial screening of NGOs actively involved in the targeted sectors.	Initial screening of NGOs actively involved in the targeted sectors.

3.7 Transversal themes: gender equality, social inclusion, human rights, disaster risk reduction

Gender equality

The Gender Equality Law in BiH was adopted in 2003 and amended in 2009, in order to meet the standards of the European Union and the Council of Europe. The Law does not consider the issue of energy production and utilization, as well as participation of women and men in the decision-making process in this particular field. Nevertheless, the Law does state that both women and men have to be equally represented (40% of less represented sex) in all decision-making bodies.

In addition to this, GAP does not recognize the importance of education of women and men in the specifics of energy consumption. GAP also failed to recognize importance of equal participation of women in this particular process. Women are underrepresented in all areas of energy production industry, since this area has always been

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perceived as a "male occupation". The energy sector, architecture and the building industry are predominantly male dominated areas in BiH. Gender stereotypes in education and labor market access reinforce the conception that modern energy efficiency solutions and technology are seen as areas of men's competence. The employment gap in the industry is particularly high: the sector employs three times more men than women. Since EE solutions are yet to be developed and widely introduced in the country, it is important to use the momentum to change gender stereotypical thinking in the industry.

Several issues are interlinked when it comes to energy and gender equality. Particularly in traditional societies like BiH, men and women have different needs for energy, and also different access to energy resources that affect the individual, the household and the community. Women living in rural settings have limited access to affordable and non-polluting modern energy services, which brings them extra hours of exhausting housework and thus constrains them from accessing decent wage employment, educational opportunities and livelihood enhancing options, and limits their options for social and political interaction outside the household. Equal access to energy is a prerequisite for achieving economic empowerment and poverty reduction, particularly for women. Thus, from the standpoint of consumption, the design, production, distribution and sales of sustainable energy technologies (for example, clean cooking stoves and lighting devices) would benefit from having women contribute to shaping the clean energy value chain. Indoor pollution from the burning of solid fuels is a serious health problem for women and girls. Every year, 4.3 million people – mainly women and children – die as a result of indoor air pollution.

Studies consistently confirm that women's empowerment is crucial for economic growth and sustainable development. In view of this, the GED programme aims to incorporate gender mainstreaming through the project cycle and thus contribute to gender equality achievements in the sector.

The GED 3rd phase project targets entire communities, users and employees of public buildings and energy professionals irrespectively of their gender. Men and women are equally affected by the implementation and results of the intervention. Therefore, the project does not have a particular gender focus, but will ensure women's full and effective participation and equal opportunities as project beneficiaries, via their participation in decision making, trainings, awareness raising.

However, considering the different needs of men and women who work, study or visit public buildings, the project has a gender relevance. Consequently, gender mainstreaming during planning, implementation and evaluation/monitoring is necessary. Mainstreaming in the project context implies that all potential interventions are considered equally from man's and women's point of view. The underlining goal and reason to use gender analysis is to improve women's welfare, quality of life, productivity and in this way to ensure project efficiency.

In certain areas of the intervention, such as security, wellbeing, lighting and temperature in public buildings the project has to be informed by gender considerations. Furthermore, awareness raising campaigns and trainings for energy professionals will to be gender sensitive and inclusive. In the case of these areas, general project goals shall be matched with gender equity goals. The project will seek develop cooperation with the Green Council project "Empowering women in rural areas" whose aim is to empower women to take an active part in issues related to climate change and environmental protection versus the circular economy, entrepreneurship and inclusion in the business world, and organise focus groups and workshops to further introduce significance of energy efficiency and understand their perspectives and needs, since women are most likely to be solely responsible for providing unpaid care work in the household (household, child, sick, and elderly care).

The Sustainable Development Goals (SDG) include energy security for all, health, sustainable livelihoods, for women and men. With SDG 5 aiming to achieve gender equality and empower all women and girls, this project aims at taking into consideration the interplay between techno-economic and social-political aspect, by considering institutional settings (i.e. care economy), gender-biased power relations, and cultural values throughout all its interdependent and correlated project activities.

Social inclusion

GED 3rd phase project, as well as the previous phases of the project, targets wide community. Projects contributes to inclusive and sustainable growth, which helps people to contribute to and benefit from economic growth with minimal impact on the environment. By creating the conditions for inclusive growth project bridges economic, social and environmental gaps for sustainable development. Both social and environmental sustainability will be

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enhanced through application of the UNDP Social and Environmental Standards (http://www.undp.org/ses) and related Accountability Mechanism (http://www.undp.org/secu-srm).

Human rights

According to the Article 2 of the Constitution of BiH, the state and the entities shall ensure highest level of internationally recognized human rights (etc.) to its citizens. Both entities' Law on Environmental Protection stipulate that all people have the right to a healthy environment (including clean air) as their fundamental constitutional right. It further specifies that all human beings are entitled to living in an environment suitable for their health and well-being, and that it is an individual and collective duty to protect and improve the environment for the benefit of present and future generations. Adopting a human rights approach in the overall GED 3rd phase project implementation, thus conveying the message that universal access to energy services, with the focus on clean energy or renewable sources of energy, is becoming a common right of citizens globally. Project activities will directly lead to the air pollution reduction and directly contribute to achieving the exercise of this fundamental human right. Beside leading towards cleaner environment, this also contributes to reducing discrimination in terms of access to energy services.

A human rights perspective has been considered in the project document design, specifically with regards to ensuring that public policies, legislation, financing mechanisms and service outcomes to be supported within the project are non-discriminative and offer equal opportunities (access to services, funding, employment opportunities) for all, regardless of their age, ethnic, sex or social status. Highly participatory approach in policy-making, legislating or funding assisted by the project reinforces the principle of transparency. Ensuring wide publicity in the course of project work and making publicly available policy deliverables and measurable results reinforces the accountability principle.

Disaster risk reduction and environment protection

Bosnia and Herzegovina regularly tops charts in breaching air quality standards and with GHG emissions per unit of GDP almost four times higher than EU average and the highest air pollution in Europe. High levels of air pollution, especially in winter months present a serious threat to human health and sustainable development.

Bosnia and Herzegovina (BiH) is regularly exceeding the guidelines developed by the WHO and the EU's air quality standards, especially in urban areas, and the country has one of the highest mortality rates associated with air pollution in Europe[11]. According to the WB report, in 2019 BiH had the highest air pollution in Europe with GHG emissions per unit of GDP four times higher than EU average[12]. The above has been caused mainly by industrial air emissions and emissions from heating using firewood and lignite. Inefficient public building sector using huge amounts of energy and burning of fossil fuels for heating purposes, is one of the key sources of pollution in Bosnia and Herzegovina, particularly during winter months, which increases the concentration of GHG in the atmosphere. By increasing energy efficiency, reducing energy consumption, using existing opportunities in BiH for renewable energy sources, and improving air quality, the Project will contribute to reducing GHG and thus reducing vulnerability to climate change.

Conflict prevention

GED 3rd phase project will apply a conflict-sensitive approach to its implementation, with consideration that the international community can support local peace-building through the role that energy efficiency can play in policy making, public service delivery, sustainable development, etc.

Since conflict prevention is about making society resilient to conflict by strengthening the local capacities for peace (systems, resources, structures, attitudes, skills), the project will cautiously partner and improve dialogue among relevant stakeholders, and balance between different state structures. The project will contribute to cooperation among BiH entities (RS and FBiH) and among cantons in FBiH, as well as municipalities thought BiH in order to assure a harmonized and common energy management system in BiH.

11 http://documents1.worldbank.org/curated/en/117281576515111584/pdf/Air-Quality-Management-in-Bosnia-and-Herzegovina.pdf

12 Climate Change Adaptation and Low-Emission Development Strategy for Bosnia and Herzegovina, 2013

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Anti-corruption

The project intents to further strengthen energy management decision making processes with clear allocation of responsibilities in the decision making process (methodology on selection of public sector buildings and public lightning systems for implementation of energy efficiency/renewable energy infrastructure measures, further described in Annex 1), eligibly criteria for financing energy efficiency/renewable energy projects and a clear and IT (EMIS) back-up monitoring of results (monetary cost savings and energy savings), which all contribute to the creation a transparent system with all parties involved.

Moreover, during project implementation UNDP's internal standard operating procedures and processes will assure anticorruption. Since 1996, UNDP has delivered more than 320 million USD in development assistance to Bosnia and Herzegovina. While UNDP finances some intervention activities with its core funds or other UN special-purpose resources, majority of its funding comes from partnerships with multilateral funds and bilateral donors, who recognize UNDP as a reliable and strategic development partner.

The UNDP operational system is composed of an accountability framework and an oversight policy. The accountability framework underscores the commitment of UNDP to results-based performance management, as well as to the shared values of accountability and transparency. The oversight policy of UNDP includes conducting independent internal and external audits providing assurances to the Executive Board and the Administrator that functional systems of internal controls are in place, including evaluation of the policy framework, efficient utilization of resources, and adherence to professional and ethical standards. Government counterparts participate directly in the design, as well as in the implementation and monitoring of UNDP activities through joint project boards, regular meetings with project and programme staff to review the results achieved and to take decisions on future actions.

The Programme and Operations Policies and Procedures provide the operational standards and give procedural guidance on core business processes globally, and are the basis for all aspects of UNDP operations. UNDP also uses the Atlas software system as a results-based platform to support the management of projects, finances, human resources, inventory and procurement, and this forms the basis for UNDP's internal control and accountability framework. UNDP has a long-standing commitment to transparency, with Country Offices publishing financial, procurement and programme information annually. The Transparency Portal allows open, comprehensive public access to data on more than 4,000 active UNDP projects globally. The organisation has also adopted the International Public Sector Accounting Standards (IPSAS), as a significant step towards further enhancing UNDP's transparency and accountability.

Poverty reduction

Green Economic Development 3rd phase project will contribute to poverty reduction in Bosnia and Herzegovina in several ways: a) green jobs generation which directly contributes to economic growth and sustainable poverty reduction, and b) increased and more efficient public investment in health, education, and other priority social sectors.

By providing and leveraging additional investment in energy efficient building retrofits (for the total of 22.5 million USD over 2015-2020) the GED project directly generated a substantive amount of money for low-skilled workers (i.e. the category of people who are more likely to be unemployed and face the risks of poverty[13]).

Increased and more efficient public investment in health, education, and other priority social sectors. BiH Mid-Term Development Strategy (Poverty Reduction Strategy Paper) calls for reorientation and increased efficiency of public spending in priority social sectors, such as healthcare and education. GED project has provided a tangible and practical example how such reorientation can be achieved: as a result of GED project interventions, a total of 5 million BAM/year has been re-allocated from non-core expenditures in public services sectors (i.e. payment for energy bills by public building end-users) to investment in core activities, i.e. spent on procurement of new medical equipment, educational needs, etc, leading to increased share of the governmental spending on essential services, such as education and health. The GED 3rd phase will continue to build on this success since it will link energy

[13] Western Balkan Labor Market Trends 2017. World Bank 2017. Available at http://pubdocs.worldbank.org/en/336041491297229505/170403-Regional-Report-Western-Balkan-Labor-Market-Trends-2017-FINAL.pdf

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efficiency and renewable energy with poverty reduction through contributing to reduced consumption of energy within public buildings and public utilities, which in turn creates savings in public budgets and subsequently unlocks capital for further public service delivery improvement. *These investments also lead to reductions in gender poverty and time poverty. They also minimize the risk of energy poverty which is higher for women and vulnerable groups.*

3.8 Innovation and untraditional approaches, as well as potential link with the Accelerator Lab

The Project will allow more space for innovation and experimentation on the ground. Capitalising on the knowledge and skills of the UNDP Accelerator Lab's global network and the team in Bosnia and Herzegovina, the Project will seek to experiment with new approaches and identify scalable solutions.

An interactive and people-friendly approach will be used for information and education of the public, to achieve faster and wider visibility.

The Project will seek to encourage digitalization and introduction of technology-based solutions in the work of local governments, as well as at higher government levels.

3.9 Synergies with other on-going or planned interventions

This project does not disturb or undermine any other efforts that offer energy efficiency financing but would rather contribute to create awareness on energy efficiency financing, reduce risks and create synergies with existing and other new financing sources that would emerge in BiH. Moreover, the GED 3rd phase project would set the basis for other schemes in BiH (i.e. Obligation scheme), while contributing to set up a structure and in the long-term, a marked based financial scheme for energy efficiency investments.

Currently there are few donors providing finance for public buildings infrastructure projects.

BEEP (World Bank)

Bosnia Energy Efficiency Project (BEEP) has been financed by the International Development Association (IDA). Financing agreement worth 32 million dollars was signed and implemented energy efficiency measures in 61 public buildings in BiH from 2015. Second credit agreement worth 32 million dollars was effective from mid-2020. Both Ministries of physical Planning (FBiH and RS), are designated Implementation units, which are responsible for the preparation of coordination, management and implementation of the Project. The development objective of the Project is to demonstrate the benefits of improving energy efficiency in the public sector facilities and to support the development of flexible models for financing the energy efficiency. GED project, jointly with BEEP co-financed implementation of energy efficiency measures on 14 public buildings with total investment cost over 11 million BAM.

EU4Business

Micro, small and medium-sized enterprises in Bosnia and Herzegovina create jobs and drive economic growth. Still, they can do better, as compared to neighbouring countries. With the aim of strengthening BIH's economy, the EU4Business project stimulates the development of entrepreneurship, export-oriented sectors, tourism and agriculture. Overall, USD 11.9 million is available in grants. Final beneficiaries are BIH companies, farmers and entrepreneurs, with a special focus on women and youth. The results will be measured with new jobs, increased exports and sales and better use of the EU funds in the future. EU4Business is worth USD 19.2 million. It is jointly funded by the European Union (USD 17.9 million) and the Federal Republic of Germany (USD 1.3 million). The project is jointly implemented by GIZ, UNDP and ILO, from April 2018 to March 2022.

SME Competitiveness Support Programme (EBRD)

Through loans and grants, the SME Competitiveness Support Programme helps to increase the competitiveness and capacity of SMEs in their trade with EU clients as well as in their home markets by making targeted project investments easier. The SME Competitiveness Support Programme was developed specifically to assist privately owned SMEs to meet the new regulations and to understand the improvement requirements in the field of environmental protection, occupational health and safety and product quality and safety. The new credit line

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provided by the EBRD via local Partner Banks together with a 15% grant and free technical assistance funded by the European Union, helps SMEs identify their investment requirements for upgrading towards compliance with the Priority EU Directives. EU Directives can seem daunting at first glance. However, frequently a simple solution can fulfil the requirements, sometimes a more complex approach is required. The free technical advice, provided by an international team of experts helps SMEs in the Republic of find the best solution to meet EU directives, become competitive in their trade with EU partners and increase their profitability at home through higher quality product and service offerings.

WeBSEFF (EBRD)

Is a credit line facility of up to €135 million to participating financial institutions in the Western Balkans to on-lend to businesses and municipalities investing in energy efficiency and renewable energy projects. Raiffeisen Bank and UniCredit Bank Mostar are the partners in this project. Loans are available to both public and private sector. WeBSEFF provides financing of up to 2.5 m to municipalities, ESCOs, providers of municipal services and owners of public buildings looking to invest in:

- Modern technologies that cut energy consumption or CO2 emissions by at least 20%
- Retrofitting of buildings, provided the investment will make them at least 30% more energy efficient
- Stand-alone renewable energy projects

The purpose is to help them to become more energy efficient and save on the cost of:

- Providing municipal services, such as transport, utilities and waste management
- Heating and cooling public buildings

KfW credit line

By the end of 2019 the German development bank KfW provided a USD 23.3 million grant for the energy renovation of buildings in FBiH and RS. It is expected that approximately 40 buildings will be renovated, while about 15% of the funds will be used for accompanying services, such as the implementation consultant, design work, supervision, detailed energy audits, and building energy certification.

Moreover, in the second quarter of 2019, Raiffeisen Bank presented (as KfW partner) a 1.9 million USD credit line for energy efficiency projects. Loans are approved for a maximum period of 7 years, including a grace period of up to 3 years. The additional advantage for clients (private investors) is that the cost of preparation of project documentation is included in the cost of the loan.

Scaling-Up Investment in Low-Carbon Public Buildings (GCF, UNDP)

The Low-Carbon Project received a total of US$ 17.346 million of GCF grant resources to overcome identified barriers to investment in low-carbon retrofits of public buildings in BiH. The objective is to scale-up investment in low-carbon public buildings via design and implementation of the National Framework for Low-Carbon Investment in Public Buildings, comprising an integrated package of policy, regulatory, technological, informational, financial and managerial solutions designed to address country-specific risks and barriers to investment.

Under the Framework, all public buildings (regardless of jurisdiction) will be able to receive technical assistance for energy efficiency and renewable energy project preparation. Those projects that meet minimum technical, financial, socio-economic and environmental requirements will be eligible to receive GCF funding to co-finance investment and the GCF grant up to 20% will be used at the minimum level to make those projects viable. The financial requirements, i.e. simple pay-back of 8 years and above, has been defined in such a way as to ensure that GCF resources are not blended with international finance institutions (IFI) financing for a specific building retrofit project, but rather complement and fill in the remaining financing gap which can't be addressed through IFI's concessional funding, but is required to make such investment viable.

Energy Efficiency Model in Canton Sarajevo

In 2018, Sarajevo Regional Development Agency SERDA, developed model for improving energy efficiency in residential buildings in the Sarajevo Canton in order to increase the number of users (mass) is a universally applicable, transparent, non-discriminatory and socially sensitive framework for promoting and supporting energy

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efficiency projects in Sarajevo Canton. Through this model, total investments are covered by grants from the Ministry of Spatial Planning, Construction and Environmental Protection of Sarajevo Canton and three Municipalities (Stari Grad, Centar and Novo Sarajevo) in the amount of 45%, while the minimum 55% should be covered by end-users/residents. The goal of the energy efficiency Model is to reduce the consumption of solid fuels, especially in urban areas. In addition to this primary goal, the implementation of the energy efficiency Model will lead to increased economic activities in Sarajevo Canton (employment), urban uniformity and a better picture of Sarajevo Canton, and higher real estate values (longer life of buildings). In agreement with the Ministry of Physical Planning, Construction and Environmental Protection of Sarajevo Canton, in 2021, the goal is to achieve synergies between this GED's o "Model for subsidizing the replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households in Sarajevo Canton" and SERDA's Energy Efficiency Model in Canton Sarajevo, where energy efficiency measures could be combined on selected households.

Sweden's involvement would significantly contribute to speed up the development of energy efficiency financial mechanisms/models for public sector buildings and public lightning while setting an example for residential and commercial buildings (private sector), and would proof to BiH based financial institution (government and commercial) that energy efficiency investments are economically and financially attractive and cost-effective.

A joint programming with EU, GiZ and USAiD for energy efficiency/renewable is currently being developed under the coordination of MoFTER with the aim to strengthen further synergies in BIH.

Localized "Green Deal" - Decarbonization of industry and residential sector in pilot areas

This USD 465,000 UNDP funded initiative focuses on development and implementation of mechanisms for financing energy efficiency and decarbonization measures in residential and SME sectors in two selected cantons and will be implemented during 2021.

3.10 Risks and Assumptions

The following Table 65 provides a detailed overview of the risks for the Project and measures for mitigation and indication on how the risks will be managed.

Table 6. Detailed overview of the risks for the Project and measures for mitigation

General Risks	Probability	Type	Project response
Lack of MoFTER and/or Environmental Funds commitment to develop, empower and enforce energy efficiency thematic area	Low	Political	Create a vital commitment, knowledge and understanding of importance of developing energy stakeholder's capacities in the thematic area of EE/RES
Lack of motivation by MoFTER's employees and energy professionals to develop and gain additional skills	Low	Behavioural	Disseminate to BiH's private and academia sector information on knowledge and skills development required to enter new market niches within the EE/RES area of work.
Lack of commitment by sub-national level (cantons, ministries, municipalities) or national level authorities to establish energy monitoring and reporting mechanisms	Low to Medium	Strategic	Continues dialog, awareness raising and capacity development activities with sub-national and national level authorities
Lack of capacity and skills by sub-national level (cantons, ministries, municipalities) or national level authorities to absorb obligations and required activities	Medium	Operational	Continues dialog, awareness raising and capacity development activities with sub-national and national level authorities
2020 Local Elections may pose risks to the Project implementation due to change in political leaderships and their commitment to the Project	Medium	Political	The Project will apply adequate mitigation measures, such as signing Agreements with institutional partners, thus formalising their commitment and contribution to the Project. The project will also reserve the right to remove and replace local governments with uncooperative leaderships.
Decrease of USD exchange rate against EUR / BAM	Low	Financial	The Project will apply pro-active early warning and financial planning and management system.

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General Risks	Probability	Type	Project response
Financing mechanisms supporting EE/RES project investments not in place	High	Political	Grant co-financing modalities already in place which assures the basis that most of the GED project indicators can be meet
Lack of co-financing possibilities by end-users	High	Financial	Expected financial crisis will significantly reduce level of investments by higher government levels for local development in various sectors. Nevertheless, relevant local development measures and priorities are outlined in the existing sectoral strategies, therefore it is expected that some financial resources will be in place. The Project will seek commitment and engagement of relevant authorities from the outset, insisting on early transfer of funds. Energy efficiency action plans oblige sub-national authorities to invest info EE/RES measures within public sector buildings
Lack of end-user's interest to invest into EE/RES measures	Low	Behaviour	Continues dialog, awareness raising and understanding creation on EE benefits with sub-national/local level authorities, in addition Energy efficiency action plans oblige sub-national authorities to invest info EE/RES measures within public sector buildings
Lack of end-user's interest to participate in the project activity	Low	Strategic	Database on off-grid households' location and energy needs updated
GED project missing to communicate to wider audience the benefits related to improving EE/RES	Low	Operational	UNDP's communication & PR team supports the GED project throughout its raising awareness activities All activities under the media campaign will be communicated in an understandable manner to the wider audience Media buying, and outreach are timely planned; with Sweden's involvement additional outreach and media campaign coverage will be assured
Risk of higher interest rates	Medium to high	Financial	There is a risk that lending institutions may quote a higher interest rates which will influence and leave less available funds for other interventions, excluding subsidy. This risk can be mitigated through disseminating market information about project activities on a wider scale and allowing SMEs to get access to multiple lending institutions.
Potential delay in implementation caused by COVID 19	Low to Medium	Operational	The project will use all available tolls and approaches, and, if needed, develop additional tools and approaches to enable distance learning and remote implementation of activities in times of such events. In addition to this, the project will take all necessary steps to insure all recommendation from the official authorities and epidemiological services.
Force Majeure (e.g. natural hazards and disease outbreaks conditions) impacts Project activities	Low	Environment	The Project will sequence the activities in such a manner that the bulk of infrastructure/construction works are delivered during the peak construction season to mitigate the impact of this risk to the project implementation.

3.11 South-South and Triangular Cooperation (SSC/TrC)

The project will directly support SSTrC through three cooperation modalities: (i) bi-lateral knowledge exchanges and exploration of technology transfer with other UNDP and/or Sida projects in the region; (ii) cooperation with and contribution to other UNDP and/or Sida funded projects and initiatives in developing countries including

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sharing project successes and lessons learned; and (iii) contribution to and learning from information exchange platforms that promote sharing of results and lessons learned within the country and region.

The project will ensure outreach to other relevant UNDP and/or Sida projects, including those under implementation in Serbia since UNDP Project team has already established good cooperation in energy efficiency sector through previous phases of the Project, and mechanism of exchange of experience and lesson learned has been set up. Namely, UNDP office in Serbia is currently implementing similar project "Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia". The objective of energy efficiency Project is to introduce and support the implementation of municipal Energy Management Systems (EMS), including Energy Management Information Systems (EMIS), throughout Serbia to increase the energy efficiency investments in public buildings and municipal services and to facilitate their more energy efficient operation in general. The project uses the the EMIS that was developed by the UNDP-GEF Energy Efficiency Project in Croatia ('Removing Barriers to Improving Energy Efficiency of the Residential and Service Sectors').

Furthermore, through the Project will be explored possibility of Donor Coordination in BiH and in region since several donors, such as GCF, World Bank, WeBSEF, KFW, GIZ, EU, USAID and British Embassy, are also funding projects in the area of energy and energy efficiency/renewable energy. In that terms the project will explore possibilities of cooperation with donors and agencies in the field of energy and energy efficiency/renewable energy and ensure that there is no overlapping of activities in this area.

The project will seek to disseminate its results using existing information sharing networks and forums of relevant focus in BiH, regionally and globally. In terms of finding ways to capture knowledge and improve chances of it being utilized in post-project lifetimes, all information will be placed on UNDP, and GED project web site. The website will be updated with all the relevant technical, regulatory and administrative information, as well as with all the training and awareness materials developed, to enhance the opportunity for replication of project results throughout the country and beyond. This will add to the on-site communication activities related to awareness raising events, workshops, broadcasting, etc. It will also act as a platform for holding webinars and conferences on specific project activities, if applicable. This will also contribute to Sida's strategy of comprehensive regional cooperation rather than bilateral cooperation strategies for Georgia, Moldova, Ukraine, Belarus, Serbia, Kosovo, Albania and Bosnia and Herzegovina. These strategies will act as a support for the EU integration process.

Nine countries are in focus for Sida reform work in the region: Albania, Bosnia and Herzegovina, Georgia, Kosovo, Macedonia, Moldova, Serbia, Turkey and Ukraine. Sweden has built trust here that gives efforts for South-South cooperation added value. UNDP recognized this effort and support it through exchange of experiences with other Sida Projects from those countries.

3.12 Knowledge management

Knowledge management and sharing is becoming increasingly important to ensure that good practices and decision-making are based on sound evidence. In that sense, the project will embrace a set of tools ensuring knowledge management and sharing and awareness raising on the subject matter; contributing to mind-set change of local administration and decision-makers specifically with regard to increasing energy efficiency and the use of renewables, and promoting exchange and dialogue among a wide set of stakeholders (specialists, local governments, academia and think-tanks, domestic and international networks, etc.).Moreover, the knowledge gained from projects in project-based organizations risks getting lost after the completion of project if a proper knowledge management system is not established.

Specifically, the following knowledge sharing tools will be utilized by the project:

In terms of finding ways to capture knowledge and improve chances of it being utilized in post-project lifetimes, but also to enable project end users/ stakeholders to combine and store the existing knowledge in a manner that makes it easier them to reuse it at an appropriate time, and also to create new knowledge, the project team will adopt the following knowledge management approaches:

The project will adopt the following knowledge management approaches:

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- Preparation and publication of guidelines/tools: At a minimum, the project will ensure that all the guidance materials developed for and/or used during project implementation will be published and made available through a publicly accessible website.
- Project publication: Producing the publication that summarizes the project's achievements, lessons-learned, experiences, photos, etc.
- Experience sharing at international events: Experiences resulting from the project implementation will be shared at international conferences and meetings, through side-events and presentation where feasible and when funding allows.
- Storytelling/ Storytelling workshops: Another tool used to share knowledge is storytelling workshops. These involve a social environment in which project members can communicate and exchange stories they have experienced. It is from this exchange that men and women which will participate as project members can share knowledge and learn from one another.
- Social media will be used to augment the outreach, and periodic bulletins summarizing project achievements, findings and the like, and the associated reports, tools or manuals generated, will be posted for public consumption.

3.13 Use of existing country systems, mechanisms and frameworks

The Project will be implemented in close cooperation with all relevant stakeholders and wherever possible use already existing systems and mechanisms which will support the implementation of the project. Thus, the project will strongly lean on existing UN activities jointly implemented with the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, along with the Environmental Protection Fund of Federation of Bosnia and Hercegovina and Environmental Protection and Energy Efficiency Fund of Republika Srpska and lessons learned.

The Project will be fully embedded within the governance system and as such, will directly support its structures, functions and strategic commitments regarding implementation of the EU Directives and accompanying international obligations.

3.14 Sustainability and Scaling Up

The project sustainability and scaling-up results will be ensured by building the capacities of relevant partners at local, entity and state level to identify, prepare and implement energy efficiency/renewable energy measures into the public sector infrastructure projects. All levels of the governments will be further supported to collect and monitor the energy intensity of the public lightning systems, beside already over 6000 monitored public buildings, through scaling up and institutionalising the Energy Management Information System (EMIS). EMIS covers at the moment 50 municipalities (out of approximately 142 municipalities in BiH), or 3800 metering points, so that the public finance will be used towards more targeted and sustainable investments in energy efficiency reconstruction of public lightning systems.

Project will provide support to complete policy and regulatory frameworks, as well as necessary amendments to public sector regulations and procedures.

The mid-term goals of the project are to lower and gradually phase out grant-funded renovations in public buildings and support creation of sustainable schemes including pooling of financing with other donors. The **Error! Reference s ource not found.**6 shows the continual increase of the co-financing ratio by end-users, enabled through Sweden's involvement in GED project which is a reflection of not only the level of understanding cost-benefits of energy efficiency investments, but most important creation of ownership by the end-users'/institutions' and their readiness to timely plan and execute these projects.

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Table 7 Level of co-financing ratio by end-users in comparison to the total investment into energy efficiency infrastructure

Year	Co-financing ratio by end-users	Total investment into EE infrastructure [USD]
2014	40%	522,021.00
2015	54%	2,742,865.51
2016	66%	3,298,741.91
2016*	73%	5,851,378.48
2017	65%	2,770,134.20
2017*	67%	4,053,951.85
2018	75%	2,969,556.32
2018*	86%	3,174,507.30
2019	71%	6,120,425.34
2019*	74%	7,013,480.86
2020	82%	5,423,800.39
2020*	84%	6,012,024.42
2021	88%	1,789,608.55
2021*	90%	2,164,442.81

*Including cooperation with BEEP project in RS (World bank)

Based on the previous experience through the GED project, the largest portion of the co-financing comes from the local governments and end-users. The maximum grant provided by Sweden in GED 2nd phase project was up to 33% of the total investment. However, the utilized grant is far less than the requested 33%, i.e. in 2018 the average percentage of the grants provided are 25%, with leveraging local co-financing in amount of 75%.

In 2019, the project managed to provide slightly over 71% of local co-financing for infrastructure projects, or the average percentage of the grants provided are 29%, but it is wort to mention that in case of signed financial agreement with Sarajevo Canton in March 2019, for energy efficient retrofit of 15 public buildings, the local co-financing was 88%, or 12% grant provided by SWEDEN out the 33% requested from project.

The project does not disturb or undermine any other efforts that offer energy efficiency financing but would rather contribute to creating awareness on energy efficiency financing, strengthening the involvement of the entity Environmental Funds to build long-term capacity in operating sustainable energy efficiency financing, reduce risks, create synergies with existing and other new financing sources that would emerge in BiH. Project is supporting arrangements that would enable sustainability of energy efficiency investments beyond the project, especially in energy efficient reconstruction of public buildings.

Sub-national government/end-user have obligation to reinvest generated savings and/or to invest into other energy efficiency/renewable energy projects (or other infrastructure projects), based on Energy Efficiency Action Plans (EEAP) and sub-national level based environment protection strategic planning and budgeting. Namely, in accordance with the Law on energy efficiency, EEAPs (covering sectors with indicated plans on improvement of energy efficiency) and Operational EEAPs (covering sectors with operational plans, allocated financial resources, targeted public sector buildings and timeframe for assigned actions) will require from end-users to allocate financial resources within their budget (municipal, cantonal and ministerial) for energy efficiency/renewable energy infrastructure projects and, simultaneously, to reallocate generated savings to budget lines for additional energy efficiency infrastructure projects, and thus enabling them to reinvest savings into new projects. EE improvements in the buildings sector are expected to account for nearly 80% of the targeted energy savings.

Even without the Law on energy efficiency, reinvesting into energy efficiency/renewable energy infrastructure from generated savings is possible under the “renovation/maintenance” categories within public budgets, with a clear two to three year plan on investments (which includes boiler house/heating system fuel switch projects, solar heaters, energy efficiency windows, thermal insulation of the external envelope, and other construction works). Therefore, as an additional monitoring mechanism, institutions/end-users (responsible for energy costs) have

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obligation to sign a Statement on reinvesting generated savings into other infrastructure projects and report back to UNDP on allocation of generated savings.

Project also fostered multiple strategies to increase the pace of retrofits, including cooperation and co-financing within WB/BEEP project and UNDP's GCF project, which enabled scaling-up results in energy efficiency retrofits of public buildings, mutually relying on a variety of decentralized delivery mechanisms and creating win-win situation for all different international donors and local governments.

GED 3rd phase will be providing financial incentives for SMEs in BiH, which will be used for interest rate subvention/return as financial de-risking instrument for energy efficiency/renewable energy improvements in SMEs and enabling environment to facilitate the transition towards more commercial financing solutions. Moreover, financial de-risking instrument will be supplemented by direct policy de-risking instruments[14].

In the previous phase of the project the Measuring and Verification module within EMIS was developed. The module will serve for monitoring and evaluation of projects implemented through ESCO funding modality. The Low Carbon Urban Development project is working on the ESCO funding mechanism policy development, and M&V module within EMIS will be legally recognised and obligatory tool for ESCO projects.

Future activities of the project should be aimed towards higher mobilization of the private financing for energy efficiency/renewable energy measures by Sweden incentives through SMEs, ESCOs and other private financing sources by offering dedicated loans at local commercial banks, portfolio guarantees by Sweden, as well as other IFI's and international donors and higher leveraging energy efficiency financing provided by Sweden and other development partners. The project already started communication with EBRD in this regard, and in future mutual agreement between Sweden, EBRD, other interested Donors and IFI's, and UNDP the best options will be considered as well as the next steps between interested parties.

[14] UNDP, Derisking Renewable Energy Investment (DREI)

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4 PROJECT MANAGEMENT

4.1 Cost Efficiency and Effectiveness

The Project will deploy numerous measures to achieve cost effectiveness. In terms of procurement, outsourcing of services will be based on a transparent and competitive process, as well as on the value-for-money principle.

For further cost efficiency, the Project will make use of existing collaboration with responsible institutions (provided in the chapter on target groups and beneficiaries), as usage of their information will reduce additional costs related to this phase of project implementation.

The Project will seek to achieve economy of scale in investments by combining, where possible, financial resources with other on-going interventions or funds of other complementary activities.

The project is also expected to result in increased effectiveness on the part of implementing partners and other organizational stakeholders by streamlining the data collection and consolidating and automating the reporting process.

4.2 Project Management

The project will be implemented following UNDP's Direct Implementation Modality (DIM), according to the Standard Basic Assistance Agreement between UNDP and the Government of *BiH* (SBAA of 7 December 1995). The **Implementing Partner** for this project is UNDP. UNDP will assume full responsibility and accountability for the overall management of the Project, including achieving of the outputs and outcome, the efficient and effective use of resources, as well as implementation monitoring. The Direct Implementation Modality (DIM) will be applied, premised on the fact that institutional and administrative capacities within national stakeholders are still not sufficient to undertake core functions and activities, as well as having in mind its high potential for maximum cost-effectiveness and tailored flexible capacity development of institutional partners. UNDP will ensure that all partners and subcontractors will be selected based on open and transparent selection processes, ensuring: i) a clear link between implementation and policy components, ii) cost-effectiveness, iii) the sustainability of capacity building measures.

Duration of the project is from March 01, 2021 to February 29, 2024.

4.3 Project Monitoring, Evaluation and Reporting

UNDP introduced results-based management as its corporate management approach, so that performance at the level of development goals and outcomes is systematically measured and improved. In that sense, monitoring and evaluation are key factors in helping improve performance and achieve results. Monitoring and evaluation will be performed through the analysis of the results-based quantitative and qualitative indicators outlined in the Project's expected Logical framework.

The project will start with the 4-months long inception phase that will enable fine tuning of proposed activities and project adjustments if needed.

A Project Inception Workshop will be held within the first 7 months of project start with those with assigned roles in the project organization structure, UNDP country office as well as relevant stakeholders from different administrative levels. The Inception Workshop is crucial to building ownership for the project results and to plan the first-year annual work plan.

The Inception Workshop should address a number of key issues including:

- Assist all stakeholder groups to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms.

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- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Identify and define working groups, means of communication and workplan involving all stakeholders for the project implementation.
- Plan and schedule Project Board meetings. Roles and responsibilities of all project organization structures should be clarified, and meetings planned. The first Project Board meeting should be held within the first month, e.g. before the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

An inception report covering the period from March 01, 2021 to September 30, 2021 shall be submitted to Swedish International Development Cooperation by the end of October 2021. The inception report will present how the project developed during its first 7 months and established the starting points of the activities. The Inception report shall include review of the indicators related to the project activities and the update of the final work plan including targets, based on the Logical Framework Matrix and M&E plan. The Inception report shall also include review of the Budget and related updates without changes in total amount. A detailed Gender Analysis and gender related indicators developed within the inception phase will also be presented in the inception report. The Final Project Evaluation for the GED 2nd phase project will be completed by the end of January 2021 and based on the conclusions and recommendations of Final Project Evaluation, the implementation process adjustments will be reflected in inception report.

Monitoring:

Project monitoring will be characterised by a gender-sensitive approach. The main tools for organising the project monitoring system encompass a series of main documents, providing baseline and target quantitative and qualitative indicators, more particularly:

- The gender-sensitive Results Framework and its indicators as described in section 5 of the Project document;
- The Project risk analysis;
- Annual Work Plans, Quarterly Work Plans, detailed financial annual and quarterly plans (in accordance with UNDP standards);
- In addition, UNDP will undertake internal quality assurance, as per standard UNDP corporate project quality assurance system, while the results and its recommendations will be presented to the Project Board.
- A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Project board Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

- *Day to day monitoring of implementation progress* will be the responsibility of the Project Manager based on the project's Annual Work plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

- *Periodic monitoring of implementation progress* will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

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Evaluation:

The Project will be subject to mid-term review with the purpose of assessing progress, achievements, relevance of the intervention and its approaches and if needed, identify suggestions for adjustments to the Project to be considered by the Project Board.

Project review will look at the efficiency, effectiveness, sustainability, and relevance of the project objectives. Such analysis will ensure that quantitative results and achievements based on practical experience are not forgotten, as well as that the project builds upon lessons-learnt, sustains positive results and replicates successful initiatives.

A mid-term project review will be undertaken in late 2022 in order to provide feedback from stakeholders, and if needed, allow adjustments to the project by the Project Board. The mid-term project review shall also be used to identify and evaluate SWEDEN's potential continuation of support.

An independent final project evaluation will be conducted in first quarter 2024, so as to examine the overall project`s effectiveness, efficiency, sustainability, achievements, as well as capture lessons learnt and provide strategic recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

GED 3rd phase project indicators, outputs and outcomes are reflected in the One United Nations Programme / United Nation Development Assistance Framework for Bosnia and Herzegovina, as well as within UNDP's Country Programme Document for Bosnia and Herzegovina.

Reporting:

UNDP will consolidate narrative reports, as well as detailed financial reports as per the requirements of the Donor. Those reports will include:

- Inception Report October 2021;
- Annual Narrative Report prepared by the project and submitted to Donor;
- Annual Financial Report, in accordance with Multi-year work plan, prepared by the project and submitted to the Donor;
- Final Project Narrative Report prepared by the project and submitted to the Donor;
- Final Project Financial Report, in accordance with Multi-year work plan, prepared by the project and submitted to the Donor;

4.4 Visibility and communication

The Project team will develop and implement a Visibility Plan, as well as Communications and Marketing Plan. UNDP will undertake the promotional activities and public awareness campaign that will ensure that information about activities and achievements are shared with various target groups.

The following key visibility outputs will be used: i) media relations – e.g. media advisories, press releases, press events related to different events, highlighting key project results, ii) events e.g. workshops, trainings, conferences, exhibitions, etc; iii) promotional and educational materials e.g. reports, brochures, leaflets, stories; iv) digital promotion e.g. photo stories, video stories, social media posts, website, web banners, etc; All materials will be shared and approved by donor.

Through implementation of the Visibility as well as Communications and Marketing Plan, the project intends to raise awareness on project activities, encourage further interaction with stakeholders in Bosnia and Herzegovina, increase knowledge and disseminate information.

Key visibility outputs are linked to project activities along the implementation, including:

- Public events related to the project activities, involving beneficiaries and main stakeholders.
- Dissemination and promotion of bylaws, strategies, reports.

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- Dissemination of human-interest stories in video or photo form.
- Utilization of digital media to promote energy efficiency and renewable energy sources benefits.
- Establishing relations with media to follow and report on project results.

Information and press-statements will be in line with the approved documents and visual identity requirements of the donor. The visual identity of the Donator will be visibly displayed on all locations, events, and materials.

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5 RESULTS FRAMEWORK

Intended Outcome as stated in the UNDAF/Country [or Global/Regional] Programme Results and Resource Framework: By 2025, people benefit from resilient, inclusive and sustainable growth ensured by the convergence of economic development, and management of environment and cultural resources

Indicator 1.h. Total annual emissions of carbon dioxide (in millions of metric tons) Baseline (2019): 25,539 Mt CO_2. Target (2025): 23,000 Mt CO_2

Outcome indicators as stated in the Country Programme [or Global/Regional] Results and Resources Framework, including baseline and targets:

Output 1.2. Governments at all levels, particularly sub-national governments, implement climate change adaptation and mitigation measures for resilient and sustainable development.

Indicator 1.2a. Extent of change in energy consumption in public sector. Baseline (2019): 205 kWh/m^2 Target (2025): 180 kWh/m^2;

Indicator 1.2b. Number of women benefiting from climate change adaptation or mitigation activities. Baseline (2019): 41,202 women. Target: (2025): 60,000 women.

Indicator 1.2c: Extent to which greenhouse gas (GHG) data collection is systematised, institutionalized and informs policymaking (Rating: 4. Fully; 3. Partially; 2. Inadequately; 1. Not in place). Baseline (2019): 1. Target: (2025): 3

Applicable Output(s) from the UNDP Strategic Plan: Outcome 1: Advance poverty eradication in all its forms and dimensions; Outcome 2: Accelerate structural transformations for sustainable development.

Project title and Atlas Project Number: Green Economic Development Project III Phase

EXPECTED OUTPUT	***OUTPUT INDICATORS***	***DATA SOURCE***	***BASELINE***		***TARGETS (by frequency of data collection)***				***DATA COLLECTION METHODS & RISKS***
			Value	***Year***	***Year 2021***	***Year 2022***	***Year 2023***	***FINAL***	
Creating a favourable environment for financing energy efficiency measures in BiH	***1*** *Technical assistance provided for MoFTER, Environmental Funds staff and energy professionals - gender disaggregated*	*Project reports EMIS*	*Yes*	*2020*	*Yes*	*Yes*	*Yes*	*Yes*	*Desk review, field visits and meetings*
	2 *Number established energy monitoring and reporting mechanisms at entity and state level of BiH*	*Project reports EMIS*	*2*	*2020*	*0*	*1*	*0*	*3*	*EMIS reports*

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	3 *Number of adopted laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment*	*Project reports Official Gazette*	*4*	*2020*	*1*	*1*	*1*	*7*	*Official Gazette*
	4 Availability of Green Public Procurement Criteria	*Official Gazette*	*Not adopted*	*2022*	*-*	*-*	*GPP Adopted*	*GPP Adopted*	*Official Gazette*
	5 Availability of Sustainable Urban Mobility Plan	*Official Gazette Project reports*	*No*	*2022*	*-*	*-*	*SUMP Developed*	*SUMP Developed and adopted*	*Relevant technical documentation*
	6 *Number of effectively implemented EE/RES infrastructure projects*	*Project reports Relevant technical documentation*	*230*	*2020*	*16*	*16*	*16*	*278*	*Relevant technical documentation, field visits*
	7 *Number of fuel switch in households*	*Project reports Relevant technical documentation*	*0*	*2021*	*50*	*450*	*0*	*500*	*Relevant technical documentation, field visits*
	8 Number of fuel switch measures in woman-led households	*Project reports Relevant documentation*	*0*	*2023*				*5*	*Field visits, relevant documentation, reports*
	9 Number of members of vulnerable groups (women and children) in fuel-switch households	*Project reports Relevant documentation*	*0*	*2023*				*50*	*Field visits, relevant documentation, reports*
	10 *Amount of CO_2 emission reduction*	*Project reports EMIS*	*13,220*	*2020*	*1,000*	*1,000*	*1,000*	*16,220*	*EMIS*
	11 *Number of generated "green jobs" - gender disaggregated*	*Project reports*	*2,008*	*2020*	*120*	*120*	*120*	*2.368*	*Project reports*
	12 *Number of women as direct beneficiaries of EE/RES project benefits*	*Project reports EMIS*	*67.170*	*2020*	*3,200*	*3,200*	*3,200*	*76,770*	*EMIS*
	13 *Number of people reached through marketing campaign - gender disaggregated*	*Project reports*	*167,000*	*2020*	*35,000*	*35,000*	*35,000*	*272,000*	*Communication reports including progress reports submitted by contractor*

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	***14** Number of households provided with RES solution in off grid areas in BiH*	*Project reports Relevant technical documentation*	*68*	*2020*	*5*	*5*	*5*	*83*	*Relevant technical documentation, field visits*
	15 Level of change in unpaid labor in wages equivalence	*Project report Relevant documentation*	*0*	*2022*					*Questionnaires, field visits*
	16 Value of reduction of time poverty (h)	*Relevant documentation*		*2022*					*Questionnaires, Field visits*
	***17** EE/RES in SME's in BiH is increased*	*Project reports*	*No*	*2020*	*Yes*	*Yes*	*Yes*	*Yes*	*Project reports*
	18 Gender analysis for the programme made and gender action plan developed	*Project reports and relevant documentation*	*0*	*2020*	*0*	*0*	*1*	*1*	*Project reports and relevant documentation*

6 MONITORING AND EVALUATION

In accordance with UNDP's programming policies and procedures, the project will be monitored through the following monitoring and evaluation plans:

Monitoring Plan

Monitoring Activity	***Purpose***	***Frequency***	***Expected Action***	***Partners (if joint)***	***Cost (if any)***
Track results progress	*Progress data against the results indicators in the RRF will be collected and analysed to assess the progress of the project in achieving the agreed outputs.*	*Quarterly, or in the frequency required for each indicator.*	*Slower than expected progress will be addressed by project management.*		5,000
Monitor and Manage Risk	*Identify specific risks that may threaten achievement of intended results. Identify and monitor risk management actions using a risk log. This includes monitoring measures and plans that may have been required as per UNDP's Social and Environmental Standards. Audits will be conducted in accordance with UNDP's audit policy to manage financial risk.*	*Quarterly*	*Risks are identified by project management and actions are taken to manage risk. The risk log is actively maintained to keep track of identified risks and actions taken.*		5,000
Learn	*Knowledge, good practices and lessons will be captured regularly, as well as actively sourced from other projects and partners and integrated back into the project.*	*At least annually*	*Relevant lessons are captured by the project team and used to inform management decisions.*		5,000

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Annual Project Quality Assurance	*The quality of the project will be assessed against UNDP's quality standards to identify project strengths and weaknesses and to inform management decision making to improve the project.*	*Every other year*	*Areas of strength and weakness will be reviewed by project management and used to inform decisions to improve project performance.*		
Review and Make Course Corrections	*Internal review of data and evidence from all monitoring actions to inform decision making.*	*At least annually*	*Performance data, risks, lessons and quality will be discussed by the project board and used to make course corrections.*		1,000
Project Report	*A progress report will be presented to the Project Board and key stakeholders, consisting of progress data showing the results achieved against pre-defined annual targets at the output level, the annual project quality rating summary, an updated risk long with mitigation measures, and any evaluation or review reports prepared over the period.*	*Annually, and at the end of the project (final report)*			
Project Review (Project Board)	*The project's governance mechanism (i.e., project board) will hold regular project reviews to assess the performance of the project and review the Multi-Year Work Plan to ensure realistic budgeting over the life of the project. In the project's final year, the Project Board shall hold an end-of project review to capture lessons learned and discuss opportunities for scaling up and to socialize project results and lessons learned with relevant audiences.*	*annually*	*Any quality concerns or slower than expected progress should be discussed by the project board and management actions agreed to address the issues identified.*		
Monitoring including Staff proportion and Project Monitoring Activities					*16,000 USD*

Evaluation Plan

Evaluation Title	***Partners (if joint)***	***Related Strategic Plan Output***	***UNDAF/CPD Outcome***	***Planned Completion Date***	***Key Evaluation Stakeholders***	***Cost and Source of Funding***
Mid-Term Project review		As listed on the cover page	As listed on the cover page	*2nd part of the year 2 of the Project implementation*		*1,430 USD*
Final Project Evaluation		As listed on the cover page	As listed on the cover page	*Final quarter of the project*		*21,430 USD*

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7 MULTI-YEAR WORK PLAN [15][16]

EXPECTED OUTPUT	EXPECTED RESULTS	ACTIVITIES	Planned Budget by Year			RESPONSIBLE PARTY	PLANNED BUDGET		
			Y1	Y2	Y3		Funding Source	Budget Description	Amount
Creating a favourable environment for financing energy efficiency measures in BiH Gender marker: GEN 2	1. Strengthened capacities and skills of MoFTER and environmental funds staff and energy professionals	1.1 Conduct Forty-two Detailed Energy Audits and QA activities	47,053	104,005	75,530	UNDP	Sweden	Subcontract Service Contract	226,588
								Sub-Total for Activity 1.1	**226,588**
		1.2 Develop Studies/Strategies and adopt results and recommendations from the Studies/ Strategies by relevant authorities	-	128,380	-	UNDP	Sweden	Subcontract Service Contract	128,380
								Sub-Total for Activity 1.2	128,380
		1.3 Develop documentation for the implementation of the Energy Efficiency through the ESCO modality	-	43,112	43,112	UNDP	Sweden	Subcontract	86,224
								Sub-Total for Activity 1.3	86,224
		1.4 Introduction of Green public procurement criteria	-	113,902	-	UNDP	Sweden	Subcontract	113,902
								Sub-Total for Activity 1.4	113,902
		1.5. Development of Sustainable Urban Mobility Plan	-	84,374	-	UNDP	Sweden	Subcontract	84,374
								Total for Result 1	**639,468**
	3. Three laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment adopted by the relevant authorities	3.1 Develop 3 laws or by-laws in the field Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment	42,282	42,282	42,282	UNDP	Sweden	Subcontract Service Contract	126,845
								Sub-Total for Activity 3.1	**126,845**
								Total for Result 3	**126,845**
		4.1 Develop project designs	55,583	118,230	86,907	UNDP	Sweden	Subcontract	260,720

[15] Cost definitions and classifications for programme and development effectiveness costs to be charged to the project are defined in the Executive Board decision DP/2010/32

[16] Changes to a project budget affecting the scope (outputs), completion date, or total estimated project costs require a formal budget revision that must be signed by the project board. In other cases, the UNDP programme manager alone may sign the revision provided the other signatories have no objection. This procedure may be applied for example when the purpose of the revision is only to re-phase activities among years.

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	4. Cost-optimal, green jobs generating and emission reducing EE/RES infrastructure projects implemented in BiH							*Service Contract*	
		Sub-Total for Activity 4.1							***260,720***
		4.2 Implement infrastructural energy efficiency in public sector buildings	*479,176*	*904,355*	*479,176*	*UNDP*	*Sweden*	*Subcontract* *Service Contract*	*1,862,617*
		Sub-Total for Activity 4.2							***1,862,617***
		4.3 Implement Solar systems in public sector	*5,067*	*394,814*	*394,814*	*UNDP*	*Sweden*	*Subcontract* *Service Contract*	*794,594*
		Sub-Total for Activity 4.3							***794,694***
		4.4 Implement infrastructural energy efficiency in public lighting systems	*170,414*	*335,761*	*170,414*	*UNDP*	*Sweden*	*Subcontract* *Service Contract*	*676,589*
		Sub-Total for Activity 4.4							***676,589***
		4.5 Ensure supervision of works by professional companies	*66,380*	*90,006*	*66,380*	*UNDP*	*Sweden*	*Subcontract* *Service Contract*	*222,767*
		Sub-Total for Activity 4.5							***222,767***
		4.6 Ensure supervision by UNDP Engineers (civil/architect, mechanical and electrical engineer)	*128,006*	*128,006*	*128,006*	*UNDP*	*Sweden*	*Subcontract* *Service Contract*	*386,417*
		Sub-Total for Activity 4.6							***386,417***
		4.7. Implement pilot project of replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households in Sarajevo Canton	*4,429*	*899,167*	*355,641*	*UNDP*	*Sweden*	*Subcontract* *Service contract*	*1,259,236*
		Sub-Total for Activity 4.7							***1,259,236***
	Total for Result 4								***5,463,040***
	5. General public's understanding of EE/RES benefits increased	*5.1 Increase public awareness on benefits of energy efficiency, renewable energy, and reduction of emissions to air and print educational and promotional materials*	*55,923*	*63,516*	*63,516*	*UNDP*	*Sweden*	*Subcontract* *Service Contract*	*182,955*
		Sub-Total for Activity 5.1							***182,955***
	Total for Result 5								***182,955***
	6. Access to energy provided for off grid households in BiH	*6.1. Install fifteen photovoltaic solar systems in off grid households in remote areas in BiH*	*27,648*	*75,847*	*51,045*	*UNDP*	*Sweden*	*Subcontract* *Service Contract*	*153,135*

		Sub-Total for Activity 6.1							***153,135***
	Total for Result 6								***153,135***
	7. Supported implementation of at least 18 EE/RES projects in SME's in BIH	*7.1 Implementation of Green Finance Incentive Scheme, conduction of detailed energy audits and introduction of the Energy management System ISO 50001 / EN 16001 in SMEs*	*30,412*	*297,803*	*329,219*	*UNDP*	*Sweden*	*Subcontract* / *Service Contract*	657,434
		Sub-Total for Activity 7.1							***657,434***
	Total for Result 7								***657,434***
	Project Management and Evaluation	*Engagement of Project Manager (SB 4/2)*	*40,156*	*40,156*	*40,156*	*UNDP*	*Sweden*	*Service Contract*	*120,468*
		Engagement of Project Associate (SB3/3)	*33,778*	*33,778*	*33,778*	*UNDP*	*Sweden*	*Service Contract*	*101,335*
		Engagement of Project Associate (SB3/2)	*-*	*24,661*	*9,865*	*UNDP*	*Sweden*	*Service Contract*	*34,526*
		Rent	*26,697*	*35,309*	*28,419*	*UNDP*	*Sweden*	*/*	*90,425*
		Rent of IT equipment	*2,693*	*4,110*	*2,976*	*UNDP*	*Sweden*	*/*	*9,779*
		Stationary	*355*	*355*	*355*	*UNDP*	*Sweden*	*/*	*1,064*
		Travel costs - Daily Subsistence Allowance	*5,905*	*5,905*	*5,905*	*UNDP*	*Sweden*	*/*	*17,716*
		Travel costs - local transportations	*3,543*	*3,543*	*3,543*	*UNDP*	*Sweden*	*/*	*10,629*
		Communication costs	*106*	*106*	*106*	*UNDP*	*Sweden*	*/*	*319*
		Miscellaneous (postage, news/media adverts, media reports)	*1,169*	*1,169*	*1,169*	*UNDP*	*Sweden*	*/*	*3,508*
		Mid-term Review and Final Project Evaluation	*0*	*0*	*23,621*	*UNDP*	*Sweden*	*Subcontract - Individuals*	*23,621*
	Total for Project Management and Evaluation								***413,390***
Subtotal - direct eligible costs of the action			*1,291,809*	*3,307,124*	*2,184,655*				*7,636,267*
Direct project costs - DPC			*12,918*	*41,862*	*25,671*				*76,363*
General Management Support 8%			*104,378*	*338,242*	*207,422*				*617,010*
TOTAL			***1,409,105***	***4,566,267***	***2,800,191***				***8,329,640***
TOTAL FOR PROJECT IMPLEMENTATION			***8,329,640***						

NOTE: The planned budget for Service Contracts under-listed project activities, are foreseen for engagement of Project Officer, Technical officer for infrastructure and Project Assistant (for more details please see next section 8. Governance and management arrangements) Financial reporting will be conducted in acordance with *Multi-Year Work Plan* .

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8 GOVERNANCE AND MANAGEMENT ARRANGEMENTS

8.1 Management arrangements

The project will be implemented following UNDP's Direct Implementation Modality (DIM), according to the Standard Basic Assistance Agreement between UNDP and the Government of *B&H* (SBAA of 7 December 1995). The **Implementing Partner** for this project is *UNDP.* The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. UNDP will ensure that all partners and subcontractors will be selected based on open and transparent selection processes, ensuring: i) a clear link between implementation and policy components, ii) cost-effectiveness, iii) the sustainability of capacity building measures.

The **Project Board** is responsible for making by consensus, management decisions when guidance is required by the Project Manager, including recommendation for UNDP/Implementing Partner approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the Board, final decision shall rest with the UNDP Programme Manager. The Project Board is comprised of the following institutions:

The Project Board is comprised of the following individuals:

1) Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (member);
2) Environmental Protection Fund of Federation of Bosnia and Hercegovina (member);
3) Environmental Protection and Energy Efficiency Fund of Republika Srpska (member);
4) SWEDEN, Head of development cooperation (member); and
5) UNDP BiH (member/Chair of the Project Board).

The project organisation structure is as follows:

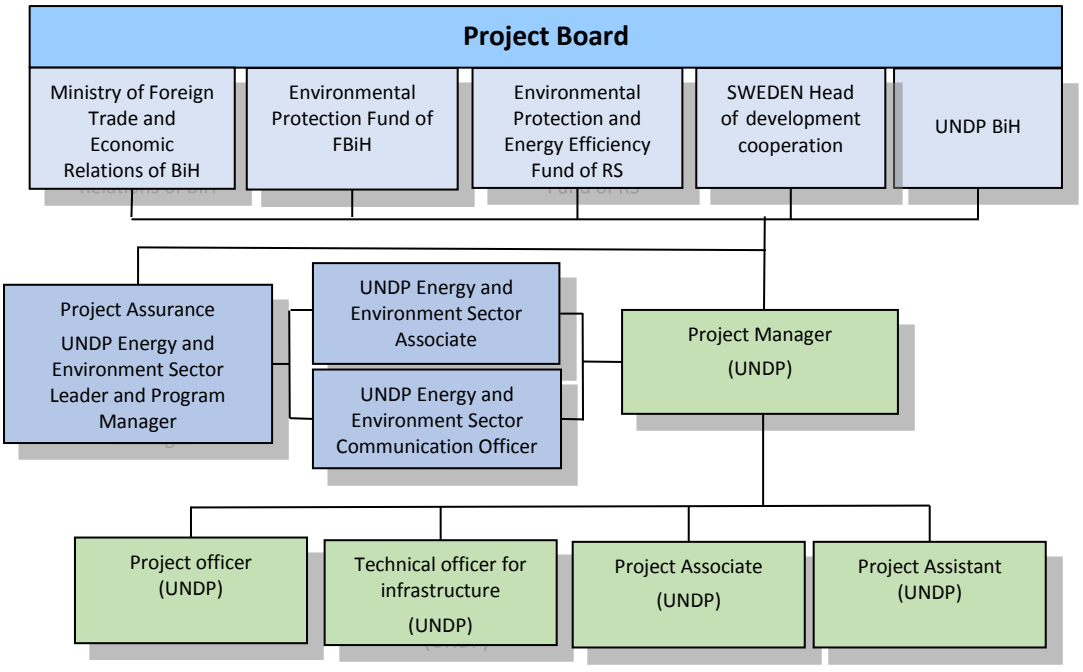


Figure 5. The project organisation structure

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8.2 Project team

The **UNDP** will be accountable for effective and impartial fiduciary management and financial reporting. It will receive donor contributions, disburse funds as per defined activities and consolidate periodic financial reports and final financial report. It will also be accountable for coordination of programmatic activities, including coordination and compiling the annual work plan and narrative reports, monitoring of targets, calling and reporting on Project Board meetings, facilitating evaluations, and reporting back to the Project Board.

The **Project Manager** will run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager function will end when the final project evaluation report and other documentation required by the Donor and UNDP, has been completed and submitted to UNDP (including operational closure of the project). Besides, Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in their day-to-day work. Along with that, the Project manager will ensure synergy with all ongoing relevant projects within the standard activities of information sharing and networking in order to achieve more effective impact of Project. The Project manager will be fully and exclusively engaged in the implementation of this Project only.

The **project personnel** are selected on a competitive basis in accordance with the relevant UNDP rules and procedures. Project officer will be responsible for providing support to the Project manager in order to ensure smooth implementation of all components of the Project. The Technical officer for infrastructure will be responsible for providing technical support to the Project manager in order to ensure smooth implementation of the Project components related to the implementation of infrastructural works. These tasks refer both to the provision of support relevant for operational management of the Project as well as assuring the high-quality outputs of activities implemented within the Project. To assure efficient and effective implementation of the Project, Project Officer, and Technical officer for infrastructure will be, the same as Project manager, fully and we exclusively engaged in the implementation of this project only.

Other expertise and resources

The project deploys expertise in various fields as the need arises, in accordance to project activities. Equipment and vehicles are already in place. Accordingly, no financial resources from Sweden will be invested in purchasing of new equipment or assets.

The Project Assurance role will be fully provided by UNDP Country office Energy and Environment Sector Leader, Energy and Environment Program manager, Energy and Environment Programme Associate and Energy and Environment Communications Officer. In particular, the Energy and Environment Sector Leader will take primary responsibility for overseeing project implementation and regularly communicating the results of oversight work to relevant and concerned parties, the Government and other project partners

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9 LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Bosnia and Herzegovina and UNDP, signed on 07 December 1995. All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner."

The BIH and the UN Sustainable Development Cooperation Framework (UNSDCF) for the period 2021-2025 (signed by the Council of Ministers of Bosnia and Herzegovina and UN on 20 May 2021), as well as the current UNDP Country Programme Document 2021-2025 represent the basis for the activities of UNDP in the country.

This Project will be implemented by UNDP ("Implementing Partner") in accordance with Financial Regulations and Rules of UNDP.

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10 RISK MANAGEMENT

This project will be implemented by UNDP ("Implementing Partner") in accordance with Financial Regulations and Rules of UNDP.

1. UNDP as the Implementing Partner will comply with the policies, procedures and practices of the United Nations Security Management System (UNSMS.)

2. UNDP as the Implementing Partner will undertake all reasonable efforts to ensure that none of the [project funds][17] [UNDP funds received pursuant to the Project Document][18] are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

3. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (http://www.undp.org/ses) and related Accountability Mechanism (http://www.undp.org/secu-srm).

4. UNDP as the Implementing Partner will: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

5. In the implementation of the activities under this Project Document, UNDP as the Implementing Partner will handle any sexual exploitation and abuse ("SEA") and sexual harassment ("SH") allegations in accordance with its regulations, rules, policies and procedures.

6. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

7. UNDP as the Implementing Partner will ensure that the following obligations are binding on each responsible party, subcontractor and sub-recipient:

    a. Consistent with the Article III of the SBAA [or the Supplemental Provisions to the Project Document], the responsibility for the safety and security of each responsible party, subcontractor and sub-recipient and its personnel and property, and of UNDP's property in such responsible party's, subcontractor's and sub-recipient's custody, rests with such responsible party, subcontractor and sub-recipient. To this end, each responsible party, subcontractor and sub-recipient shall:

        i. put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

        ii. assume all risks and liabilities related to such responsible party's, subcontractor's and sub-recipient's security, and the full implementation of the security plan.

    b. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate

[17] To be used where UNDP is the Implementing Partner.
[18] To be used where the UN, a UN fund/programme or a specialized agency is the Implementing Partner.

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security plan as required hereunder shall be deemed a breach of the responsible party's, subcontractor's and sub-recipient's obligations under this Project Document.

c. Each responsible party, subcontractor and sub-recipient (each a "sub-party" and together "sub-parties") acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the sub-parties, and other entities involved in Project implementation, either as contractors or subcontractors and their personnel, and any individuals performing services for them under the Project Document.

(a) In the implementation of the activities under this Project Document, each sub-party shall comply with the standards of conduct set forth in the Secretary General's Bulletin ST/SGB/2003/13 of 9 October 2003, concerning "Special measures for protection from sexual exploitation and sexual abuse" ("SEA").

(b) Moreover, and without limitation to the application of other regulations, rules, policies and procedures bearing upon the performance of the activities under this Project Document, in the implementation of activities, each sub-party, shall not engage in any form of sexual harassment ("SH"). SH is defined as any unwelcome conduct of a sexual nature that might reasonably be expected or be perceived to cause offense or humiliation, when such conduct interferes with work, is made a condition of employment or creates an intimidating, hostile or offensive work environment. SH may occur in the workplace or in connection with work. While typically involving a pattern of conduct, SH may take the form of a single incident. In assessing the reasonableness of expectations or perceptions, the perspective of the person who is the target of the conduct shall be considered.

d. In the performance of the activities under this Project Document, each sub-party shall (with respect to its own activities), and shall require from its sub-parties (with respect to their activities) that they, have minimum standards and procedures in place, or a plan to develop and/or improve such standards and procedures in order to be able to take effective preventive and investigative action. These should include policies on sexual harassment and sexual exploitation and abuse; policies on whistleblowing/protection against retaliation; and complaints, disciplinary and investigative mechanisms. In line with this, sub-parties will and will require that their respective sub-parties will take all appropriate measures to:

(i) Prevent its employees, agents or any other persons engaged to perform any services under this Project Document, from engaging in SH or SEA;

(ii) Offer employees and associated personnel training on prevention and response to SH and SEA, where sub-parties have not put in place their own training regarding the prevention of SH and SEA, sub-parties may use the training material available at UNDP;

(iii) Report and monitor allegations of SH and SEA of which any of the sub-parties have been informed or have otherwise become aware, and status thereof;

(iv) Refer victims/survivors of SH and SEA to safe and confidential victim assistance; and

(v) Promptly and confidentially record and investigate any allegations credible enough to warrant an investigation of SH or SEA. Each sub-party shall advise UNDP of any such allegations received and investigations being conducted by itself or any of its sub-parties with respect to their activities under the Project Document, and shall keep UNDP informed during the investigation by it or any of such sub-parties, to the extent that such notification (i) does not jeopardize the conduct of the investigation, including but not limited to the safety or security of persons, and/or (ii) is not in contravention of any laws applicable to it. Following the investigation, the relevant sub-party shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.

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e. Each sub-party shall establish that it has complied with the foregoing, to the satisfaction of UNDP, when requested by UNDP or any party acting on its behalf to provide such confirmation. Failure of the relevant sub-party to comply with the foregoing, as determined by UNDP, shall be considered grounds for suspension or termination of the Project.

f. Each responsible party, subcontractor and sub-recipient will ensure that any project activities undertaken by them will be implemented in a manner consistent with the UNDP Social and Environmental Standards and shall ensure that any incidents or issues of non-compliance shall be reported to UNDP in accordance with UNDP Social and Environmental Standards.

g. Each responsible party, subcontractor and sub-recipient will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, subcontractors and sub-recipients in implementing the project or programme or using the UNDP funds. It will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.

h. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to each responsible party, subcontractor and sub-recipient: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. Each responsible party, subcontractor and sub-recipient agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.

i. In the event that an investigation is required, UNDP will conduct investigations relating to any aspect of UNDP programmes and projects. Each responsible party, subcontractor and sub-recipient will provide its full cooperation, including making available personnel, relevant documentation, and granting access to its (and its consultants', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with it to find a solution.

j. Each responsible party, subcontractor and sub-recipient will promptly inform UNDP as the Implementing Partner in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

   Where it becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, each responsible party, subcontractor and sub-recipient will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). It will provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

k. UNDP will be entitled to a refund from the responsible party, subcontractor or sub-recipient of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of this Project Document. Such amount may be deducted by UNDP from any payment due to the responsible party, subcontractor or sub-recipient under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail any responsible party's, subcontractor's or sub-recipient's obligations under this Project Document.

   Where such funds have not been refunded to UNDP, the responsible party, subcontractor or sub-recipient agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to such responsible party, subcontractor or sub-recipient for the recovery of any funds determined by UNDP to have been used inappropriately, including through

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fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

l. Each contract issued by the responsible party, subcontractor or sub-recipient in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from it shall cooperate with any and all investigations and post-payment audits.

m. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project or programme, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.

n. Each responsible party, subcontractor and sub-recipient shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to its subcontractors and sub-recipients and that all the clauses under this section entitled "Risk Management Standard Clauses" are adequately reflected, mutatis mutandis, in all its sub-contracts or sub-agreements entered into further to this Project Document.

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11 ANNEXES

1. *Social and Environmental Screening Template*
2. ***Project Board Terms of Reference and TORs of key management positions***
3. ***Logical framework***
4. ***Results and Risk matrix***

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Annex 1. Social and Environmental Screening Template

Project Information

Project Information	
1. Project Title	Green Economic Development Project 3rd Phase
2. Project Number (i.e. Atlas project ID, PIMS+)	00124748 (Award ID 00132013)
3. Location (Global/Region/Country)	Bosnia and Herzegovina
4. Project stage (Design or Implementation)	Implementation
5. Date	August 5th, 2022

Part A. Integrating Programming Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Programming Principles in Order to Strengthen Social and Environmental Sustainability?
Briefly describe in the space below how the project mainstreams the human rights-based approach
The human rights perspectives are mainstreamed into the overall project's implementation strategy, particularly seen in its intentions to ensure that public policies, legislation, financing mechanisms supported by the project are non-discriminatory and that project's deliverables will offer equal opportunities to all (access to services, funding, employment opportunities), regardless of the beneficiaries age, ethnic, sex, social or any other status is mainstreamed in the overall project strategy. Through implementation of its concrete activities, the project plans to promote access to energy services as a universal human right of all citizens. By enabling participatory approach in policy-making, legislation or funding, the Project commits to reinforce the principles of accountability and transparency.
Briefly describe in the space below how the project is likely to improve gender equality and women's empowerment
The project puts forward the argument that women and men should be involved in the project whenever possible on equal terms, or at least in a more balanced way. This entails all aspects from project planning, decision making processes including membership of project boards, and internal management arrangements- that should be based on the principles of parity. This also means ensuring that women benefit on equal or fair terms from all capacity building activities provided by the project. Additionally, the project will seek to ensure equal participation of women while working on strengthening capacities for establishment of energy monitoring and reporting mechanisms, especially through EMIS implementation and update. The project will seek to ensure that at least 40% of end-users trained on EMIS are women. Besides capacity and knowledge development, the project will seek to enhance the roles and status of women as participants and agents of change, build on their strengths and experiences, knowledge and coping capacity, and ensure women's access to information. This includes developing and integrating gendered and accessible capacity building programs. Through the project's Media campaign outreach the project awareness raising and advocacy campaign will aim to reach at least 40 % of women. *To provide gender-sensitive monitoring and evaluation, the outcomes and impacts of project activities within all Project Components include at least one gender-related indicator, as well as sex disaggregated indicators.*
Briefly describe in the space below how the project mainstreams sustainability and resilience
There is a direct connection between energy use and the environmental sustainability. With efficient use of energy, GHG emission is reduced, the earth's natural resources are conserved, and ecosystems are protected from destruction. In order to mainstream sustainability, the project envisages concrete efforts on supporting capacities of environmental finance institutions in Bosnia and Herzegovina, the Environmental Funds of FBiH and RS, as well as all levels of government in the country (introducing Energy Management System).

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Briefly describe in the space below how the project strengthens accountability to stakeholders
By establishing a system for energy management which enables strategic management of the public assets portfolio and by building the necessary staff skills to manage this system, local governments will increase the level of transparency and accountability in managing publicly owned goods, generating additional revenues. UNDP in BIH will assume full responsibility and accountability for the overall management of the Project, including achieving of the outputs and outcome, the efficient and effective use of resources, as well as implementation monitoring. The Project structures will include the Project Board as a main steering mechanism and the decision-making authority, responsible for the Project management oversight. The Project Board will review and endorse annual work plans, supervise the implementation progress and authorize any major deviation therefrom. Members of the Project Board will be senior representatives of the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MoFTER); Environmental Protection Fund of Federation of Bosnia and Hercegovina and Environmental Protection and Energy Efficiency Fund of Republika Srpska and UNDP. *UNDP will notify its major stakeholders on available compliance mechanisms to ensure individuals, peoples, and communities affected by projects have access to appropriate grievance resolution procedures for hearing and addressing project-related complaints and disputes.*

Part B. Identifying and Managing Social and Environmental Risks

QUESTION 2: What are the Potential Social and Environmental Risks? *Note: Complete SESP Attachment 1 before responding to Question 2.*	**QUESTION 3: What is the level of significance of the potential social and environmental risks?** *Note: Respond to Questions 4 and 5 below before proceeding to Question 5*			**QUESTION 6: Describe the assessment and management measures for each risk rated Moderate, Substantial or High**
Risk Description (broken down by event, cause, impact)	***Impact and Likelihood (1-5)***	***Significance (Low, Moderate Substantial, High)***	***Comments (optional)***	***Description of assessment and management measures for risks rated as Moderate, Substantial or High***
Risk 1: There a potential risk that duty-bearers do not have the capacity to meet their obligations in the Project.	I = 2 L =2	**Moderate**		The project will work on capacity building and provide the technical assistance to the duty-bearers for the purpose of capacity building, strengthening and helping them to meet their obligations regarding the Project.

QUESTION 4: What is the overall project risk categorization?		
Low Risk	X	
Moderate Risk	☐	
Substantial Risk	☐	
High Risk	☐	

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	QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are triggered? (check all that apply)				
	Question only required for Moderate, Substantial and High Risk projects.				
	Is assessment required? (check if "yes")	☐			***Status? (completed, planned)***
	if yes, indicate overall type and status		☐	Targeted assessment(s)	
			☐	ESIA (Environmental and Social Impact Assessment)	
			☐	SESA (Strategic Environmental and Social Assessment)	
	Are management plans required? (check if "yes)	☐			
	If yes, indicate overall type		☐	Targeted management plans (e.g. Indigenous Peoples Plan, Resettlement Action Plan, others)	
			☐	ESMP (Environmental and Social Management Plan)	
			☐	ESMF (Environmental and Social Management Framework)	
	Based on identified risks, which Principles/Project-level Standards triggered?		**Comments (not required)**		
	Overarching Principle: Leave No One Behind				
	Human Rights	☐			
	Gender Equality and Women's Empowerment	☐			
	Accountability	☐			

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	1. Biodiversity Conservation and Sustainable Natural Resource Management	☐	
	2. Climate Change and Disaster Risks	☐	
	3. Community Health, Safety and Security	☐	
	4. Cultural Heritage	☐	
	5. Displacement and Resettlement	☐	
	6. Indigenous Peoples	☐	
	7. Labour and Working Conditions	☐	
	8. Pollution Prevention and Resource Efficiency	☐	

Final Sign Off

Final Screening at the design-stage is not complete until the following signatures are included

Signature	***Date***	***Description***
QA Assessor		Alisa Grabus, Programme Associate
QA Approver		Raduska Cupac, Sector Leader

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SESP Attachment 1. Social and Environmental Risk Screening Checklist

Checklist Potential Social and Environmental Risks		
INSTRUCTIONS: The risk screening checklist will assist in answering Questions 2-6 of the Screening Template. Answers to the checklist questions help to (1) identify potential risks, (2) determine the overall risk categorization of the project, and (3) determine required level of assessment and management measures. Refer to the SES toolkit for further guidance on addressing screening questions.		
Overarching Principle: Leave No One Behind **Human Rights**		**Answer (Yes/No)**
P.1	Have local communities or individuals raised human rights concerns regarding the project (e.g. during the stakeholder engagement process, grievance processes, public statements)?	*No*
P.2	Is there a risk that duty-bearers (e.g. government agencies) do not have the capacity to meet their obligations in the project?	*Yes*
P.3	Is there a risk that rights-holders (e.g. project-affected persons) do not have the capacity to claim their rights?	*No*
Would the project potentially involve or lead to:		
P.4	adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	No
P.5	inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups, including persons with disabilities? [19]	No
P.6	restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalized individuals or groups, including persons with disabilities?	No
P.7	exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	No
Gender Equality and Women's Empowerment		
P.8	Have women's groups/leaders raised gender equality concerns regarding the project, (e.g. during the stakeholder engagement process, grievance processes, public statements)?	No
Would the project potentially involve or lead to:		
P.9	adverse impacts on gender equality and/or the situation of women and girls?	No
P.10	reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	No
P.11	limitations on women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? *For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being*	No
P.12	exacerbation of risks of gender-based violence?	No

[19] Prohibited grounds of discrimination include race, ethnicity, sex, age, language, disability, sexual orientation, gender identity, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to "women and men" or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender and transsexual people.

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	For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc.	
Sustainability and Resilience: Screening questions regarding risks associated with sustainability and resilience are encompassed by the Standard-specific questions below		
Accountability		
Would the project potentially involve or lead to:		
P.13	exclusion of any potentially affected stakeholders, in particular marginalized groups and excluded individuals (including persons with disabilities), from fully participating in decisions that may affect them?	No
P.14	grievances or objections from potentially affected stakeholders?	No
P.15	risks of retaliation or reprisals against stakeholders who express concerns or grievances, or who seek to participate in or to obtain information on the project?	No
Project-Level Standards		
Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management		
Would the project potentially involve or lead to:		
1.1	adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services? *For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes*	No
1.2	activities within or adjacent to critical habitats and/or environmentally sensitive areas, including (but not limited to) legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	No
1.3	changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	No
1.4	risks to endangered species (e.g. reduction, encroachment on habitat)?	No
1.5	exacerbation of illegal wildlife trade?	No
1.6	introduction of invasive alien species?	No
1.7	adverse impacts on soils?	No
1.8	harvesting of natural forests, plantation development, or reforestation?	No
1. 9	significant agricultural production?	No
1. 10	animal husbandry or harvesting of fish populations or other aquatic species?	No
1.11	significant extraction, diversion or containment of surface or ground water? *For example, construction of dams, reservoirs, river basin developments, groundwater extraction*	No
1.12	handling or utilization of genetically modified organisms/living modified organisms?[20]	No
1.13	utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)[21]	No
1.14	adverse transboundary or global environmental concerns?	No

20 See the Convention on Biological Diversity and its Cartagena Protocol on Biosafety.

21 See the Convention on Biological Diversity and its Nagoya Protocol on access and benefit sharing from use of genetic resources.

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Standard 2: Climate Change and Disaster Risks		
Would the potentially involve or lead to:		
2.1	areas subject to hazards such as earthquakes, floods, landslides, severe winds, storm surges, tsunami or volcanic eruptions?	No
2.2	outputs and outcomes sensitive or vulnerable to potential impacts of climate change? *For example, through increased precipitation, drought, temperature, salinity, extreme events*	No
2.3	direct or indirect increases in vulnerability to climate change impacts or disasters now or in the future (also known as maladaptive practices)? *For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding*	No
2.4	increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	No
Standard 3: Community Health, Safety and Security		
Would the potentially involve or lead to:		
3.1	construction and/or infrastructure development (e.g. roads, buildings, dams)? (Note: the GEF does not finance projects that would involve the construction or rehabilitation of large or complex dams)	No
3.2	air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	No
3.3	harm or losses due to failure of structural elements of the project (e.g. collapse of buildings or infrastructure)?	No
3.4	risks of water-borne or other vector-borne diseases (e.g. temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health?	No
3.5	transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	No
3.6	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g. food, surface water purification, natural buffers from flooding)?	No
3.7	influx of project workers to project areas?	No
3.8	engagement of security personnel to protect facilities and property, or to support project activities?	No
Standard 4: Cultural Heritage		
Would the project potentially involve or lead to:		
4.1	activities adjacent to or within a Cultural Heritage site?	No
4.2	significant excavations, demolitions, movement of earth, flooding or other environmental changes?	No
4.3	adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	No
4.4	alterations to landscapes and natural features with cultural significance?	No
4.5	utilization of tangible and/or intangible forms (e.g. practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	No

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Standard 5: Displacement and Resettlement		
Would the project potentially involve or lead to:		
5.1	temporary or permanent and full or partial physical displacement (including people without legally recognizable claims to land)?	No
5.2	economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	No
5.3	risk of forced evictions?[22]	No
5.4	impacts on or changes to land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	No
Standard 6: Indigenous Peoples		
Would the project potentially involve or lead to:		
6.1	areas where indigenous peoples are present (including project area of influence)?	No
6.2	activities located on lands and territories claimed by indigenous peoples?	No
6.3	impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples (regardless of whether indigenous peoples possess the legal titles to such areas, whether the project is located within or outside of the lands and territories inhabited by the affected peoples, or whether the indigenous peoples are recognized as indigenous peoples by the country in question)? *If the answer to screening question 6.3 is "yes", then the potential risk impacts are considered significant and the project would be categorized as either Substantial Risk or High Risk*	No
6.4	the absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	No
6.5	the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	No
6.6	forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources? *Consider, and where appropriate ensure, consistency with the answers under Standard 5 above.*	No
6.7	adverse impacts on the development priorities of indigenous peoples as defined by them?	No
6.8	risks to the physical and cultural survival of indigenous peoples?	No
6.9	impacts on the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices? *Consider, and where appropriate ensure, consistency with the answers under Standard 4 above.*	No

[22] Forced eviction is defined here as the permanent or temporary removal against their will of individuals, families or communities from the homes and/or land which they occupy, without the provision of, and access to, appropriate forms of legal or other protection. Forced evictions constitute gross violations of a range of internationally recognized human rights.

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Standard 7: Labour and Working Conditions		
Would the project potentially involve or lead to: (note: applies to project and contractor workers)		
7.1	working conditions that do not meet national labour laws and international commitments?	No
7.2	working conditions that may deny freedom of association and collective bargaining?	No
7.3	use of child labour?	No
7.4	use of forced labour?	No
7.5	discriminatory working conditions and/or lack of equal opportunity?	No
7.6	occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	No
Standard 8: Pollution Prevention and Resource Efficiency		
Would the project potentially involve or lead to:		
8.1	the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	No
8.2	the generation of waste (both hazardous and non-hazardous)?	No
8.3	the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	No
8.4	the use of chemicals or materials subject to international bans or phase-outs? *For example, DDT, PCBs and other chemicals listed in international conventions such as the Montreal Protocol, Minamata Convention, Basel Convention, Rotterdam Convention, Stockholm Convention*	No
8.5	the application of pesticides that may have a negative effect on the environment or human health?	No
8.6	significant consumption of raw materials, energy, and/or water?	No

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Annex 2. Project Board Terms of Reference and TORs of key management positions

ToR – Project Board

- A Project Board will be established at the inception phase of the Project to monitor project progress, guide project implementation and support the Project in achieving its listed outputs and outcomes.
- Project Board will be chaired by UNDP. The Project Board will involve the representatives of the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MoFTER); Environmental Protection Fund of Federation of Bosnia and Hercegovina and Environmental Protection and Energy Efficiency Fund of Republika Srpska and Embassy of Sweden in BiH.
- Other participants can be invited into the Board meetings at the decision of the Board.
- The Board will meet regularly (at least twice a year) to review project progress, discuss and agree on project work plans. One of the key tasks of the Board will be to ensure coordination and synchronization among activities planned to be implemented within the Project. In this respect, the Board will serve as a platform for key project stakeholders and beneficiaries to regularly get together and design a joint strategy of work on the Project.
- The final list of the Project Board members will be completed at the outset of project operations and presented in the Inception Report by considering the envisaged role of different parties in the Board. The Project Manager will participate as a non-voting member in the Board meetings and will also be responsible for compiling a summary report of the discussions and conclusions of each meeting.
- The day-to-day management of the project will be carried out by a Project Manager under the overall guidance of the Project Board.

ToR – Project Manager

In consultation with the Project Board, the Project Manager (PM) is responsible for day-to-day management, co-ordination and supervision of the implementation of the Project. Specifically, his\her responsibilities are but not limited to the following:

- Ensure sound project management of and take full responsibility for the implementation of the programem, as per the project documents and the UNDP rules and regulations;
- Develop annual activity and procurement work plans, as well as budgets based on expected year-end outputs, and ensure close monitoring of activities and delivery;
- Provide direction and guidance to the Project Team;
- Report to the Project Board to assure the overall direction and integrity of the programme;
- Build, motivate and lead a high performing team consisting of project personnel, expert consultants, service providers, and conduct performance assessments of the team, as per UNDP rules and regulations;
- Provide inputs in identification of linkages between the project and other related projects in UNDP, in BiH, or beyond, maximizing the efficient and effective use of resources;
- Securing proper and efficient use of project budget, as per the project document;
- Manage financial allocations and approve expenditures according to authority delegated and ensure timely payments in accordance with UNDP rules and regulations;
- Apply UNDP programming tools and policies as explained in the Results Management Guide;
- Coordinate the recruitment of projects personnel;
- Ensuring proper use and maintenance of projects equipment and office records and any other documentation by the project personnel.
- Guide the design of the Project comprehensive assistance to local governments and local utilities and provide technical advice in its delivery;
- Participate in project-level committees, policy and capacity development working groups and events;

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- Establish and maintain good working relations with relevant institutional and organisational partners at state, entity, and local levels, as well as with main international organisations as relevant for the project implementation;
- Actively work on the relationships with the local authorities and other project stakeholders, ensuring full understanding, cooperation and a best fit of the programme activities with the needs of the beneficiaries
- Animate effective dialogue with partners and among stakeholders and engage with relevant donors and contribute to the CO resource mobilization efforts.
- Identify and support the realisation of synergetic initiatives and/or contribution from various stakeholders, which would add value and maximise the programme results;

Qualifications and Experience

- Preferably master's degree in engineering, environmental management or in management/public administration
- Minimum 5 years of experience in an International Organization, government institution or NGO, preferably in the field of environment.
- Knowledge of the climate change mitigation with focus on energy efficiency and environmental issues in BiH;
- Excellent experience in dealing with national government challenges, NGOs and Donors;
- Good understanding of post-war and post-socialist transition context, poverty and local development support strategies.
- Excellent communication (Written and Oral) Skills;
- Demonstrated experience in project management;
- Expertise in putting together costed, results-oriented action plans;
- Demonstrated experience in working with government, donors and the United Nations system;
- Experience in identifying needs and interventions for capacity building of counterparts, clients and potential partners.
- Fluency in English and languages of peoples of BiH

ToR – Project Officer

- Promote overall integration of the project into the country's activities, policies, and plans
- Prepare annual work plans with indicative scheduling of identified main outputs and activities as guidance documents for the formulation and review of annual work plans
- Provide guidance and reviews of technical specifications of project outputs and activities
- Supervise personnel and subcontractors engaged in delivering aspects of the project's work plans
- Organize and coordinate project activities such as workshops, studies and publications, subcontracts, equipment, and administrative support
- Supports the development of energy efficiency, renewable energy and energy management policies and monitoring-verification- reporting mechanisms;
- Supports tender processes necessary for the implementation of the project activities
- Encourage shared learning with national partners
- Ensure close coordination between other relevant projects and programmes; both in-country and those led by the partners and other organizations
- Facilitate coordination and other support from consultants hired for the Project, and for any relevant missions directly related to the Project
- In consultation with the partners prepare TORs for consultants and comment on their reports
- Carry out regular follow-up and monitoring of implementation activities
- Carry out regular monitoring and reporting on risk and mitigation measures
- Ensure timely preparation and submission of required reports, including technical and financial reports to relevant parties as well as bi-annual progress and expenditure reports, per the requirements of the donors
- Provide regular updates on the Project's progress to key stakeholders according to the communication plan

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- Ensures gender is effectively mainstreamed throughout the project activities, work plans, budgets, reports, research, analyses and, where specifically relevant, analysed in detail
- Ensures knowledge on gender equality is incorporated in Project knowledge management activities and products

Qualifications and Experience

- Preferably master's degree in mechanical engineering, environmental sciences, or related studies
- Authorization for main project design, supervision and energy auditing would be an asset
- At least five years of professional experience within execution and development of following energy related projects:
    - Energy efficiency in residential and non-residential sector;
    - Energy management;
    - Energy Efficiency and Energy Management policy development;
    - Biomass projects;
    - Fuel-switch;
    - Design of main technical drawings (energy);
    - Experience in tracking of implementation of the EE and RE projects;
    - Development of energy related studies (writing functional descriptions, specifications and other technical documents);
    - Experience in development of energy related policy mechanisms;
- Experience in working with energy related international projects would be an asset;
- Experience and existing contacts/networking in working with energy related state and entity authorities;
- Knowledge of BiH regulations and requirements on procurement, tendering and contracting;
- Fluency in English and official BIH languages.

ToR – Technical Officer for Infrastructure

- Technical support to Project Manager in coordination and implementation of infrastructural measures;
- Supports Project Manager in coordination of project implementation activities with project team, individual consultants, supervision engineers, contracted companies and implementing partners;
- Organizes and coordinates project's activities with and among key stakeholders: state, entity and cantonal level ministries;
- Organizes and coordinates project's activities at municipal level;
- Undertakes activities to improve monitoring before and after implementation of infrastructural measures;
- Participates in mobilization of communities in the implementation of intervention plans;
- Takes part in selection of appropriate public buildings, public lightning systems for implementation of infrastructural measures according to the adopted project methodologies;
- Oversees implementation of infrastructural measures;
- Provide regular updates to the Project Manager with substantive data inputs based on project experiences and monitoring of progress against set targets;
- Duly collects data and all relevant information at the local level, so as to contribute to measurable review of results and longer-term Project effects, as per the Project monitoring and evaluation plan and logical framework;
- Support to management of the project within the areas assigned, focusing on quality control from formulation to implementation;
- Supports designing and formulation of work plans, financial and procurement plans within the area of responsibility, translating project goals into local/cantonal/entity and national interventions;
- Supports financial and substantive monitoring and evaluation of the project activities, identification of operational and financial risks and problems and development of solutions;
- Preparation of procurement plans related to implementation of infrastructural measures;

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- Organization of procurement processes including preparation and conduct of RFQs, ITBs or RFPs documents, receipt of quotations, bids or proposals, their evaluation, negotiation of certain conditions of contracts in full compliance with UNDP rules and regulations as well as monitoring of their implementation;
- Participates at review of procurement processes conducted by Programme; submissions to the Contract, Asset and Procurement Committee (CAP) and Advisory Committee on Procurement (ACP);
- Collects and compiles, on a monthly basis, the following inputs related to the Project: list of activities, expenditures and results achieved during the previous month as compared to the work plan, monthly expenditure reports and other related documents;
- Update of the rosters of suppliers and cross check the update of roster on needs basis;
- Assists in timely reporting;
- Supports Project Manager in developing partnership with all government levels in BiH, international financial institutions, bi-lateral and multi-lateral donors, private sector, civil society in the specific thematic areas based on strategic goals of UNDP, country needs and donors' priorities;

Qualifications and Experience

- University degree in civil or architectural engineering
- At least 4 years of relevant experience in coordination or managing complex infrastructural projects or project components;
- Experience with and good understanding of institutional, strategic and legislative frameworks relevant for the implementation of energy efficiency and renewable energy infrastructural projects in public sector in BiH;
- Good understanding of energy efficiency, renewable energy and development issues in BiH;
- Experience in managing tasks of similar complexity and nature;
- Demonstrated experience in working with local stakeholders;
- Familiarity and prior experience with UNDP infrastructure projects and relevant procedures related to implementation of the infrastructure projects will be considered as an asset;
- Fluency in spoken and written English and local languages

ToR – Project Associate

- Provides support to the management of day to day activities, with due regard to prevailing standards and best practice;
- Development of action plans, work plans and relevant budgets;
- Ensures that the implementation of projects' activities corresponds to agreed projects' budgets and timely informs the immediate supervisor on any deviations;
- Supports the recruitment processes necessary for the implementation of the Projects' activities/sector
- Monitors quality of delivery of inputs provided by the consultants, beneficiaries and contracted companies and communicate findings to the immediate supervisor;
- Provides support in organization of external evaluation of the Projects;
- Background research on thematic areas related to the Projects and drafting of projects documents;
- Maintains timetables for the Steering Committee meetings and provides support to organizing and holding meetings, including the preparation and dissemination of information and follow-up.
- Ensure full compliance of Projects Procurement business processes with CO Procurement processes mapping and elaboration of the content of internal Standard Operating Procedures (SOPs) in Procurement and Logistics in consultation with the direct supervisor and office management;
- Supports Project Manager in preparation of procurement plans for projects and their implementation monitoring;
- Organization of procurement processes including preparation and conduct of RFQs, ITBs or RFPs, receipt of quotations, bids or proposals, their evaluation, negotiation of certain conditions of contracts in full compliance with UNDP rules and regulations;
- Coordination with UNDP's General Services Unit regarding preparation of Purchase orders and contracts in ATLAS as well as vendor creation in ATLAS;

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- Preparation of submissions to the Contract, Asset and Procurement Committee (CAP) and Advisory Committee on Procurement (ACP);
- Presentation of reports on procurement in the Projects;
- Preparation of inventory reports;
- Implementation of Inventory and physical verification control of the projects' assets
- Provides support to the Project Manager in the creation of projects in ATLAS, preparation of required budget revisions, revision of project award and project status, determination of unutilized funds, operational and financial closure of projects;
- Provides support to the Project Manager in reviewing the project's financial reports;
- Creates requisitions in ATLAS; prepares non-PO vouchers for development projects; follows up on timely submission of F10;
- Maintenance of the internal expenditures control system which ensures that vouchers processed are matched and completed, transactions are correctly recorded and posted in ATLAS;
- Facilitate business processes followed by the Projects in line with the UNDP regulations and rules, policies and the UNDP internal control framework

Qualifications and Experience

- Secondary Education
- At least 7 years of progressively responsible administrative or project experience at the national or international level;
- Experience in the usage of computers and office software packages (MS Word, Excel, etc) and advance knowledge of spreadsheet and database packages, advance knowledge of automated procurement systems, experience in handling of web-based management systems;
- Knowledge of finance management system used by UNDP would be an asset
- Fluency in English and official BiH languages

ToR - Project Assistant

The Project Assistant will work under the direct supervision of the Project Manager and provide assistance to project implementation in the mobilization of inputs, the organization of project activities, financial management and reporting.

The Project Assistant will be responsible for the following duties:

- Manage the day to day operations of the Project implementation unit, particularly with respect to the provision of technical services and support
- Assist the Project Manager in the implementation of technical and operational activities for the preparation of the outputs of the Project;
- Prepare the terms of reference for the international and local consultants and experts to be hired for the implementation of the Project;
- Assist the Project Manager in the selection process of the consultants to be hired by the Project according to the rules and procedures established by UNDP;
- Participate in the planning, organization and execution of Project activities;
- Organize and coordinate seminars, training activities, workshops, site visits and other exchange and facilitation events for stakeholders;
- Organize and coordinate information exchanges both internationally and between participating institutions;
- Participate in the edition of documents prepared within Project;
- Compile and/or prepare the documentation necessary for the procurement of services, goods and supplies under the Project;
- Prepare administrative, technical and financial reports;
- Perform the procurement of services, goods and supplies authorized by the Project Manager;
- Prepare the payment's request as authorized by the Project Manager;
- Assist the Project Manager to monitor disbursements in accordance to the Project Budget and Disbursement Plan;
- Maintain the Project's files and supporting documentation for payments;
- Undertake other administrative/ financial duties as requested by the Project Manager;

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- Other duties which may be required.

Qualifications and Experience

- University degree in engineering, business, economics, or related fields;
- Secondary education with additional three years of experience may be accepted in lieu of University degree;
- Minimum 3 years of work experience (5 years with secondary education);
- Administrative or project support experience;
- Experience in coordinating communication with stakeholders/beneficiaries;
- Fluency in English language.

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Annex 3. Logical framework

Hierarchy of objectives Strategy of Intervention	Key Indicators	Data Sources Means of Verification	Assumptions
Overall Goal	**Impact Indicators**		
The overall goal is to create a favourable environment for investing in EE/RES infrastructure measures in BiH.	*Indicator:* Number of infrastructure projects directly and indirectly benefiting from improved of financing mechanisms in BiH for Energy Efficiency investments *Baseline*: 230 (2020) *Target:* 278 (2024)	*Project reports* *Mid-term review* *Final review*	
Component 1. Capacity Building			
Results	**Result Indicators**	**Means of Verification**	**Assumptions**
Result 1. Strengthened capacities and skills of MoFTER and Environmental funds staff and energy professionals, introduction of green public procurement criteria, development of SUMP	*Indicator:* Technical assistance provided for MoFTER, Environmental Funds staff and energy professionals *Baseline*: Yes (2020) *Target:* Yes (2024)	*Project reports* *Relevant technical/tender documentation*	• *MoFTER and Environmental Funds have internal capacities and capabilities to manage and continue to operationalize energy efficiency thematic area.* • *Energy stakeholder employees are motivated to develop and gain additional skills and apply them in daily routine work.*
Activity 1.1. Conduct Forty-two Detailed Energy Audits and QA activities	*1.1 Indicator:* Number of MoFTER and Environmental Funds staff actively working on EMIS investment decision making process cycle, monitoring, assessing, and evaluating energy indicators *Baseline*: 4 (2020) *Target:* 7 (2024) *1.2 Indicator:* Number of MoFTER and Environmental Funds female staff actively working on EMIS investment decision making process cycle, monitoring, assessing, and evaluating energy indicators *Baseline*: 3 (2020) *Target:* 4 (2024) *1.3 Indicator:* Number of conducted detailed energy audits for public sector buildings *Baseline*: 408 (2020) *Target:* 438 (2024) *1.4 Indicator:* Number of conducted detailed energy audits for public lightning systems	*Project reports* *Relevant technical/tender documentation*	• *MoFTER and Environmental Funds have internal capacities and capabilities to manage and continue to operationalize energy efficiency thematic area.* • *Energy professionals / companies are able to absorb planned annual volume of work.*

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	Baseline: 67 (2020) *Target:* 79 (2024) *1.5 Indicator:* Number of QAs conducted over the detailed energy audits *Baseline*: 108 (2020) *Target:* 150 (2024)		
Activity 1.2. Develop Studies/Strategies and adopt results and recommendations from the Studies/Strategies by relevant authorities	*1.6 Indicator:* E-mobility Study/Strategy related to the installation and use of renewable energy sources for charging of electric vehicles *Baseline*: 0 (2020) *Target*: 1 (2024) *1.7 Indicator:* Market penetration Study/*Strategy on new technologies in SMEs in BiH* *Baseline*: 0 (2020) *Target*: 1 (2024) *1.8 Indicator:* New financial model adopted *Baseline*: 0 (2020) *Target*: 1 (2024)		
Activity 1.3. Develop documentation for the implementation of the Energy Efficiency through the ESCO modality	*1.9 Indicator:* Number of municipalities with developed for the implementation of the Energy Efficiency through the ESCO modality *Baseline*: 0 (2020) *Target*: 6 (2024)		
Activity 1.4.	*1.10 Indicator: Introduction of Green Public procurement Criteria* *Baseline: Not adopted (2022)* *Target: Adopted (2024)*		
Activity 1.5.	*1.11 Indicator: Development of Sustainable Urban Mobility Plan with one local government* *Baseline: Not developed (2022)* *Target: Developed (2024)*		

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Component 2. Institutionalization of energy management			
Results	**Result Indicators**	**Means of Verification**	**Assumptions**
Result 2. Established energy monitoring and reporting mechanisms in BiH	*Indicator:* Number of established energy monitoring and reporting mechanisms at entity and state level of BiH *Baseline*: 2 (2020) *Target:* 3 (2024)	*Project reports* *Mid-term review* *Final review*	• *Energy monitoring and reporting mechanisms are replicated and applied as a harmonized system country wide.*
Activity 2.1 Use Energy Management System (EMIS) for the ranking and selection of public buildings and public lightning systems with highest energy conservation potential	*2.1 Indicator:* Number of public buildings and public lightning systems selected for development of DEAs based on ranking from EMIS *Baseline*: 475 (2020) *Target: 517* (2024)	*Project reports*	
Activity 2.2 Introduce Energy Management System (EMIS) into public lightning systems in BiH	*2.2 Indicator:* Number of municipalities monitoring public lighting systems through EMIS database *Baseline*: 20 (2020) *Target:* 50 (2024) *2.3 Indicator:* Number of end-users trained on EMIS public lightning systems *Baseline*: 24 (2020) *Target: 54* (2024) *2.4 Indicator:* Number of female end-users trained on EMIS public lightning systems *Baseline*: 10 (2020) *Target:* 22 (2024)	*Project reports* *EMIS* *List of participants*	
Component 3. Legislative framework / financial mechanisms			
Results	**Result Indicators**	**Means of Verification**	**Assumptions**
Result 3. Three laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment adopted by the relevant authorities	*Indicator:* Number of adopted laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment *Baseline*: 4 (2020) *Target:* 7 (2024)	*Project reports* *Mid-term review* *Final review*	• *BiH's authorities are obliged to transpose EU directives regarding energy management EE, RES into national legal framework.*
Activity 3.1. Develop 3 laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment	*3.1 Indicator:* Number of developed laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment *Baseline*: 4 (2020) *Target:* 7 (2024)	*Project reports* *Official Gazette*	• *BiH's authorities are obliged to transpose EU directives regarding energy management EE, RES into national legal framework.*

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Component 4. Infrastructure EE measures			
Results	**Result Indicators**	**Means of Verification**	**Assumptions**
Result 4. Cost-optimal, green jobs generating and emission reducing EE/RES infrastructure projects implemented in BiH	*Indicator:* Number of effectively implemented EE/RES infrastructure projects *Baseline*: 230 (2020) *Target:* 278 (2024) *Indicator:* Amount of direct CO_2 emission reduction *Baseline*: 13,220 (2020) *Target:* 16,220 (2024) *Indicator:* Number of generated "green jobs" *Baseline*: 2,008 (2020) *Target:* 2,658 (2024) *Indicator:* Number of women as direct beneficiaries of EE/RES project benefits *Baseline*: 67,170 (2020) *Target:* 76,770 (2024)	*Project reports* *Mid-term review* *Final review*	• *Energy professional construction companies are able to perform high quality of work and assure timely infrastructure project implementation.*
Activity 4.1 Develop project designs	*4.1 Indicator:* Number of project designs developed *Baseline*: 230 (2020) *Target:* 278 (2024)		
Activity 4.2 Implement infrastructural energy efficiency in public sector buildings	*4.2 Indicator:* Energy Efficiency implemented on at least ten public buildings annually *Baseline*: 207 (2020) *Target:* 246 (2024) *4.3 Indicator:* % of total energy consumption savings within implemented public sector buildings *Baseline*: > 50% (2020) *Target:* > 50% (2024) *4.4 Indicator:* % of total energy cost savings *Baseline*: 50% (2020) *Target:* 50% (2024)		
Activity 4.3 Implement Solar systems in public sector	*4.5 Indicator:* Solar hot water systems and photovoltaic systems implemented on at least four public sector buildings/systems annually *Baseline*: 14 (2020) *Target:* 26 (2024) *4.6 Indicator:* % of total energy consumption savings within implemented Solar systems in public sector *Baseline*: 20% (2020) *Target:* 20% (2024) *4.7 Indicator:* % of total energy cost savings		

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	Baseline: 20% (2020) *Target:* 20% (2024)		
Activity 4.4 Implement infrastructural energy efficiency in public lighting systems	*4.8 Indicator:* Energy efficient public lighting systems implemented on at least two locations annually *Baseline*: 9 (2020) *Target:* 15 (2024) *4.9 Indicator:* % of total energy consumption savings within implemented public lighting systems *Baseline*: 50% (2020) *Target:* 50% (2024) *4.10 Indicator:* % of total energy cost savings *Baseline*: 50% (2020) *Target:* 50% (2023)		
Activity 4.7 Implement replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households in Sarajevo Canton	*4.11 Indicator:* Number of households with replaced coal and other solid fuels furnaces with certified furnaces and heat pumps *Baseline*: 0 (2020) *Target:* 500 (2024) *4.12 Indicator: Amount of reduced unpaid housework* *Baseline: 0 (2022)* *Target: (2024)* *4.13 Indicator: Amount of reduced time poverty* *Baseline: 0 (2022)* *Target: (2024)*		
Component 5. Public awareness / Visibility			
Results	**Result Indicators**	**Means of Verification**	**Assumptions**
Result 5. General public's understanding of Energy Efficiency/Renewable Energy Source benefits increased	*Indicator:* Number of people reached through marketing campaign *Baseline*: 167,000 (2020) *Target:* 272,000 (2024)	*Project reports* *Mid-term review* *Final review*	• *The general public is aware that Energy Efficiency and Renewable Energy Sources are an economic/development driver*
Activity 5.1 Increase public awareness on benefits of energy efficiency, renewable energy, and reduction of emissions to air and print educational and promotional materials	*5.1 Indicator:* Public awareness campaign outreach (out of which at least 40% women) *Baseline*: 167,000 (2020) *Target:* 209,000 (2024) *5.2 Indicator:* Number of developed educational and promotional materials *Baseline*: 5 (2020) *Target:* 11 (2024)	*Project reports* *Relevant technical/tender documentation*	• *The general public is aware that Energy Efficiency and Renewable Energy Sources are an economic/development driver*

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	5.3 Indicator: Number of human development stories featuring men and women prepared *Baseline*: 16 (2020) *Target:* 34 (2024) *5.4 Indicator:* Number of media mentions *Baseline*: 0 (2020) *Target:* 1200 (2024)		
Component 6. RES off-grid solutions			
Results	**Result Indicators**	**Means of Verification**	**Assumptions**
Result 6. Access to energy provided for off grid households in BiH	*Indicator:* Number of households provided with RES solution in off grid areas in BiH *Baseline*: 68 (2020) *Target: 83* (2024)	*Project reports* *Mid-term review* *Final review*	• *End-user's interest to participate in the project activity is high.*
Activity 6.1 Install fifteen photovoltaic solar systems in off grid households in remote areas in BiH	*6.1 Indicator:* Number of persons benefiting from RES solutions *Baseline*: 182 (2020) *Target:* 206 (2024) *6.2 Indicator:* Number of females benefiting from RES solutions *Baseline*: 75 (2020) *Target:* 84 (2024) 6.3. Indicator: Reduction of time poverty in households benefiting from RES solutions Baseline: 0 (2022) Target: 50 weeks (2024) 6.4. Indicator: Rating of living quality in households Baseline: Not satisfactory (2020) Target: Satisfactory (2024)	*Project reports* *Relevant technical/tender documentation* *Questionnaires*	• *Energy professional construction companies are able to perform high quality of work and assure timely infrastructure project implementation.*
Component 7. RES/EE in SME's			
Results	**Result Indicators**	**Means of Verification**	**Assumptions**
Result 7. Supported implementation of at least 18 EE/RES projects in SME's in BiH	*Indicator:* Energy Efficiency/Renewable Energy Source in SME's in BIH is increased *Baseline*: No (2020) *Target:* Yes (2024)	*Project reports*	• *SMEs are amongst the most vulnerable victims of the global COVID-19 pandemic. For many reasons, such as their limited access to financing, heavy credit dependency, or their small cash reserves, they are far more susceptible to such crises than large enterprises.*

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Activity 7.1 Implementation of Green Finance Incentive Scheme, conduction of detailed energy audits and introduction of the Energy management System ISO 50001 / EN 16001 in SMEs	*7.1 Indicator:* Number of Green finance incentive scheme in place for interest rate subvention for implementation of EE/RES measures in SMEs in BiH *Baseline*: 0 (2020) *Target:* 18 (2024) *7.2 Indicator:* Number of developed detailed energy audits in SMEs *Baseline*: 0 (2020) *Target: 15* (2024) *7.3 Indicator:* Number of supported SMEs for introduction of the Energy management System ISO 50001 / EN 16001 *Baseline*: 0 (2020) *Target: 3* (2024) 7.5. Indicator: Number of women led SMEs supported through Green Finance Incentive Scheme, conduction of DEA and ISO 50001 Baseline: 0 (2020) Target: 5 (2024)	*Project reports* *Relevant technical/tender documentation*	• *Project is approved by credit institution and UNDP, as effective in reduced environmental impact through implementation of the EE/RES measures.*

Sub-activities for Activity 1.1	**Inputs**
Develop detailed energy audits for public sector buildings and public lightning systems	UNDP Project team Local consultancy
Conduct QA activities on detailed energy audits	UNDP Project team Local consultancy
Sub-activities for Activity 1.2	**Inputs**
Develop E-mobility Study/Strategy related to the installation and use of Renewable Energy Sources (solar Photo Voltaic systems) for charging of electric vehicles	UNDP Project team Energy stakeholders Consultancy
Perform market penetration Study/Strategy on new technologies in SMEs in BiH	UNDP Project team Energy stakeholders Consultancy
Develop a Model for subsidizing the replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households in Sarajevo Canton	UNDP Project team Energy stakeholders Consultancy
Sub-activities for Activity 1.3	**Inputs**
Develop documentation for the implementation of the Energy Efficiency through the ESCO modality	UNDP Project team Energy stakeholders Consultancy

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Sub-activities for Activity 2.1	**Inputs**
Select public buildings and lightning systems for development of the Detailed Energy Audits by energy and environmental indicators from Energy Management System (EMIS)	UNDP Project team MoFTER Environmental Funds
Sub-activities for Activity 2.2	**Inputs**
Introduce Energy Management System (EMIS) into public lightning systems in BiH	UNDP Project team Nominated representatives from relevant institutions
Conduct trainings for end-users on EMIS public lightning systems, energy efficiency and energy management	UNDP Project team Nominated representatives from relevant institutions
Sub-activities for Activity 3.1	**Inputs**
Provide policy development assistance in Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment for different levels of government in BiH	UNDP Project team Local consultancy Relevant ministry or institution
Sub-activities for Activity 5.1	**Inputs**
Conduct awareness raising campaign - guest appearances at broadcast media, organization of events, disseminating media advisories and press releases, administration of social networks related to awareness raising campaign, press clipping	UNDP Project team Local consultancy
Develop and print project related publications, guidelines and raising awareness materials, translations, interpreters for publications and official meetings	UNDP Project team Local consultancy
Sub-activities for Activity 7.1	**Inputs**
Implement Green finance incentive scheme - Interest rate subvention for implementation of EE/RES measures in SMEs to generate local low carbon and renewable heat and electricity	UNDP Project team SMEs
Conduct detailed energy audits in SMEs	UNDP Project team SMEs
Introduce Energy Management System ISO 50001 / EN 16001 in SMEs	UNDP Project team SMEs

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Annex 4. Results and risk matrix

Result 1	**Strengthened capacities and skills of MoFTER and Environmental Funds and energy professionals**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**	**Risks and Assumptions**	**Likelihood**	**What should be done for risks reduction**
Indicator	Technical assistance provided for MoFTER, Environmental Funds staff and energy professionals	yes	yes	Project reports	yes	yes	yes	**LOW** • Lack of MoFTER and/or Environmental Funds commitment to develop, empower and enforce energy efficiency thematic area • Lack of motivation by MoFTER's employees and energy professionals to develop and gain additional skills	**MIDDLE/HIGH** • It is the MoFTER's obligation, in accordance with „Decision on the establishment of energy management system and information system of energy efficiency and mandatory data entry and regular reporting", to establish and maintain energy management in institutions at the state level of BiH • It is the obligation of the Environmental Protection Fund of the FBiH, in accordance with "Rulebook on Energy Efficiency Information System for FBiH", to establish and maintain energy management in public sector in FBiH • Energy stakeholders are motivated to enter a new thematic area and provide financing support for EE/RES projects • Energy professionals are generally motivated to gather skills and enter new areas of work in order to be able to supply the market with consultancy in EE/RES	• Create a vital commitment, knowledge and understanding of importance of developing energy stakeholder's capacities in the thematic area of EE/RES • Disseminate to BiH's private and academia sector information on knowledge and skills development required to enter new market niches within the EE/RES area of work.
Activity 1.1	**Conduct forty-two Detailed Energy Audits and QA activities**									
	Indicator	**Baseline 2020**	**Target 2023**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**			
1.1 Indicator	Number of MoFTER and Environmental Funds staff actively working on EMIS investment decision making process cycle, monitoring, assessing, and evaluating energy indicators	4	7	Project reports	7	7	7			
1.2 Indicator	Number of MoFTER and Environmental Funds female staff actively working on EMIS investment decision making process cycle, monitoring, assessing, and evaluating energy indicators	3	4	Project reports	4	4	4			
1.3 Indicator	Number of conducted detailed energy audits for public sector buildings	408	438	Project reports	10	10	10			
1.4 Indicator	Number of conducted detailed energy audits for public lightning systems	67	79	Project reports	4	4	4			
1.5 Indicator	Number of QAs conducted over the detailed energy audits	108	150	Project reports	14	14	14			
Activity 1.2	**Develop Studies/Strategies and adopt results and recommendations from the Studies/Strategies by relevant authorities**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**			
1.7 Indicator	E-mobility Study/Strategy related to the installation and use of renewable energy sources for charging of electric vehicles	0	1	Project reports Official Gazette	0	1	0			
1.8 Indicator	Market penetration Study/Strategy on new technologies in SMEs in BiH	0	1	Project reports Official Gazette	0	1	0			
1.9 Indicator	New financial model adopted	0	1	Project reports Official Gazette	1	0	0			
1.10 Indicator	Number of municipalities with developed for the implementation of the Energy Efficiency through the ESCO modality	0	6	Project reports	0	3	3			
1.11 Indicator	Number of municipalities with implemented EE measures in Public lighting through ESCO modalities	0	2	Project reports	0	0	2			
Result 2	**Established energy monitoring and reporting mechanisms in BiH**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**	**Risks and Assumptions**	**Likelihood**	**What should be done for risk reduction**
Indicator	Number of established energy monitoring and reporting mechanisms at entity and state level of BiH	2	3	Project reports Official Gazette	0	1	0	**LOW/MIDDLE** • Lack of commitment by sub-national level (cantons, ministries, municipalities) or national level authorities to establish energy monitoring and reporting mechanisms	**LOW** • It is of interest and direct benefit of sub-national level authorities in FBiH and national level authorities to participate in the development and establishment of monitoring and reporting mechanisms due to legislative obligation and due to low	• Continues dialog, awareness raising and capacity development activities with sub-national and national level authorities
Activity 2.1	**Use Energy Management System (EMIS) for the ranking and selection of public buildings and public lightning systems with highest energy conservation potential**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**			

2.1 Indicator	Number of public buildings and public lightning systems selected for development of DEAs based on ranking from EMIS	475	517	Project reports	14	14	14	• Lack of capacity and skills by sub-national level (cantons, ministries, municipalities) or national level authorities to absorb obligations and required activities	affordability to conduct EE/RES investments without co-financing	
Activity 2.2	**Introduce Energy Management System (EMIS) into public lightning systems in BiH**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**			
2.2 Indicator	Number of municipalities monitoring public lighting systems through EMIS database	20	50	Project reports EMIS	10	10	10			
2.3 Indicator	Number of end-users trained on EMIS public lighting systems	24	54	Project reports EMIS	10	10	10			
2.4 Indicator	Number of female end-users trained on EMIS public lighting systems	10	22	Project reports EMIS	4	4	4			
Result 3	**Three laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment adopted by the relevant authorities**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**	**Risks and Assumptions**	**Likelihood**	**What should be done for risk reduction**
Indicator	Number of adopted laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment	4	7	Project reports Official Gazette	0	1	2	**LOW** • Lack of stakeholder's commitment to develop, and enforce legislative framework supporting energy management and EE/RES thematic area	**MIDDLE/HIGH** • BiH's authorities are obliged to transpose EU directives into national legal framework	• Continued technical assistance to the MoFTER staff and all other energy professionals in Funds as well as in the ministries in energy sector in the field of energy management, energy efficiency, renewables, understanding of laws, by-laws and EU directives
Activity 3.1	**Develop 3 laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**			
3.1 Indicator	Number of developed laws or by-laws in the field of Energy Management, Energy Efficiency, Renewable Energy Sources, E-mobility, and environment	4	7	Project reports Official Gazette	0	1	2			
Result 4	**Cost-optimal, green jobs generating and emission reducing EE/RES infrastructure projects implemented in BiH**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**	**Risks and Assumptions**	**Likelihood**	**What should be done for risk reduction**
Indicator	Number of effectively implemented EE/RES infrastructure projects	230	278	Project reports Relevant technical documentation	16	16	16	**LOW** • Lack of end-user's interest to invest into EE/RES measures	**MIDDLE** • Empirical and practical evidence shows that end-users have interest to invest into to EE/RES projects (high energy costs, redirection of saving to infrastructure measures, obligation to invest into EE/RES as per EE Action Plans)	• Energy efficiency action plans oblige sub-national authorities to invest info EE/RES measures within public sector buildings
Indicator	Amount of CO_2 emission reduction	13,220	16,220	Project reports EMIS	1,000	1,000	1,000			
Indicator	Number of generated "green jobs"	2,008	2,658	Project reports	120	410	120			
Indicator	Number of women as direct beneficiaries of EE/RES project benefits	67,170	76,770	Project reports EMIS	3,200	3,200	3,200			
Activity 4.1	**Develop project designs**									
4.1 Indicator	Number of project designs developed	230	278	Project reports Relevant technical documentation	16	16	16			
Activity 4.2	**Implement infrastructural energy efficiency in public sector buildings**									
4.2 Indicator	Energy Efficiency implemented on at least ten public buildings annually	207	246	Project reports Relevant technical documentation	10	15	14			
4.3 Indicator	% of total energy consumption savings within implemented public sector buildings	50%	50 %	Project reports EMIS	50 %	50%	50%			
4.4 Indicator	% of total energy cost savings	50%	50 %	Project reports EMIS	50 %	50%	50%			

Activity 4.3	**Implement Solar systems in public sector**								
4.5 Indicator	Solar hot water systems and photovoltaic systems implemented on at least four public sector buildings/systems annually	14	26	Project reports Relevant technical documentation	4	4	4		
4.6 Indicator	% of total energy consumption savings within implemented Solar systems in public sector	20%	20 %	Project reports EMIS	20 %	20%	20%		
4.7 Indicator	% of total energy cost savings	20%	20 %	Project reports EMIS	20 %	20%	20%		
Activity 4.4	**Implement infrastructural energy efficiency in public lighting systems**								
4.8 Indicator	Energy efficient public lighting systems implemented on at least two locations annually	9	17	Project reports Relevant technical documentation	2	2	4		
4.9 Indicator	% of total energy consumption savings within implemented public lighting systems	50%	50 %	Project reports EMIS	50 %	50%	50%		
4.10 Indicator	% of total energy cost savings	50%	50 %	Project reports EMIS	50 %	50%	50%		
Activity 4.7	**Implement replacement of coal and other solid fuels furnaces with certified furnaces and heat pumps in households in Sarajevo Canton**								
4.11 Indicator	Number of households with replaced coal and other solid fuels furnaces with certified furnaces and heat pumps	0	500	Project reports Relevant technical documentation	50	450	0		
4.12 Indicator	*Amount of reduced unpaid housework in wages equivalent*	0		Project reports Relevant analysis	0				
4.13 Indicator	*Reduced time poverty (hours)*	0		Project reports Relevant analysis	0				
Result 5	**General public's understanding of EE/RES benefits increased**								
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**	**Risks and Assumptions**	**Likelihood**	**What should be done for risk reduction**
Indicator	Number of people reached through marketing campaign	167,000	272,000	Project reports	35,000	35,000	35,000	**LOW** • GED project missed to communicate to wider audience the benefits related to improving EE/RES • The message is not communicated in an understandable manner	**MIDDLE/HIGH** • Due to UNDP experience on similar activities in BiH, it is not expected that the GED project will miss-out to communicate, create understanding and raise awareness on EE/RES	• UNDP's Energy and Environment Sector Communication Officer supports the GED project throughout its raising awareness activities • All activities under the media campaign will be communicated in an understandable manner to the wider audience • Media buying, and outreach are timely planned; with Sweden's involvement additional outreach and media campaign coverage will be assured
Activity 5.1	**Increase public awareness on benefits of energy efficiency, renewable energy, and reduction of emissions to air and print educational and promotional materials**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**			
5.1 Indicator	Public awareness campaign outreach (out of which at least 40% women)	167,000	209,000	Project reports	14,000	14,000	14,000			
5.2 Indicator	Number of developed educational and promotional materials	5	11	Project reports	4	2	0			
5.3 Indicator	Number of human development stories prepared featuring men and women	16	34	Project reports	3	6	9			
5.4 Indicator	Number of media mentions	0	1200	Project reports	300	400	500			
Result 6	**Access to energy provided for off grid households in BiH**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**	**Risks and Assumptions**	**Likelihood**	**What should be done for risk reduction**
Indicator	Number of households provided with RES solution in off grid areas in BiH	68	83	Project reports Relevant technical documentation	5	5	5	**LOW** • Lack of co-financing possibilities by municipalities • Lack of end-user's interest to participate in the project activity	**MIDDLE/HIGH** • Based on UNDP experience the municipality's interest to co-finance is high (Until 2021 a total number of 68 households got supplied with RES	• Involvement of Sweden into GED project to assure financing • Database on off-grid households' location and energy needs will be updated

Activity 6.1	**Install fifteen photovoltaic solar systems in off grid households in remote areas in BiH**								solution for thermal energy and electricity generation)	
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**			
6.1 Indicator	Number of persons benefiting from RES solutions	182	206	Project reports Relevant technical documentation	8	8	8			
6.2 Indicator	Number of females benefiting from RES solutions	75	84		3	3	3			
6.3 Indicator	Reduction of time poverty in households benefiting from RES Solutions	0			0	0				
Result 7	**Supported implementation of at least 18 EE/RES projects in SMEs in BiH**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**	**Risks and Assumptions**	**Likelihood**	**What should be done for risk reduction**
Indicator	Energy Efficiency/Renewable Energy Sources in SME's in BiH is increased	no	yes	Project reports Relevant technical documentation	yes	yes	yes	**LOW/MIDDLE** • Lack of financing possibilities	**MIDDLE/HIGH** •According with Energy Efficiency Directive, to tap the energy savings potential in certain market segments where energy audits are generally not offered commercially (such as small and medium-sized enterprises (SMEs), Member States should develop programmes to encourage SMEs to undergo energy audits	•The GED project will provide Market penetration Study/Strategy on new technologies in SMEs in BiH, which will, among other things, include review of barriers and risks to green investments in SMEs in BiH • The incentives will be used for interest rate subvention/return as financial de-risking instrument
Activity 7.1	**Implementation of Green Finance Incentive Scheme, conduction of detailed energy audits and introduction of the Energy management System ISO 50001 / EN 16001 in SMEs**									
	Indicator	**Baseline 2020**	**Target 2024**	**Source of verification**	**Results 2021**	**Results 2022**	**Results 2023**			
7.1 Indicator	Number of Green finance incentive scheme in place for interest rate subvention for implementation of EE/RES measures in SMEs in BiH	0	18	Project reports	2	6	10			
7.2 Indicator	Number of developed detailed energy audits in SMEs	0	15	Project reports Relevant technical documentation	5	5	5			
7.3 Indicator	Number of supported SMEs for introduction of the Energy management System ISO 50001 / EN 16001	0	3	Project reports	0	1	2			

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Annex 5. Detailed Project budget

PC1 - Capacity Building	Description	Description of unit	Units/services (annually)	Unit price	Total annually*	Y1	Y2	Y3	3 years
Development of detailed energy audits	public sector buildings	Number of DEA	10	3.543	**35.432**	26.916	83.868	55.393	166.177
	public lighting systems	Number of DEA	4	3.543	**14.173**				
	QA for 14 DEA	Number of QA	14	413	**5.788**				
	Project Officer (4/1)	20%	12	2.854	**6.850**	6.850	6.850	6.850	20.550
E-mobility Study/Strategy related to the installation and use of Renewable Energy Sources (solar Photo Voltaic systems) for charging of electric vehicles	Study/Strategy	Number of studies	1	59.053	**59.053**		59.053	-	59.053
	Project Officer (4/1)	15%	12	2.854	5.138		5.138		5.138
Market penetration Study/Strategy on new technologies in SMEs in BiH	Study/Strategy	Number of studies	1	59.053	**59.053**		59.053	-	59.053
	Project Officer (4/1)	15%	12	2.854	5.138		5.138		5.138
Development of documentation for the ESCO modalities in public lighting	public lighting systems	Number of systems	3	14.371	**43.112**		43.112	43.112	86.224
Green public procurement	BiH	Lump sum	1	113.902	**113.902**		113.902		113.902
Sustainable Urban Mobility Plan	FBiH, RS	No of Plans	1	84.374	**84.374**		84.374		84.374
Project Assistant (SB3/1)	Project Assistant (SB3/1)	50%	12	2.214	**13.287**	13.287	13.287	13.287	39.860
				Sub-total		**47.053**	**473.773**	**118.642**	**639.468**

PC3 - Legislative framework	Description	Description of unit	Units/services (annually)	Unit price	Total annually*	Y1	Y2	Y3	3 years
Policy development assistance for EE/RES for different levels of Gov. in BiH	RS, FBiH, DB, BiH	Number of laws/bylaws	1	35.432	**35.432**	35.432	35.432	35.432	106.295
	Project Officer (4/1)	20%	12	2.854	**6.850**	6.850	6.850	6.850	20.550
				Sub-total		**42.282**	**42.282**	**42.282**	**126.845**

PC4 - Infrastructure EE measures	Description	Description of unit	Units/services (annually)	Unit price	Total annually	Y1	Y2	Y3	3 years
Project designs and revisions for	average per building/system	Number of project designs and revisions	16	5.221	**83.528**	52.205	114.851	83.528	250.585
	Officer for infrastrucure (3/3)	10%	12	2.815	**3.378**	3.378	3.378	3.378	10.135
Implementation of EE/RES/IAQ measures/works & commissioning	i) EE/RES in public sector buildings (1:3)	First year # of buildings Second year # of buildings Third year # of buildings	10 19 10	47.242	**472,421** **897,599** **6,756**	472.421	897.599	472.330	1.842.350
	Officer for infrastrucure (3/3)	20%	12	2.815	**6.756**	6.756	6.756	6.756	20.267
	ii) Solar hot water systems / PHV systems in public sector (1:2)	Number of systems in second and third year of project	6	64.958	**389.747**	0	389.747	389.747	779.494
	Officer for infrastrucure (3/3) 15%	15%	12	2.815	**5.067**	5.067	5.067	5.067	15.200
	iii) EE public lightning system (1:2)	First year # of systems Second year # of systems Third year # of systems	2 4 2	82.674	**165,347** **330,694** **165,347**	165.347	330.694	165.347	661.389
	Officer for infrastrucure (3/3)	15%	12	2.815	**5.067**	5.067	5.067	5.067	15.200
Supervision of works by professional companies	average per building/system	1st year # of buildings '2nd year # of buildings '3rd year # of buildings	16 22 16	3.938	**63,002** **86,628** **63,002**	63.002	86.628	63.002	212.633
	Officer for infrastrucure (3/3)	10%	12	2.815	**3.378**	3.378	3.378	3.378	10.133
Supervision by UNDP engineers, quality assessment of technical design documents and BoQs for infrastructure interventions , participation in tendering procedures (civil/architect, mechanical and electrical engineer)	civil/architect	Number of days for 15 buildings	177	236	**41.809**	125.428	125.428	125.428	376.283
	mechanical engineer	Number of days for 15 buildings	177	236	**41.809**				
	electrical engineer	Number of days for 15buildings/lightning systems/solar systems	177	236	**41.809**				
	Officer for infrastrucure (3/3)	10%	12	2.815	**3.378**	3.378	3.378	3.378	10.133
Replacement of coal and other solid fuels in Sarajevo Canton	Average per household	second year #of houeholds third year #of households	250 300	3.347	**835,668** **334,667**		836.668	334.667	1.171.336

Revision of Project design for replacement od heating sources by UNDP engineers	Mechanical engineer	Second year # of days third year # of days	76 30	236	**17,962** **7,090**		17.962	7.090	25.053
Supervision of works on replacement of coal and other solid fuels in Sarajevo Canton	Mechanical engineer	Second year # of days third year # of days	76 40	236	**17,962** **9,454**		17.962	9.454	27.416
Project Assistant (SB3/1)	Project Assistant (SB3/1)	100%	12	2.214	**26.573**	4.429	26.573	4.429	35.431
				Sub-total		**909.855**	**2.871.138**	**1.682.046**	**5.463.040**

PC5 - Public awareness / Visibility	**Description**	**Description of unit**	**Units/services (annually)**	**Unit price**	**Total annually**	**Y1**	**Y2**	**Y3**	**3 years**
Development and printing of project related publications, guidelines and raising awareness materials, translations, interpreters for publications and official meetings	copywriting, production, post-production of any-all promotional materials, translation	Lump sum	1	7.736	**7.736**	7.736	7.736	7.736	23.208
Awareness raising campaign - media buying (TV and radio), guest appearances at broadcast media, organization of RA events, disseminating media advisories and press releases, administration of social networks related to awareness raising campaign, press clipping, pre and post campaign surveying of targeted audiences	Media buying PR services, social networks administration, etc.	Lump sum	1	43.550	**43.550**	41.337	48.930	48.930	139.197
	Communication officer (4/1)	20%	12	2.854	**6.850**	6.850	6.850	6.850	20.550
				Sub-total		**55.923**	**63.516**	**63.516**	**182.955**

PC6 - RES off-grid solutions	**Description**	**Description of unit**	**Units/services (annually)**	**Unit price**	**Total annually**	**Y1**	**Y2**	**Y3**	**3 years**
Installation of photovoltaic solar system to remote areas without acess to electricity in BIH	Solar PV systems	Number of systems	5	8.267	**41.337**	16.535	66.139	41.337	**124.010**
	Selection and supervision	average per building/system	5	591	**2.953**	2.953	2.953	2.953	**8.858**
	Officer for infrastructure (3/3)	20%	12	2.815	**6.756**	**6.756**	**6.756**	**6.756**	20.267
				Sub-total		**26.243**	**75.847**	**51.045**	**153.135**

PC7 - RES/EE in SME's	**Description**	**Description of unit**	**Units/services (annually)**	**Unit price**	**Total annually**	**Y1**	**Y2**	**Y3**	**3 years**
Green finance incentive scheme - Interest rate subvention for implementation of EE/RES measures in SMEs to generate low carbon and renewable heat and electricity	Up to 10% of the total investment costs or up to 20,000 EUR per project	First year, # of projects	0	23.621	**0**	0	188.968	236.210	**425.179**
		Second year, # of projects	8	23.621	**188.968**				
		Third year, # of projects	10	23.621	**236.210**				
	Project verification at the field - consultancy services	First year, # of projects	0	945	**0**	0	7.559	9.448	**17.007**
		Second year, # of projects	8	945	**7.559**				
		Third year, # of projects	10	945	**9.448**				
	Project Officer (4/1)	20%	12	2.854	**6.850**	6.850	6.850	6.850	**20.550**
Development of detailed energy audits in SMEs	DEA in SME's	Number of DEA	5	5.905	**29.527**	0	59.054	29.527	**88.580**
	Project Officer (4/1)	15%	12	2.854	**5.138**	5.138	5.138	5.138	**15.413**
Support to introduction of the Energy management System ISO 50001 / EN 16001 in SMEs	EMS in SME's	First year, # of projects	0	11.811	**0**	0	11.811	23.621	**35.432**
		Second year, # of projects	1	11.811	**11.811**				
		Third year, # of projects	2	11.811	**23.621**				
	Project Officer (4/1)	15%	12	2.854	**5.138**	5.138	5.138	5.138	**15.413**
Project Assistant (SB3/1) 50%	Service contract	50%	12	2.214	**13.287**	13.287	13.287	13.287	39.860
				Sub-total		**30.412**	**297.803**	**329.219**	**657.434**

Project Management and Evaluation					**Total annually**	**Y1**	**Y2**	**Y3**	
Engagement of Project Manager (SB(4/2)	100% of monthly pay SB4/2		12	3.346	**40.156**	40.156	40.156	40.156	120.468
Engagement of Project Associate (SB3/3)	100% of monthly pay SB3/3		12	2.815	**33.778**	33.778	33.778	33.778	101.335
Engagement of Project Associate (SB3/2)	100% of monthly pay SB3/2	Second year # of months third year # of months	10 4	2.466	**25,982** **10,33**		24.661	9.865	34.526
Rent	lump sum per year		5	5.167	**25.836**	26.697	35.309	28.419	90.425
Rent of IT equipment	per month per person		3	71	**2.551**	2.693	4.110	2.976	9.779
Stationary	lump sum per year		1	355	**355**	355	355	355	1.064
Travel costs - Daily Subsistance Allowance	lump sum per year		1	5.905	**5.905**	5.905	5.905	5.905	17.716
Travel costs - local transportations	lump sum per year		1	3.543	**3.543**	3.543	3.543	3.543	10.629
Comunication costs	lump sum per year		1	106	**106**	106	106	106	319
Miscelaneous (postage, news/media adverts, media reports)	lump sum per year		1	1.169	**1.169**	1.169	1.169	1.169	3.508
Evaluation	Final evaluation, lump sum per day, inlcuding expert fee and travel costs		1	23.621	**23.621**	0	0	23.621	23.621

	Sub-total	**114.402**	**149.093**	**149.894**	413.390
Subtotal - direct eligible costs of the action		**1.226.170**	**3.973.453**	**2.436.644**	**7.636.267**
DPC - Direct Project Costs 1%*		12.262	39.735	24.366	76.363
GMS – 8%		99.075	321.055	196.881	617.010
	TOTAL	**1.337.506**	**4.334.242**	**2.657.891**	**8.329.640**
	TOTAL		**8.329.640**		

* DPC - Direct Project Costs are explained in UNDP's Programme and Operations Policies and Procedures (POPP) link.
As for DPC in relation to this Project the Country Office provides services from the operational and programmatic point of view. The operational services include support services of procurement, finance and human resources units. The programmatic services include support and quality assurance executed by Sector Leader, Sector Associate, Programme Resources Planning and Management Analyst and M&E Analyst.