Meeting of the Board
30 September – 2 October 2017
Cairo, Arab Republic of Egypt
Provisional agenda item 14(g)

GCF/B.18/04/Add.06

11 September 2017

Consideration of funding proposals – Addendum VI

Funding proposal package for FP051

Summary

This addendum contains the following three parts:

a) A funding proposal summary titled "Scaling-up Investment in Low-Carbon Public Buildings";
b) No-objection letters issued by the national designated authority(ies) or focal point(s); and
c) Environmental and social report(s) disclosure;

GREEN CLIMATE FUND

Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project Title: Scaling-up Investment in Low-Carbon Public Buildings

Country/Region: Bosnia and Herzegovina

Accredited Entity: United Nations Development Programme

Date of Submission: 12 May 2017

Contents

Note to accredited entities on the use of the funding proposal template

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:
fundingproposal@gcfund.org

Please use the following name convention for the file name:
FP-UNDP-010317-5882

A.1. Brief Project / Programme Information		
A.1.1. Project / programme title		**Scaling-up Investment in Low-carbon Public Buildings**
A.1.2. Project or programme		Project
A.1.3. Country (ies) / region		**Bosnia and Herzegovina**
A.1.4. National designated authority (ies)		**Her Excellency Ms. Srebrenka Golić** **Minister of Physical Planning, Civil Engineering and Ecology** **Republika Srpska** **Bosnia and Herzegovina**
A.1.5. Accredited entity		**United Nations Development Programme**
A.1.5.a. Access modality		☐ Direct ☒ International
A.1.6. Executing entity / beneficiary		Executing Entity: UNDP Beneficiaries: • 150,000 people – occupants and users of public buildings (4% of the total population), including 80,000 women
A.1.7. Project size category (Total investment, million USD)		☐ Micro (≤10) ☒ Medium (50<x≤250) ☐ Small (10<x≤50) ☐ Large (>250)
A.1.8. Mitigation / adaptation focus		☒ Mitigation ☐ Adaptation ☐ Cross-cutting
A.1.9. Date of submission		1 March 2017, 5 May 2017, 12 May 2017
A.1.10. Project contact details	Contact person, position	John O'Brien, Regional Technical Advisor, Climate Change Mitigation and GCF Focal Point, Europe & CIS Region
	Organization	UNDP
	Email address	john.obrien@undp.org
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	Mailing address	Key Plaza, Abide-i Hürriyet Cd. İstiklal Sk. No/11 Şişli, 34381, Istanbul, Turkey

A.1.11. Results areas *(mark all that apply)*

Reduced emissions from:

- ☐ Energy access and power generation
  (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
- ☐ Low emission transport
  (E.g. high-speed rail, rapid bus system, etc.)
- ☒ Buildings, cities and industries and appliances
  (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
- ☐ Forestry and land use
  (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)

Increased resilience of:

- ☐ Most vulnerable people and communities
  (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
- ☐ Health and well-being, and food and water security

(E.g. climate-resilient crops, efficient irrigation systems, etc.)

☐ Infrastructure and built environment
(E.g. sea walls, resilient road networks, etc.)

☐ Ecosystem and ecosystem services
(E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project / Programme Executive Summary (max 300 words)

1. Due to a long period of neglect and under-investment during and after the Bosnian war (1992-1995), public infrastructure, in particular buildings, in Bosnia and Herzegovina (BiH) is now in a dire state and in urgent need of upgrade and modernization. In its Nationally Determined Contribution (NDC) under the Paris Agreement, BiH explicitly recognizes the potential of **public sector buildings** for GHG emission reduction and emphasizes that to *"increase emission reduction amount and develop a sustainable system for public building renovation, international financial support is required".*

2. The project seeks a total of US$ 17.346 million of GCF grant resources to overcome identified barriers to investment in low-carbon retrofits of public buildings and to leverage an additional US$ 105.22 million of co-finance from a range of sources, such as the Environmental Funds, entity and municipal budgets, and international organizations (UNDP, GEF, World Bank, SIDA), by addressing country and sector-specific investment risks, as follows:

    - **Output 1** will provide technical assistance (TA) to public and private sector stakeholders at municipal, cantonal, entity and national level in BiH to help address non-financial barriers, and to create conducive policies, regulations and capacities for implementation of the National Investment Framework for Low-Carbon Public Buildings
    - **Output 2** will facilitate implementation of the National Investment Framework for Low-Carbon Public Buildings, including the required investment support to improve risk-return profiles and to bring prospective low-carbon building projects to financial close.

3. Overall, the project will result in a direct reduction in greenhouse gas (GHG) emissions of 2,02 million tCO_2e over the lifetime of the investments enabled, at a cost to the GCF of US$ 9/tCO_2e. Additionally, significant indirect emissions can be expected –7.1 - 8.1 million tonnes of CO2 reduction due to the project enabled market transformation – yielding a total estimated cost per tonne of CO2 reduced to US $1.8. The project will also directly benefit 150,000 people – occupants and users of public buildings (4% of the total population), including 80,000 women, and will lead to creation of over 5,630 new full-time equivalent (FTE) jobs.

A.3. Project/Programme Milestone

Expected approval from accredited entity's Board (if applicable)	Board approval - N/a. Approval from UNDP-GEF Executing Coordinator has been provided in the Annex XV
Expected financial close (if applicable)	N/A
Estimated implementation start and end date	Start: 01/11/2017 End: 31/10/2025
Project/programme lifespan	8 years (project implementation period) 20 years [1]

[1] Refers to lifetime of the investment in low-carbon retrofits of public buildings supported by the GCF-financed project

B.1. Description of Financial Elements of the Project / Programme

4. The project consists of 2 inter-related outputs (excluding Project Management):

   - Output 1: Addressing non-financial barriers to investment in low-carbon public buildings ("Policy de-risking") (GCF finance: US$ 6.330 million; co-finance: US$ 3.50 million)
   - Output 2: Addressing financial barriers to low-carbon investment in buildings ("Financial de-risking & Investment Support") (GCF finance: US$ 10.044 million; co-finance: US$ 101.12 million)

5. A detailed description of the project design is provided in Section C.3.

6. The project will leverage considerable co-finance – US$ 105.22 million – from the public sector stakeholders. In addition, sizable private sector co-finance will be leveraged by the project via creation of a favourable market framework and conditions for private energy service companies (ESCOs) to carry out projects in the public sector. The breakdown of GCF finance and co-finance across the outputs is presented in the table below. Note that this breakdown excludes the Accredited Entity fee.

Component	Outputs	Financing (MUS$)		Total Cost per Output	
		GCF	Co-finance	Foreign Currency (Million US$)	Local Currency[1] (Million BAM)
Component 1. De-risking low-carbon investment in public buildings	1.1. Policy de-risking (TA)	6.330	3.500	9.830	18.014
	1.2. Financial de-risking (FA)	10.044	101.118	111.162	203.706
	Project Management	0.972	0.600	1.572	2.881
Total project financing		**17.346**	**105.218**	**122.564**	**224.601**

7. The breakdown of co-finance across outputs is presented below.

Component	Outputs	Co-Financing	
		Source	Amount (Million US$)

[1] Exchange rate used is as of February 1, 2017 (UN Operational Rates of Exchange).

Component 1. De-risking low-carbon investment in public buildings	1.1. Policy de-risking	UNDP	1.75
		GEF	1.00
		Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska (MPUGERS)	0.50
		Federal Ministry of Physical Planning (FMPU)	0.25
		Sub-total	***3.50***
	1.2. Financial de-risking	GEF	1.20
		Environmental Protection Fund of Federation of Bosnia and Herzegovina (EF FBiH)	14.00
		Environmental Protection and Energy Efficiency Fund of Republika Srpska (EF RS)	15.70
		Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska (MPUGERS)	18.77
		Federal Ministry of Physical Planning (FMPU)	21.15
		End-users*	30.30
		Sub-total	***101.12***
Project Management			***0.60***
Total			**105.22**

8. Break-down of co-financing from end-users is further detailed in Table 1:

Table 1 Co-financing from end-users

Government of Western-herzegovina Canton	9.00
Ministry of Economic Affairs of Canton 10	3.00
City of Doboj	2.00
Municipality of Gracanica	0.15
Municipality of Modrica	0.50
Municipality of Maglaj	0.30
City of Trebinje	2.00
Municipality of Teslic	1.80
The Government of Bosnian-Podrinje Canton	2.30
Ministry of Spatial Planning and Environmental Protection of Tuzla Canton	3.00
Ministry of Physical Planning, Constructions and Environmental Protection of Canton Sarajevo	6.00
Municipality of Petrovo	0.25
TOTAL in USD	30.30

*The loan amount is the minimum loan amount the Ministry of Spatial Planning of Federation of BiH and Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska would absorb from IFIs during the eight-year project implementation period. More precisely, this amount is only reflecting the next lending period which shall be disbursed from 2018 to 2021 e.g. covering four out of eight years of the project. An additional loan which would cover the period 2022 to 2025 would follow and is not reflected in the co-financing table.

9. Detailed financial analysis of the project is given in Annex III and in Section F.1.

10. UNDP's currency hedging mechanism is based on the use of natural hedges (matching cash flows (i.e. revenues and expenses)) in non-US$ currencies to the extent possible and bank account balances are targeted to not to exceed approximately one month's disbursement requirements in order to minimise risk. In practical terms, UNDP country office issues quarterly cash advances in local currency to responsible partners according to the justified and substantiated cash flow needs of those partners. Accounting wise UNDP follows IPSAS accounting standards and advances are recorded at the advance account level. Upon completion of each quarter, responsible partners are due to report their expenses against the advances in local currency and, in accounting terms, the recording of responsible partners expenses is done in both local currency and corresponding US dollars, whereby conversion follows the UN operational rate of exchange (UNORE) in effect on the last month within the given quarter. Should there be a higher exchange rate fluctuation between the local currency and USD, the recording of expenses might be done on a monthly basis (this is optional and can be seen as risk mitigation action). The value of outstanding advance held with the Responsible partners is revalued automatically by the UNDP accounting system (ATLAS – UNDP's ERP system) at the end of each quarter. It is important to emphasize that CO BIH usual practice applied in all projects of similar management arrangements entails regular monitoring and verification of all expenses reported by responsible partners prior to liquidation of expenses in UNDP system and prior to processing next advance payment. The responsible partners would become eligible to receive next advance payment only upon liquidation of 80% of previous quarter advance and 100% of all preceding quarter advances. This way UNDP controls the amount of cash held by the responsible partners at the reasonable and required level, manages the eventual risk of currency fluctuation and keeps exchange gain/loss at a minimum.

B.2. Project Financing Information

	Financial Instrument	Amount	Currency	Tenor	Pricing

(a) Total project financing	**(a) = (b) + (c)**	122.564	million USD ($)		
(b) GCF financing to recipient	(i) Senior Loans (ii) Subordinated Loans (iii) Equity (iv) Guarantees (v) Reimbursable grants * (vi) Grants *	…… …… …… …… …… 17.346	Options Options Options Options Options million USD ($)	( ) years ( ) years	( ) % ( ) % ( ) % IRR
	** Please refer to Section F1 for justification regarding the use of grants preferred financial instrument in the current proposal. Since the Governments of RS and FBiH foresee continued demand for concessional finance in the targeted sector (in particular if investment needs on heat supply side are taken into account), there is an interest in a follow-up application to GCF for concessional loan funding through the nationally accredited entities Government plans to support application for accreditation under the GCF for its national entities (from among the Project Responsible Partners); it is expected that through this project required internal capacities will be developed to comply with accreditation requirements.*				
	Total requested (i+ii+iii+iv+v+vi)	17.346	million USD ($)		

(c) Co-financing to recipient

Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
Grant	2.30	million US$	GEF			
Grant	2.05	million US$	UNDP			
Grant	7.77	million US$	Govt			
Grant	16.21	million US$	EFs			Options
Loan	32.00	million US$	Govt	25 years	1,25 -1,4 %*	Options
Loan	13.49	million US$	EFs	10 years	1,25 - 5%**	Options
In-kind	1.00	million US$	Govt			Options
In-kind	0.10	million US$	EFs			
Grant	30.30	million US$	End-users			

* WB loan pricing is as follows: RS: 1,4%; FBiH: 1,25% – 1,4% (duration 25 years, 5 year grace).

** For the EF's on-lending conditions will vary in the range of 1,5 – 5%, depending on the parameters of the specific EE-RE project.

11. Lead financing institutions:
    - Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska (MPUGERS)
    - Ministry of Spatial Planning of Federation of BiH (MMPU)

12. Commitment letters have been secured (Annex IV) from main co-financing partners for the total of US$ 105.22 million. Co-financing from BiH Ministries include their own financing, as well as new loan from the WB, KfW or other IFI to co-finance proposed National Framework for Low-carbon

	Investment in Public Buildings (estimated at about US$ 22 mln for the duration of the project). However, the approval by the Governments of FBiH and RS of the complementary loans is conditional upon securing GCF support to the Framework (as stated in provided co-financing letters): without GCF project, debt finance, even at concessional terms, can't be justified and loan repayment ensured at proposed terms. 13. In addition the letter of commitment have been provided from SIDA indicating SIDA's interest to co-finance projects with grant and guarantees; it is also now included in the Annex IV.
(d) Financial terms between GCF and AE (if applicable)	N/A

B.3. Financial Markets Overview (if applicable)

14. Central Bank of Bosnia and Herzegovina uses (CBBiH) the currency board as the monetary policy tool. The currency board is based on the fixed exchange rate of EUR 1 to KM (BiH convertible mark) 1.95583 and the policy of non-lending to any industry. As a result, the CBBiH has no powers to monetize fiscal deficit and it does not act as the lender of last resort to assist in problems related tofinancial market liquidity.

15. Since the global financial crisis began, economic and financial activity in BiH remains stuck in a low gear, reflecting weak external demand and tighter funding conditions. When the economy fell into recession in the aftermath of the global crisis in 2008, the current account and budget deficits rose sharply, and with that public debt, the share of public debt in GDP increased two-fold in just 7 years between 2007 and 2014 (from 19% up to 40 %) and continued to grow (Figure 1). Debt management, with the aim of maintaining the debt on the same level or decreasing its share in GDP, therefore represents one of the key priorities BiH during the following period, as provided for in the BiH Economic Reform Programme (ERP) for 2016-2018. In this respect, IMF recommends that any new borrowing should be tied to projects contributing to expedited structural reforms and that adoption of each individual decision on new borrowing must imply mandatory analysis of macroeconomic flows and their susceptibility and implications on GDP to minimize risks.

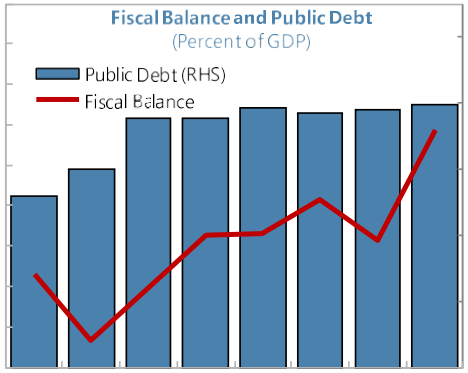
Figure 1 State of public debt and projections (in mln KM)

	8,213.8	**8,538.8**	**9,477.4**	**9,171.6**	**8,292.4**
Institutions of Bosnia and Herzegovina	59.0	66.1	73.1	69.9	66.7
Federation of BiH	5,251.7	5,275.2	5,777.6	5,241.5	4,715.7
Republika Srpska	2,887.2	3,167.0	3,581.0	3,799.7	3,456.3
Brčko District	15.9	30.5	45.7	60.5	53.7
	3,285.0	**3,453.8**	**3,164.7**	**3,036.8**	**2,831.3**
Federation of BiH	1,094.6	1,258.9	1,130.6	1,146.8	1,096.8
Republika Srpska	2,168.0	2,184.4	2,029.4	1,886.4	1,731.5
Brčko District	22.4	10.5	4.7	3.6	3.0
	11,498.8	**11,992.6**	**12,642.1**	**12,208.4**	**11,123.7**
GDP in million KM.	28,198	29,054	30,316	31,887	33,738
	40.8	**41.3**	**41.7**	**38.3**	**33.0**

Source: BiH Economic Reform Programme Document 2016-2018

16. In 2015, BiH adopted a comprehensive Reform Agenda (Annex XIIIf), which promised the most significant reorientation of the BiH economy since the time of the Dayton Accords. Reforming public finance and ensuring the stability of public debt is the first among the six key items of the Reform. Specifically, the Agenda (§6) recognizes that "The state of public finances at all levels of government in BiH is such that it is necessary to implement fiscal consolidation that will gradually reduce the budget deficit and put the public debt on a downward medium-term trajectory".The latest IMF report dated September 2016 (Annex XIIIg) emphasizes the need for further fiscal consolidation and public debt management, which remains at about 45% ofGDP.

Figure 2 State of public debt and projections (% GDP)

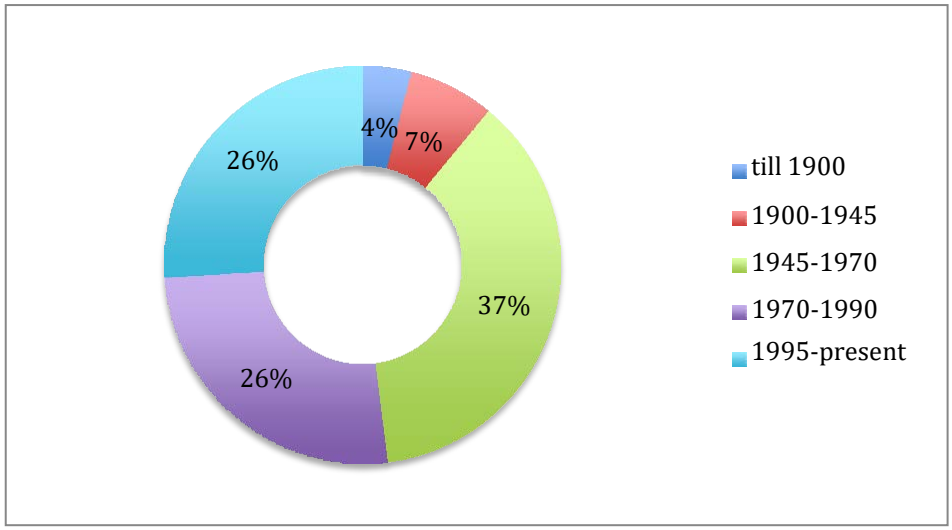

Fiscal Balance and Public Debt
(Percent of GDP)
Public Debt (RHS)
Fiscal Balance

C.1. Strategic Context

17. BiH's administrative and political structure is extremely complex. It includes two largely autonomous entities: the Federation of Bosnia and Hercegovina (FBiH), and Republika Srpska (RS). It also includes a self-governing district, Brcko, under the direct authority of the central state government. The central state-level BiH government was granted limited responsibilities under the 1995 Dayton peace agreement. The Council of Ministers is BiH's state-level cabinet, headed by a chair, who is the country's *de facto* prime minister. The entities (FBiH and RS), the ten cantons within FBiH, also have their own governments.

18. Due to a long period of neglect and under-investment during and after the Bosnian war (1992-1995), public infrastructure, in particular buildings, in BiH is now in a dire state and in urgent need of upgrade and modernization. Over 70% of BiH's public buildings were designed and built over 30 years ago with no consideration for their energy performance, let alone carbon footprint (Figure 3).

Figure 3 Public Buildings in BiH by Age



Source: UNDP's own calculation based on EMIS data

19. Public buildings have been identified as the sector with the largest potential for cost-effective energy saving in BiH (20-60%)[2]. Detailed energy audits (see Annex II) conducted in public facilities by UNDP confirm that average energy use in a building can be reduced cost-efficiently by about 60%, assuming a given comfort level in the building (e.g. 20°C) before and after retrofitting. In addition to energy efficiency, significant potential for GHG emissions reduction lies in fuel switch[3] measures: over 80% of public sector buildings are currently using fossil fuels (coal, light fuel oil (LFO), natural gas) or district heating systems, which are also predominantly coal-based (Figure 4). Deployment of BiH's vast renewable energy resources – bioenergy (biomass/biogas), solar and other sources – combined with investments in energy efficiency, therefore have the potential to play an instrumental role in reducing GHG emissions and energy use in public buildings, currently amounting to approximately 10% of BiH's annual governmental budget. In total, the cost-effective energy savings potential in public buildings is estimated at around 700 GWh/year[4], which translates into ***560,000 tCO_2/year*** or ***over 10 million tCO_2*** in GHG emissions reduction over the investment life-cycle for both energy efficiency (EE) and renewable

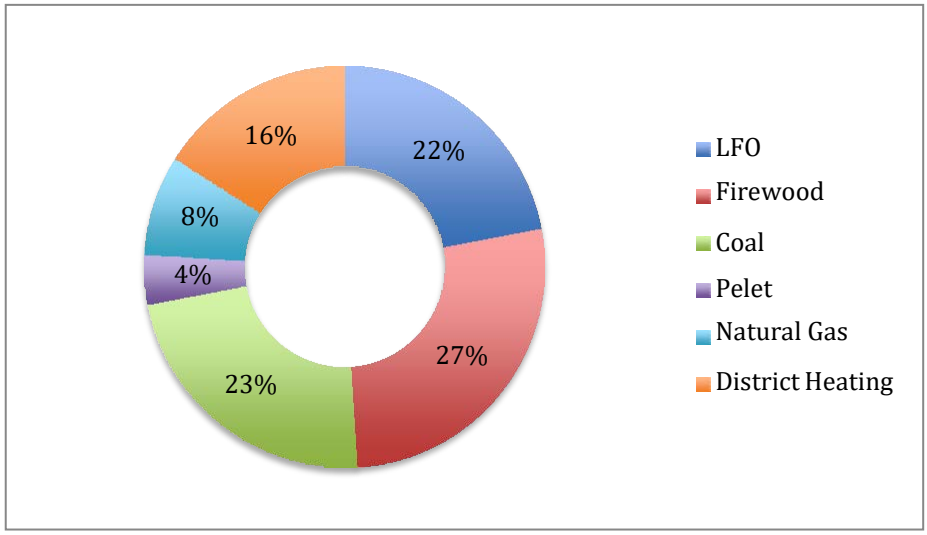
[2] World Bank, *Status of Energy Efficiency in the Western Balkans: A Stocktaking Report*, Report No. AAA49-7B, 2010

[3] Fuel switch measures (i.e. replacement of boiler and change of baseline fuel source) have a double impact on energy use/GHG emission reductions in buildings. First, large energy saving/GHG emission reduction (30-40%) can be achieved through enhancement of the fuel utilization coefficient: older, inefficient boilers utilize only 60% of fuel to heat, whereas new, efficient boilers utilize up to 94% of fuel to heat. Second, replacing fossil fuel with renewable energy alternatives, such as biomass or solar, means that the residual energy (heat) demand in buildings can supplied on a zero-emission basis.

[4] UNDP's own estimates based on data from EMIS, detailed energy audit, as well as other sources.

energy (RE) measures in buildings (for further details about feasible EE and RE or "low-carbon" solutions, see the description of project outputs below).

Figure 4 Public Buildings in BiH by Heating Source



Source: UNDP's own calculation based on EMIS data

20. In its Nationally Determined Contribution (NDC) under the Paris Agreement, BiH explicitly recognizes the potential of **public sector buildings** for GHG emission reduction. The NDC's unconditional mitigation scenario foresees implementation of minimal energy performance requirements related to increased energy efficiency (EE) within this sector, which are primarily applicable to new building construction. However, this scenario does not imply any incentives, nor ambitious or systematic approaches and plans for implementation of EE measures in the buildings sector, in particular related to expedited EE retrofits of existing building stock. In this respect, the NDC emphasizes that to *"increase emission reduction amount and develop a sustainable system for public building renovation, international financial support is required".* Provided that Bosnia & Herzegovina is granted access to international development / financial mechanisms for indicated mitigation activities, which include, inter alia, "*systemic energy rehabilitation of existing buildings (focus on public sector)*", BiH commits to reduce emissions by approximately 23% in 2030 relative to the baseline scenario.

21. BiH has also signed the International Energy Charter (2016) and the Energy Community Treaty (2009), indicating the Government's recognition of the need to improve energy efficiency in order to ensure sustainable, low-carbon economic growth. The country has subsequently transposed a number of EU Directives and, as a member of the Energy Community Treaty, has developed the draft **National Energy Efficiency Action Plan** (NEEAP) – expected to be adopted imminently and which includes an indicative energy savings target of 9% by 2018. *Energy efficiency improvements in buildings* are expected to make the single greatest contribution to achieving this target, with an annual reduction in energy consumption of 1,900 GWh.

22. The new **Law on Spatial Planning and Construction in Republika Srpska ("RS Official Gazette" no 40/13) provides the legal framework for the corresponding secondary** legislation, regulations and guidelines including energy auditing regulations, building certification systems and equipment standards defining the maximum energy consumption in buildings and requirements for building certification. In the Federation of Bosnia and Herzegovina (FBiH), the domestic legislation transposing the EU Energy Performance in Buildings Directive has had secondary regulation enacted since 2009, which is currently under revision for the purpose of reducing the maximum allowed energy consumption in buildings. The **Laws on Energy Efficiency** of FBiH (under consideration by the Parliament) and of RS (adopted in 2013) recognize the importance of the public sector to lead the transition towards a low-carbon economy and stipulate a number of important provisions, such as quantitative decision-making for EE investments, monitoring, verification and reporting with support of information system for public buildings, energy audits and a certification scheme, energy management and strategic EE documents, regulation of energy services with respect to EE and financial incentives.

23. The **Climate Change Adaptation and Low Emission Development Strategy** of BiH features four priority sectors for climate change mitigation, of which energy efficiency in buildings is highlighted as having the strongest potential for emission reduction and is presented as a key priority at national level. The Strategy clearly indicates that fuel switch measures in buildings should be accompanied by energy efficiency measures.

24. Finally, the **Second National Communication** to the UNFCCC (2013) also emphasizes the potential for considerable GHG emission reductions (up to 80%) from improving the thermal performance of building envelopes (thermal insulation of roofs, exterior walls, floors, better sealing, replacement of windows), replacing HVAC systems, as well as fuel switch measures (coal to biomass) in buildings. More detailed analysis of building sector's GHG emissions and mitigation potential has been presented in the **First Biennial Update Report of BiH to UNFCCC** (2014), which clearly demonstrates significant economic benefits and GHG emission reduction potential of increased EE in building sector. The report also notes that considering the total number of public buildings in BiH and sector's investment needs, the current level of support is negligible.

C.2. Project / Programme Objective against Baseline

25. The reduction of GHG emissions in BiH's public sector will come at a cost and will require significant upfront investment: an estimated **US$ 230 million** will be required to achieve transformation of BiH's public buildings sector such that it embarks upon a low-carbon pathway. These investments are very slow to materialize under baseline conditions due to a number of financial and non-financial (structural) barriers, as detailed below.

Fragmented jurisdictions and weak capacities

26. Public buildings, *i.e. buildings that belong to a state, municipality or other type of public authority and are used by the public*[5], come in a wide variety of shapes, sizes and purposes, and they have been built at different times according to different standards (Table 2). Consequently, addressing energy use in any given building requires a tailored approach, which needs to reflect the specifics of a particular building. Such an approach carries significant upfront transaction costs.

Table 1 Types of Public Buildings in BiH

Type	FBiH	Share FBiH	RS	Share RS	TOTAL BiH	Share BiH
Schools	1,141	44%	603	45%	1,744	44%
Kindergartens	119	5%	87	6%	206	5%
Health-care	494	19%	123	9%	617	16%
Culture	134	5%	133	10%	267	7%
Municipal	86	3%	28	2%	114	3%
Social	89	3%	28	2%	117	3%
Universities	49	2%	17	1%	66	2%
Other*	484	19%	335	25%	819	21%
TOTAL	**2,596**	**66%**	**1 354**	**34%**	**3,950**	**100%**

*administration buildings, sports halls, post offices, fire departments, etc.

Source: UNDP's own calculation based on EMIS data

27. Reflecting this highly complex administrative structure of BiH (see also administrative Map in Annex IX), the country's public buildings lie within multiple jurisdictions. As Table 3 shows, ownership and, consequently responsibility, for public building management (including energy use management, bill payment and investment) lies with **over 100 entities**: 143 municipal authorities; the Ministries of Education and Health in RS; 10 Ministries of Education, 10 Ministries of Health and 10 Ministries of Social Welfare in FBiH. To complicate matters further, there are some 23 public buildings under the state-level authorities, located mainly in the national capital of Sarajevo.

Table 2 Jurisdiction of Public Buildings in BiH

Type	FBiH	Jurisdiction in FBiH	RS	Jurisdiction in RS

[5] State-provided accommodation (e.g. council apartments, public housing) are excluded from the GCF project

Schools	1,141	Cantonal* Ministries of Education	603	Ministry of Education and Culture
Kindergartens	119	Cantonal Ministries of Education**	87	Ministry of Education and Culture
Health care	494	Cantonal Ministries of Health/Federal Ministry of Healthcare	123	Ministry of Health and Social Welfare
Culture	134	Cantonal Ministries of Culture and Sports	133	Ministry of Education and Culture
Municipalities	86	Municipalities***	28	Municipalities****
Social institutions	89	Cantonal Ministries of Social Welfare	28	Ministry of Health and Social Welfare/Municipalities
Universities	49	Cantonal Ministries of Education	17	Ministry of Education and Culture
Other	484	Majority-Cantonal	335	Mostly Municipalities

* There are 10 cantons in FBiH.
** For Zenica-Doboj Canton and K10 Canton, kindergartens are under municipal jurisdiction.
*** There are 79 municipalities in FBiH.
**** There are 64 municipalities in the Republic of Srpska.

Source: UNDP's own calculation based on EMIS data

28. Due to the fragmented and complex inter-authority jurisdictions, especially in FBiH, authorities and line ministries do not possess a clear overview of public buildings under their jurisdiction, not to mention energy- and water-related consumption and the costs they incur on a monthly basis: public expenditures on energy and water are not monitored, recorded or analysed in any systematic way. Official data on energy intensity of public building stock do not exist. Although draft plans for improved energy performance in buildings (Operational Energy Efficiency Action Plans of public sector buildings in several Cantons in FBiH and Energy Efficiency Action Plan of Republika Srpska in RS) are being laid down, a comprehensive policy implementation platform and monitoring framework for public buildings is missing and has to be put in place to promote and enable low-carbon investment on the ground.

29. Multiple public authorities and entities in charge of public building management and building end-users lack essential capacities to identify, prepare and implement low-carbon investment projects. Lack of human and technical resources, information, as well as practical experience with project identification and preparation, and with implementation planning and business-models for low-carbon investment in the public sector, represent another important non-financial barrier that needs to be overcome.

Limited access to finance

30. Municipalities: Traditionally, municipalities in BiH rely on sub-national governments and institutions to provide grants and direct transfers to finance their capital investments, but with public expenditures already at 50% of GDP and net Government debt at 39.3% of GDP in 2016[6], such funding is increasingly difficult to obtain. Commercial lending is only in its beginnings and municipal authorities have to be creditworthy to access commercial financing. The barriers to access funding also stem from the inadequate legal and regulatory framework, such as (i) a one-year budgeting process that prevents municipalities from amortizing investments through future energy savings; (ii) the requirement to keep separate accounts for capital and operating expenditures that makes investments (considered capital expenditures) difficult to repay using energy cost savings (considered operating expenses); (iii) line-item budgeting prevents municipalities from using money budgeted for paying energy bills for the repayment of loans for EE investments instead; (iv) there is a lack of budgetary provisions for retaining energy cost savings in future years to repay any debts incurred; (v) the short-term perspectives of local policy-makers makes low-carbon investments that have a payback period longer than 5 years less attractive; and (vi) limitations on local borrowing.

31. Private sector: The Energy Service Company (ESCO) business model has been proven in many countries as the best approach for rolling-out EE projects in public sector buildings, for the reason that the ESCO modality offers both a technical and a financial solution to promote energy-efficiency investment. However, in the specific situation of BiH, a pure ESCO-based approach to finance EE retrofits may not be the best solution (yet!): there are no large ESCOs with a strong balance

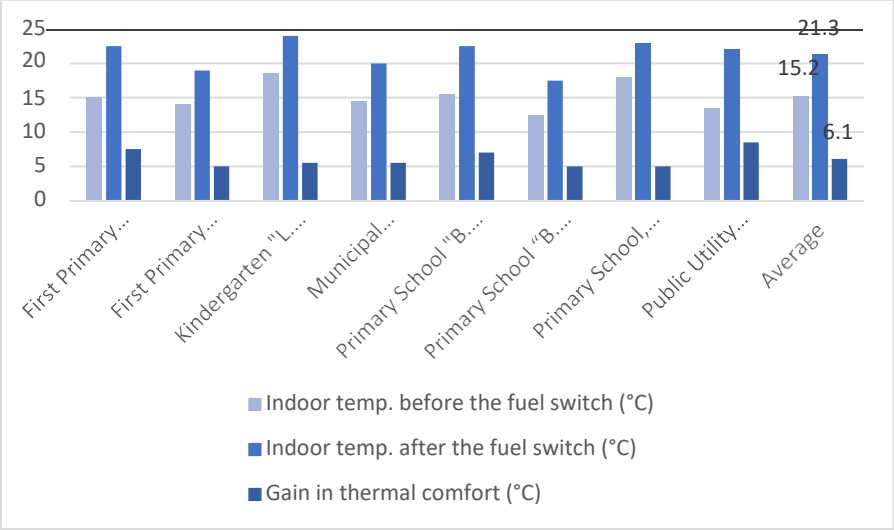
[6] Source: Eurostat

sheet, good credit worthiness and access to affordable finance. Local ESCOs are exclusively SMEs with limited borrowing capacity. In addition, interest rates are high, which makes borrowing even more difficult as the ability to take on affordable debt is often limited. This creates obstacles for ESCOs to engage in multiple projects using an EPC contracting modality. However, local SMEs are the key implementation delivery agents and are crucial for EE market transformation. Therefore, a hybrid solution will need to be devised involving international and national funding sources, municipalities, commercial banks and SMEs in order to start-up and boost the nascent ESCO market in BIH and enable its growth and a steady increase in capital inflows for public buildings low-carbon retrofit programmes.

Low Financial Returns

32. Investment in low-carbon buildings offers significant socio-economic benefits but does not yet present a convincing financing case for investors. There are several underlying reasons for this. First, low existing comfort levels reduce the share of achievable energy cost savings. UNDP experience confirms that **under-heating and below-standard lighting** are widespread, particularly in school buildings, resulting in longer payback periods in these buildings as the increase in comfort levels absorb significant parts of the achieved energy efficiency improvements. "Under-heating" is defined as the difference between calculated final energy demand for heating based on building audits and indoor temperature requirements, and the real energy consumption based on energy bills. The latter is usually much lower: 44% of public sector buildings are under-heated in BiH and they use 20-30% less energy than required to ensure sufficient thermal comfort (approximately 20-22°C). Consequently, after a building retrofit is implemented, thermal comfort normally improves (see insufficient monetary savings Figure 5), but the rebound effect leads to insufficient monetary savings.

Figure 5 Thermal comfort in public buildings before and after EE-RES projects



Source: UNDP 2016. *"Analysis of the Benefits of Wood Biomass Fuel Switch Projects implemented by UNDP in Bosnia and Herzegovina"*

33. Second, financial returns on low-carbon investment in buildings vary significantly depending on the type and costs of **baseline fuel supply in buildings**: in buildings with light fuel oil (LFO) as the baseline fuel, investment in energy efficiency and fuel switching can be attractive, whereas for buildings with coal-based heat systems (and especially taking "under-heating" into account) investment in the same package of technical measures would not bring sufficient returns. This explains the large spread in financial IRR of otherwise identical EE-RE measures, as illustrated in Table 4. Under such parameters, only a few projects can be financially viable on their own and can secure commercial financing (e.g. loans at 8-10%) without additional grant support or other forms of financial incentives.

Table 3 Financial and Economic IRR of EE and RE Measures in Public Buildings

Baseline fuel	Adequate occupancy conditions	20% Under-heating*

	Financial IRR	Economic IRR	Financial IRR	Economic IRR
Coal	3%	14%	-1%	8%
LFO	27%	35%	11%	17%

* Occurs in 44% of public buildings.

34. Third, maintenance practices in public sector building are, as a rule, inadequate and most buildings do not have skilled energy managers. Building maintenance mangers are not for the most part trained as energy managers. As a consequence, buildings are in poor shape, and, when an EE retrofit project is to be implemented, it has to involve a number of interventions that are not directly EE-related, but cannot be omitted, such as a leaking roof, out-dated electrical and plumbing installations, etc[7].

Current financing paradigm for EE-RE investment in public buildings

35. The market for low-carbon investment in public buildings is in its infancy in BiH. The only existing "on-the-market" financing instrument for such projects – the WeBSEFF (Western Balkans Sustainable Financing Facility) (www.webseff.com) has not received applications for an EE or RE retrofit of public buildings from BiH**.** WeBSEFF is a financing facility established by the European Bank for Reconstruction and Development (EBRD), which provides credit lines to partner banks in the Western Balkans to on-lend to private and public entities for energy efficiency and small-scale renewable energy projects. In particular, WeBSEFF provides financing of up to Euro 2.5 million to municipalities, ESCOs, providers of municipal services and owners of public buildings looking to invest in energy efficiency and renewable energy, and in addition it offers grant incentives of 10-15% of the loan amount. However, as noted earlier, there has been no interest among municipalities or private ESCOs in WeBSEFF financing in BiH: this reinforces the fact that there exist major structural barriers preventing the roll-out of investments in EE-RE retrofits of public sector buildings in the country and the need for a new approach.

36. Other, non-market, sources of capital for EE-RE retrofits in the public sector are municipalities' and other end-users' own financing, grants from the Environmental Funds (EFs) of the Federation of BiH (FBiH) and of the Republika Srpska (RS), bilateral and multilateral donors, and International Financial Institutions (IFIs). International organisations, such as UNDP, SIDA, USAID and GIZ, have provided funding for energy audits, studies and renovation work in some public buildings. However, considering the total number of public buildings, this support is negligible and for the most part only covers minimum energy efficiency measures without tapping into the full potential, as well as not addressing the use of renewable energy. The total requirements for new investments in low-carbon public building retrofits in BiH in order for the country to meet its commitment under the Paris Agreement are estimated at US$ 230 million.

37. Among IFIs, the most prominent is the on-going (2014-2018) project of the World Bank (WB)[8], which has allocated US$ 27 million sovereign loan to the Government of BiH to finance implementation of public building retrofits, targeting projects with pay-back periods below 7 years (WB loan is a sovereign loan by the central government and municipalities do not have the direct obligation to repay the loan). The WB project has been on-going in both FBiH and RS since 2014, however with significant delays (disbursement as of September 2016 was at 6%). It was expected to support implementation of EE projects in up to 85 public buildings between 2015 and 2017. Even though latterly the project expedited delivery (the first 12 buildings are expected to be renovated by the end of 2016), the slow pace of its implementation confirms the presence of structural barriers in this sector, as described above.

38. 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 is also moving away from pure grant financing towards a revolving loan approach. In 2016, the first call for proposals for financing EE projects on concessional loan terms (both for the private and public sector) was announced, but only 4 applications were received. The EFs also support implementation of the Energy Management Information System (EMIS) in municipalities and cantons under the framework of UNDP-led multi-partner project "Green Economic

[7] Note that non-EE related technical measures will not be covered with GCF funding and will be co-financed by end-users – please refer to section C.3 for further details

[8] More information about WB EE project is available at http://projects.worldbank.org/P143580?lang=en and at the project web-site: http://beep.ba

Development" (GED)[9]. In addition, a number of bilateral and multilateral donors have provided grant support for EE or RE projects in public buildings, all based on different criteria, priorities, funding principles, etc. Cumulatively, however, public finance covers only a very small fraction of buildings: on average, 20-25 public buildings undergo a comprehensive EE retrofit per year against 4,000 public buildings in need of such investment across the country. Opportunities to integrate RE solutions into such projects are also limited.

39. The role of ESCOs: The role of energy service companies in BiH remains somewhat limited due to a number of barriers which include policy, regulatory, information and awareness barriers. Typically, ESCOs in BiH are really either companies that provide energy audit services or energy service providers that offer audits and then also a technical solution for a fee. These companies do not provide both a technical and a financial solution, and there is limited experience with energy performance contracts (EPCs) in BiH – which is made even more problematic by the fact that financing is often difficult to obtain at affordable terms. Policy, regulatory, awareness and information barriers have all prevented the ESCO market from picking-up in BiH.

40. All in all, the current financing paradigm for investment in low-carbon retrofits of public buildings in BiH can be summarized as follows:
    - The existence of seemingly numerous, but cumulatively insignificant, grant-based funding sources/projects from national and international organizations complemented by end-users' own finance;
    - The lack of a coordinated and integrated approach to public building retrofits that leads to ineffective and sub-optimal allocation of public funds;
    - The lack of private sector involvement and interest in market-based finance, including lack of a developed market for the ESCO business model and energy performance contracts.

UNDP's lessons learnt

41. UNDP's own experience with promoting and implementing low-carbon projects in the public sector offers valuable lessons for addressing the structural imbalances.

42. Indeed, the technical potential for GHG emission reduction and energy saving in BiH's public sector is vast: UNDP has supported implementation of over 120 EE-RE projects in buildings over the last years, demonstrating that on average 50-60% savings can be achieved cost-effectively. However, UNDP's experience has also demonstrated that a lot of effort, data, technical skills and human resources are required to identify feasible projects, prepare and implement them. While the potential is vast at an aggregated scale, it consists of thousands of fairly small-size individual projects, each with their own technical, financial and institutional specifics, which need to be understood and addressed on a case-by-case basis to prepare a viable investment proposal.

43. The availability of information about building energy intensity and real energy costs is essential to estimate financial returns of proposed investments, but such data often prove impossible to obtain. Building on the successes of an earlier project in Croatia[10], 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 2,100 (out of 5,000) buildings across the country. An effective EMIS is an important tool in catalysing 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.

44. Public finance should be used in a more effective, targeted and coordinated way to address structural barriers. Currently, donors and municipalities are focused on financing projects with shorter pay-back periods and high financial returns, leading to a "lose-lose" situation: a) projects with longer pay-back but higher socio-economic and environmental benefits (such as fuel switch from coal to RE or investment in buildings with inadequate occupancy conditions) cannot receive grant finance,

[9] More information about UNDP GED project is available at http://www.ba.undp.org/content/bosnia_and_herzegovina/en/home/operations/projects/environment_and_energy/zeleni-ekonomski-razvoj.html

[10] http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/projects_and_initiatives/energy-efficiency-programme-in-croatia.html

whereas projects with attractive risk-return profiles (short pay-back and higher IRR), which could have been otherwise financed, fully or partially, through a loan are instead funded solely by public (grant) sources.

45. As a result, it is being recognized that financing packages that combine grants and loans, as well as other financial mechanisms and incentives, offer a better combination to promote energy efficiency in public buildings. UNDP has secured a US$ 2.3 million grant from the Global Environment Facility (GEF) to strengthen the EFs' capacity to finance environmental projects and to develop innovative financing mechanisms that will support a gradual shift from predominantly grant-based financing of EE-RE retrofits of public buildings to an ESCO-based model with a targeted grant component. The formulation of the UNDP-GEF project is being finalized and its start is expected in 2017.

46. Insufficient integration and coordination, as well as the absence of effective state or entity-level policy implementation frameworks, leads to inefficiencies and fragmentation in how the structural barriers to investment in low-carbon buildings are being addressed. Having experienced those issues first-hand, the NDA and UNDP have mobilized around this proposal a strong coalition of partners (municipalities/cantons, EFs, the Ministries of Spatial Planning, the Ministry of Foreign Trade and Economic Relations, the Swedish International Development Agency (SIDA) and the World Bank) which are determined to work closely together and address the above shortcomings.

C.3. Project / Programme Description

Project objective and strategy

47. The objective of the proposed project 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. The GCF project will result in a four- to five-fold increase in the level of investment in low-carbon public buildings; this, in turn, will enable BiH to meet its stated objective to reduce GHG emissions from the public buildings sector.

48. Building on UNDP's Derisking Renewable Energy Investment (DREI) approach[11], the proposed project consists of two closely related outputs aimed at addressing financial and non-financial barriers respectively, thereby reducing the risks and achieving an attractive and acceptable risk-return profile.

49. ***Output 1.1: Addressing non-financial barriers to investment in low-carbon buildings and infrastructure ("Policy de-risking")***. Under Output 1, technical assistance (TA) will be provided to public and private sector stakeholders at municipal, cantonal, entity and national level in BiH to help address non-financial/structural barriers to investment, as follows.

50. *Activity 1.1.1 Sustainable Energy and Climate Action Plans (SECAPs)*. The project will support municipalities across BiH with updating, preparing and monitoring implementation of their Sustainable Energy and Climate Action Plans (SECAPs). SECAPs are the primary policy instrument to promote low-carbon and climate-resilient development level at the local level in BiH: they establish local targets for energy saving/RE deployment, prioritize sectors for investment and assign responsibilities for implementation. As such, they are an essential tool to ensure project sustainability and long-term impacts. In BiH, given its highly decentralized governance system, SECAPs are particularly important to ensure ownership, buy-in and domestic financing. As many as 17 cities/municipalities in BiH have already joined the Covenant of Mayors Initiative by developing and adopting their Sustainable Energy Action Plans (SEAPs)[12] and specific energy-saving and GHG emission reduction targets, which cumulatively represent a commitment to reduce 870,000 tCO_2 by 2030 (see Annex XIII

[11] UNDP's de-risking clean energy investment framework helps identify the most cost-effective packages of public interventions in a given national context with the aim of achieving a risk-return profile for clean energy projects that can attract large volumes of investment. For more information on UNDP's de-risking work, please visit www.undp.org/DREI.

[12] SEAP is the initial format of the local energy plan, which used to cover only energy sector at the local level. The new format entitled SECAP has broader scope: it covers all GHG emitting sectors, as well as measures to improve climate resilience at the local level.

– Status of SECAPs/SEAPs in BiH). Energy efficiency and renewable energy improvements in public buildings count for the largest portion of this commitment. The project will support municipalities to prepare and/or upgrade their SECAPs/SEAPs, including preparation of the Baseline Emission Inventory to track mitigation actions in the public sector, as well as to identify and prioritize mitigations actions for investment support. It will also provide assistance to integrate *gender dimensions* into the scope of SECAP, specifically to identify and prioritize local climate actions, which can deliver strong benefits to women and/or promote gender equity. Municipalities with approved SEAPs/SECAPs will have priority to receive Financial Assistance under output 2 of the project.

51. *Activity 1.1.2 Energy Management: at building, municipality and entity-levels*. Having in place a robust system of energy management is essential for unlocking and sustaining investment in building retrofits; energy management is also an integral part of Measurement, Reporting and Verification (MRV) for building sector energy use and GHG emissions. The following interventions will be supported:

    A) EMIS implementation: EMIS plays a critical role in this project as a source of *building-level* baseline data, as well as a practical monitoring tool to track and monitor the impact of EE-RE measures in terms of energy/cost saving, improvement in comfort and other benefits to buildings' managers, occupants and visitors. Towards the end of the project, all 5,000 public buildings in BiH will be covered by EMIS (against the current 2,100 buildings), creating a unique precedent and an example to follow for other developing countries. Support to EMIS implementation will cover the installation of EMIS software in public buildings and utilities, selection and training of building energy managers, collection and input of primary data, training and advice on data collection, analysis and aggregation (at municipal/entity level).

    B) Building on the results of EMIS application at building-level, the project will support authorities/SME companies on identification, implementation and monitoring of low-carbon investment projects in public sector buildings, as well as assistance (training and guidance) on energy management at national/entity level institutions. Under this activity, assistance will be provided to develop, test and implement appropriate IT solutions to enable the functioning of the Law on Energy Efficiency of RS and FBiH requirements on EE Information Systems. An important aspect of this activity is carrying out energy intensity mapping of buildings and, based on this mapping, supporting municipal and entity-level authorities in identifying and prioritizing buildings for investment using established energy intensity benchmarks and indicators.

52. *Activity 1.1.3 EE-RE project preparation.* Based on the results of Activity 1.1.1 (SECAPs) and Activity 1.1.2 (Energy Management), buildings will be selected for undertaking detailed technical and economic analysis and project design of integrated low-carbon solutions (EE-RE) and full technical, economic and financial assessment and prioritization of proposed investment. Those solutions will be compatible with requirements of the EU Energy Performance in Buildings Directive (EPBD) to ensure compliance with international best practices and standards. Each project shall contain financial analysis of the proposed measures, and, if required, justification to request Financial Assistance under output 2 of the project. Existing detailed energy audits (DEAs) conducted by the on-going UNDP (90) and WB (50) projects will be used for investment decision-making (in accordance with the Operational Guidance under Activity 1.2.1.). Recommendations from some of the DEAs (most attractive EE-RE packages) have been or are being implemented in the meantime. However, as noted in the background section, many of the projects are not sufficiently bankable to meet existing requirements, hence additional investment support is justified.

53. *Activity 1.1.4 EE-RE project oversight*. The project will provide the full range of required support activities to building end-users to ensure quality and timely implementation of selected EE-RE retrofit projects in buildings, including preparation and organisation of tenders, and work supervision until the commissioning of the building. This will also include legal and financial assistance to municipalities to identify appropriate financing and implementation structures for projects, including assistance with organizing and procuring the services of ESCOs under an EPC modality for projects with quick pay-back and high financial returns. Recognizing that ESCO market is at very nascent stage in BiH and therefore the classical model cannot yet be considered as a viable solution for BiH, the project proposes a hybrid solution which incorporates elements of EPC contracting and creates initial market opportunities for ESCOs to deliver their services according to EPC-based model. Once preconditions are established and ESCO companies gain some experience and track record with EPC projects, including data and information on their profitability, alternative solutions to help raise private capital will be considered (see Activity 1.2.3). This activity will be implemented in conjunction with parallel work at entity level on development of the ESCO-supportive regulatory framework (See Activity 1.1.8).

54. Activity 1.1.5 *Training and Capacity Building*. To complement Activities 1.1.1-1.1.4, the project will deliver a series of training

and capacity building activities targeting municipal, entity-, and state-level stakeholders, as well as potential ESCO companies to educate them about energy management, project development, implementation and monitoring. In doing so, the project will seek to ensure that at least 30% of beneficiaries of the trainings will be women.

55. Activity 1.1.6 *Awareness-raising among building end-users*. Rational behaviour of building users is essential to achieve and sustain energy-saving impacts over the EE-RE investment lifetimes. Therefore, the project will conduct an awareness-raising campaign, targeting various users and occupants of public buildings, including school children, with the purpose of informing and engaging them in energy-saving measures and promoting more rational behaviour with regard to energy use. Women are expected to be the largest group of beneficiaries and participants in the awareness-raising campaign: based on EMIS data, on average, women constitute 52% (in some building-types, much higher) share of public buildings' users.

56. Activity 1.1.7 Designing National Framework for Low-carbon Investment in Public Buildings. In order to address identified policy and regulatory barriers at entity/state level, the project will provide technical assistance to support the development and facilitate the adoption of a transformational and harmonized (among entities and state-level) policy, regulatory and financing framework for investment in low-carbon public buildings, including provisions enabling:

    - Implementation of EPC contracts in the public sector to open up market opportunities for private investment;
    - Enforcement of requirements of the Law on Energy Efficiency regarding the use of IT systems for public energy management to ensure sustainability of EMIS, as well as to enabling the functioning of the Law on Energy Efficiency requirements regarding EE Information Systems;
    - Implementation of a harmonized approach to public financing and support mechanisms for low-carbon investment in the public sector;
    - Harmonized and coordinated implementation of the BiH's Investment Framework and Programme for Low-Carbon public buildings.

57. Under Output 1, several financing streams will be combined to achieve the intended outcome, namely: the requested grant from the Green Climate Fund, a grant from the Global Environment Facility, and the UNDP Green Economic Development (GED) Project. In addition, an in-kind co-finance contribution will be provided by the entity-and state-level authorities. The specific contributions of each co-financing source to project activities and outputs is provided in Annex XII.

58. ***Output 1.2: Addressing financial barriers to low-carbon investment in buildings and infrastructure ("Financial de-risking and Investment support").*** Output 2 will support implementation of the National Framework for Low-Carbon Investment in Public Buildings to address identified financial barriers and to establish a blueprint for a more effective, better coordinated and harmonized approach to allocation of public funding to stimulate investment in low-carbon buildings. Under the Framework, all public buildings (regardless of jurisdiction) will be able to receive technical assistance for EE-RE project preparation (to be provided under Output 1). Those projects that meet minimum technical, financial, socio-economic and environmental requirements (specified in the Table 5) will be eligible to receive GCF funding to co-finance investment and the GCF grant 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 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.

Table 4 Minimum requirements for buildings participating in the National Investment Framework for Low-Carbon Buildings

Technical	• Building should have a remaining lifespan of at least 20 years • Availability of data on building energy use for at least 2 consecutive years • Achievement of a minimum level of energy performance (as per the EU's EPBD technical requirements for EE retrofits) • Mandatory implementation of fuel-switch (RE supply) measures
Financial	• Simple pay-back: 8 years or higher • Meeting minimum co-financing requirements, including secured co-financing for non-EE related measures
Socio-economic	• Project ensures compliance with minimum occupancy standards in building

	• Project contributes to increased local employment and skills building • Number of women beneficiaries: at least 50% • Evidence of stakeholder consultations and support
Environmental	• Low environmental risk rating, as per UNDP SESP policy • Minimum 20% reduction in GHG emissions compared to baseline

59. The following financing sources and instruments provided by Responsible Parties (see Letters of Co-Financing in Annex IV) will be combined (managed by respective Responsible Parties - See Section C.7 and Annex XIII) in a manner that reflects the specific risk-return profile of a particular project (see earlier discussion about the considerable heterogeneity of buildings in BiH, as illustrated in Table 5):

- End-users' own financing (municipalities and other entities with jurisdiction over public buildings);
- Funds from EF RS and FBiH (in the form of grants and soft loans, up to 10 years, 1,5 - 5%), as well as from MPUGERS and FMPU (from regular budgetary sources and through a new loan from the World Bank (under negotiation, conditional upon securing funding from the GCF for this proposal, 1,25 - 1,4%, 25 years);
- The private sector's own contribution (self-finance or commercial loans);
- Loan portfolio guarantee (LPG) from the Swedish International Development Agency to be provided to BiH's commercial bank(s) to underwrite loans for ESCOs for EE-RE projects in public buildings.

60. As illustrated in the Table 5 and Table 6, GCF funding will only cover technical EE measures with simple pay-back period of 8 years and above (whereas loans will be used for measures with lower payback period). GCF funds will not be used to cover non-EE related improvements: end-users will be required to secure co-financing for this part of the investment.

Table 5 Finance Package under National Framework for Low-carbon Investment in Public Buildings

Simple pay-back (years)	GCF		End-users[13]	Entities		SIDA (PLG)	Private ESCOs
	Project Preparation	Investment		Soft Loans	Grant		
< 3 years	X		X	X		X	X
3 < 5 years	X		X	X		X	X
5 < 8 years	X		X	X			X
8 < 10 years	X	X	X	X	X		X
> 10 years	X	X	X	X	X		X

61. Activity 1.2.1 *Implementing National Framework for Low-Carbon Investment in Public Buildings.* The project will support implementation of low-carbon building retrofits in 430 public buildings via a combination of TA assistance for project identification and oversight (under Output 1) and investment support to co-finance EE and RE measures (under Output 1.2). GCF funds will be used to co-finance low-carbon retrofits in buildings meeting minimum technical, socio-economic, financial and environmental requirements (see Table 5), which would not be able to receive financing under the baseline condition (or could not be financed in full – in particular, measures involving coal to biomass fuel switch – see Financial Analysis in Annex III).

62. Projects will be identified based on analysis of building energy use data (collected via EMIS and detailed economic and technical assessment conducted under Activity 1.1.3). Respective RPs (depending on the jurisdiction of building end-user

[13] Public building end-users – various public entities, municipalities, regional and federal governmental bodies, etc

– see Table 1) will conduct project assessment in line with the Operational Guidance (including calculation of the amount of the GCF-funded component per project and securing and confirming the required co-financing) and will prepare detailed project specifications and undertake procurement of EE-RE works and services for the total amount of works, as per specifications (See Annex XIIIe for a diagram illustrating the flow of GCF funds under Output 1.2 and Section C.3 for a description of RPs). All payments to contractors by RPs will be made after completion and certification of works (see Activity 1.1.4). The project allocates US$ 9.54 m to co-finance EE-RE measures in up to 430 public buildings: i.e. up to US$ 33,000 per building or 20% on average.

63. Activity 1.2.2 *Design and monitoring of the National Framework for Low-Carbon Investment in Public Buildings*. During its inception phase, the project will support the preparation of the Operational Guidance for the *National Framework, which will detail the process and procedures for allocation of public funds for low-carbon measures in public buildings,* as well as other required regulatory documents to operationalize the Framework, including provision of capacity building to all Responsible Parties (RPs) involved in its implementation. Operational Guidance will have to be approved by all participating RPs and the Project Board. In parallel, under the GEF-funded project[14], technical assistance will be provided to finalize the design of the ESCO-related component of the Framework and support its implementation on a pilot basis, which, in turn, will also inform the design of the National Framework. Starting from Year 2 and until the end of the project, under this Activity support (TA) will be provided to all RPs to assist them with the implementation of the National Framework: i.e. project appraisal, procurement, monitoring and reporting, with a particular focus on strengthening RPs' capacities to work with different financial instruments and identify the most appropriate financing package for low-carbon building retrofits.

64. *Activity 1.2.3 Evaluation, lessons learnt analysis, designing follow-up financing scheme, knowledge-sharing*: The key objective of the project is to jump-start the energy service market in BiH's public sector by providing nascent ESCO companies with seed capital and opportunities to implement their first EPC contracts. Implementation of Output 1.2 will generate practical information and data on the profitability of low-carbon investment in public buildings and the feasibility of proposed models. Once the initial preconditions for ESCO work are established, experience with EPC gained and evaluation conducted, the project will explore alternative options to help ESCOs raise finance at adequate terms, such as by supporting the design of a dedicated, catalytic EE vehicle for third-party investors to ESCO companies or the issuance of municipal/entity-level green/EE bonds.

65. In view of the project's innovative nature and in order to support knowledge exchange and collective learning processes, the project will make provisions for systematic documentation, analysis and extracting lessons learnt from its implementation, as well as related activities to present and disseminate this knowledge in BiH, regionally and globally. Towards the end of the project, a publication highlighting its results and lessons learnt will be prepared and published.

C.4. Background Information on Project / Programme Sponsor (Executing Entity)

66. In Bosnia and Herzegovina, UNDP is the leading development agency supporting the country in the area of low-carbon and climate-resilient development. The proposed project directly builds on and complements a number of successful UNDP-led initiatives in this sector, as well as incorporates lessons learnt.

67. UNDP has implemented the GEF-financed **Biomass Energy for Employment and Energy Security Project** (2009-2015, US$ 1.2 million), which tackled barriers to the widespread and market-based growth of modern biomass energy through the implementation of biomass fuel-switch pilot projects in primary schools and public utility buildings of the Srebrenica region, education and awareness raising as well as promotion and marketing support for the biomass energy sector. The project has played a significant role in jump-starting the biomass market in the country by stimulating biomass pellet/briquette consumption and demonstrating the benefits of fuel switching. The Terminal Evaluation Report of the project is presented in Annex VIII.

68. The **EU Floods Recovery Programme** (2014-2016, EUR 43.520 million) assisted BiH in recovering from the severe floods that affected large parts of the country in May 2014. The programme consists of different components all of which aim to assist with the normalisation of peoples' lives in flood-affected areas and communities in 24 of the most-affected municipalities. The activities focused on the immediate restoration of vital public sector infrastructure and the reinstatement of key public services, the revitalisation of the local economy and agriculture production and the rehabilitation of communal infrastructure in selected municipalities. The programme reconstructed heating systems in schools, healthcare centres and

[14] GEF gran has been approved by GEF Council in June 2016, expected start – QR 1 2017

municipal buildings, including biomass fuel-switch projects based on the "Build Back Better" principle. The project was financed by the European Union (EUR 42.24 million) and UNDP (EUR 1.28 million).

69. The UNDP project, **"Climate Change Facility for BiH Cities"** (2009-2013, US$ 342,500) aimed at reducing energy consumption in public buildings, piloted the introduction of the Energy Management Information System (EMIS) in BiH cities, and implemented pilot EE-RE projects in buildings. This piloting work continues in a systematic manner under the ongoing UNDP Green Economy Development Project (see below). The EMIS is currently implemented in 2,100 public sector buildings and more than 2,500 end-users (municipal and cantonal level, etc.) have received EMIS training.

70. In addition, under UNDP's **MDG-F Environment and Climate Change Programme**, between 2009-13 38 energy efficiency pilot projects were implemented across the country, leading to an investment of US$ 4.2 million, total energy savings of US$ 700,000 per year and total emission reductions of 2,200 tCO_2 annually. The project entailed implementation of energy conservation and renewable energy measures in public buildings; fuel-switch projects; automated energy consumption regulation and management of public sector buildings; implementation of energy efficient public lighting; and educational activities.

71. Through its **"Green Economic Development (GED)" project** (2013-2018, US$ 11.2 million), UNDP continues to roll-out EMIS throughout the country, aiming at sub-national/cantonal public sector buildings (educational, healthcare and administrative institutions). A key aspect of the project is the institutionalisation 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. Another key aspect is the implementation of energy efficiency projects, including biomass fuel-switch projects. The project is financed by the Swedish International Development Cooperation Agency (SIDA), UNDP and various levels of government in Bosnia and Herzegovina. Under the GED project, UNDP has conducted extensive technical and economic analysis of EE-RE retrofit projects at the level of individual buildings, as well as aggregated analysis at municipal and cantonal (in FBiH) levels (see Annex II), which underpins this funding proposal.

72. UNDP is currently preparing a US$ 2.3 million project to be funded by the Global Environment Facility (GEF), **"Catalyzing Environmental Finance for Low-Carbon Urban Development",** with the objective of leveraging investment for a transformational shift towards low-carbon urban development in BiH and promoting safer, cleaner cities and reducing GHG emissions. The project was approved by the GEF Council in June 2016 and its implementation is expected to start in 2017. The project will support Environmental Funds (EFs) with the development of alternative programming strategies, including specifically the modalities for ESCO engagement in EE-RE projects in public building, which the proposed GCF project will scale-up nation-wide.

73. UNDP is also implementing a Biomass Follow-Up Project, building on the completed project mentioned earlier, "**Biomass Energy for Employment and Energy Security – Follow Up Project**" (US$ 1 million, UNDP and the Czech Development Agency).

74. Finally, UNDP supported the Government of BiH in developing its First and Second National Communications to UNFCCC, the First Biennial Update Report, as well as the Climate Change Adaptation and Low-Emission Development Strategy. UNDP has strong in-house expertise in the area of GHG inventory, analysis and monitoring, as well as competent team of sectoral experts in the field of energy efficiency, biomass energy, environmental and climate finance.

C.5. Market Overview (if applicable)

75. A conservative estimate of the mitigation potential from implementing low-carbon retrofits in BiH's public buildings is estimated at 700 GWh/year, which requires some US$ 230 million in up-front investment and corresponds to 58% in savings/GHG emission reductions compared to BAU (specific costs vary depending on the level of saving as illustrated in Table 7). Despite this potential, the market for EE and RE projects in the public sector is as yet very underdeveloped.

Table 6 Cost of EE-RE retrofits depending on target level of energy saving

GHG emission redution in %	Measures	Investment US$/$m^2$

50%	**EE**	34.32
55%	**EE**	38.00
60%	**EE**	41.69
65%	**EE**	45.37
70%	**EE**	49.05
100%	**EE+RE**	58.58

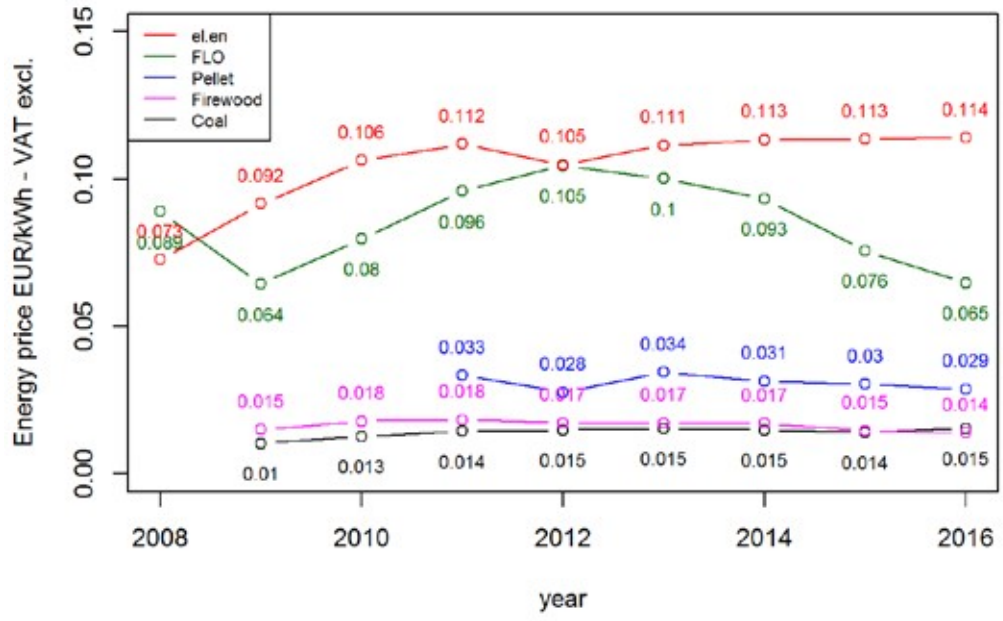
Source: UNDP's own estimate based on completed projects and DEAs.

76. The size and scale of energy service providers in BiH are both limited: there are about 10 energy audit firms and a few companies that have implemented energy savings performance contracts to date. There is, however, a potential and interest from ESCOs from neighbouring Croatia, Slovenia and other EU countries, where this market segment is already quite advanced. While the depressed market for energy service providers represents an important challenge for scaling-up energy efficiency improvements, it is also a sign of limited readily available technical capacities and lack of demand for energy efficiency services and goods.

77. The situation with RE adoption is slightly different: fuel switch projects in public (hospitals, prisons etc.) and commercial buildings (shopping malls, hotels etc.) are gaining momentum, but only for a certain category of fuel switch: i.e. from heating oil, LPG or natural gas to biomass, especially pellets. These projects are attractive for investors. Private companies (acting as Independent Heat Suppliers or RESCOs) invest in fuel switching and after take care of biomass supply and system operation. Heat supply companies usually have sister company(ies) dealing with pellet production and/or heating equipment. The building end-user does not incur any investment costs and has lower costs of heating. The typical contracting period in implemented projects is from 5-10 years. However, the downside of such projects is that essential EE measures are often being over-looked and they do not yet represent an interesting case for private investors.

78. There is enough biomass, as well as other renewable energy resources, available to ensure full switching away from fossil fuels in BiH public buildings; however, their financial viability varies significantly and depends on the type of baseline fuel supply in a particular building/community. As Figure 6 illustrates, there is a big difference between relatively expensive electricity and much cheaper domestic coal and firewood: therefore, only certain type of fuel switch projects are financially viable (e.g. LFO/electricity to pellets), while for most public buildings with coal-based heating systems, the economic rationale of fossil fuel switch is not apparent (See also Table 2).

Figure 6 Comparison of energy prices in BiH, 2008-2018



Source: UNDP own estimates based on EMIS data

C.6. Regulation, Taxation and Insurance (if applicable)

79. Certain fiscal incentives are foreseen in the draft National Energy Efficiency Action Plan (NEEAP), namely:
    - tax bonuses for owners of the buildings with high EE characteristics;
    - additional charges on the use of fossil fuels (light fuel oil and coal)
    - investment tax credits and/or tax deduction for EE investment.

80. The above-referred provisions are mainly applicable to residential and commercial sector. Whereas, as far as public buildings are concerned, NEEAP envisages "budget capturing" as the central mechanism to enable private investment in the sector. Budget capturing allows municipalities and other public entities/building end-users to retain monetary savings of EE measures to be able to repay private RESCO for their services. There are no fiscal incentives or financial subsidies in place for RE-based heat supply installations.

81. The issuance of construction, environmental and other permits is not required for EE-RE projects and activities in buildings (as further detailed in the Section F.3). Retrofitting of building envelopes and associated EE works usually are classified as building 'maintenance', which eliminates the need for permitting. However, for a major reconstruction, construction permits will be needed, which can be obtained based on detailed technical design to be developed by a licensed architectural company. Construction and technical oversight of construction must be conducted by licensed companies, as well. The procedure described above will be followed for all projects involving major reconstruction works. Public buildings in BiH are not covered by the insurance policies/schemes, therefore no insurance arrangements will be applied.

82. UNDP projects in BiH are exempted from VAT payment in line with conditions stipulated in the Standard Basic Assistance Agreement (SBAA). For activities related to procurement of goods and services through UNDP, according to the SBAA taxes are not applicable. Section 7 of the Convention on the Privileges and Immunities of the United Nations provides, inter alia, that the United Nations, including its subsidiary organs, is exempt from all direct taxes, except charges for utilities services, and is exempt from customs duties and charges of a similar nature in respect of articles imported or exported for its official use.

C.7. Institutional / Implementation Arrangements

83. The project will be implemented by UNDP, following Direct Implementation Modality (DIM), according to the SBAA between UNDP and the Government of BiH[15], and as per the policies and procedures outlined in the UNDP Programme and Operations Policies and Procedures (POPP[16]). According to the SBAA between UNDP and the Government of BiH[2] signed on 7 Dec 1995, the project document shall be the instrument referred to as such in Article 1 of the SBAA. All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner". According to the POPP: "***Implementing Partner***" is "the entity responsible and accountable for managing a project, including the monitoring and evaluation of project interventions, achieving project outputs, and for the effective use of resources." In addition, an Implementing Partner may enter into agreements with other organisations or entities, known as **"*Responsible Parties*"**, which may carry out project activities and produce project outputs on behalf of the Implementing Partner. Responsible Parties are accountable directly to the Implementing Partner. In the context of GCF and UNDP Accreditation Master agreement, signed on 5 August 2016, UNDP is also the Accredited Entity.

84. In line with UNDP's DIM modality, UNDP will be the Implementing Partner and will serve as the "Executing Entity" (using GCF terminology). The project will have two parallel implementation structures in FBiH and RS, respectively (reflecting the administrative structure of BiH). There will be four Responsible Parties: the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska and the Ministry of Spatial Planning of Federation of BiH respectively under Output 1.1 and 1.2, as well as the two Environmental Funds (FBiH and RS) under Output 1.2. The roles of Responsible Parties for implementing specific activities are further defined in Annex III. RPs' abilities to manage cash has been assessed in accordance with the Harmonized Approach to Cash Transfers (HACT) – see Annex XIII.

85. **The Ministry of Foreign Trade and Economic Relations of BiH (MoFTER)** will be involved in its capacity as the State Ministry directly responsible for BiH's participation in UNDP-assisted projects. In consultation with the Implementing Partner, MoFTER will designate its representative to serve on the Project Board (see Figure 7). In its capacity of a Project Board member, and in line with PB's mandate MOFTER will take part in a decision-making process (by consensus with other PB members) regarding:
    - Approval of the annual budget and workplans under each Output to ensure that the project is executed in a timely manner and delays at Output level are minimised;
    - Triggering the project mid-term and final evaluations and approval of the reports for submission to the GCF.

86. **The Ministry of Physical Planning of the Federation of Bosnia and Herzegovina (MPP FBiH):** the Federal Ministry of Physical Planning carries out the administrative, expert and other tasks falling under the competence of the Federation of BiH, governed by the following legal documents: "Law on Physical Planning and Utilisation of Land at the level of Federation BiH" (Official Gazette of FNiH no 2/06) and "Law on Takeover of the Law on Housing Relations" (Official Gazette of FBiH no 11/98 and 38/98). The activities of the Ministry (including the mandate for the implementation of the relevant EU Directives for energy performance in buildings) are related to: physical planning and improvement; policy of land utilization at the Federal level; drafting, enforcing and applying the Physical Plan of the Federation of BiH, verification of the harmonization of the physical plans of the Cantons with the Physical Plan of the Federation of BiH; and supervision of appropriate institutions in this sector and other tasks as set out by the applicable legislation. MPP will be responsible for implementing, procuring, evaluation and contracting Activities 1.1.1, 1.1.3-1.1.7, as well as 1.2.1-1.2.2 in FBiH. A GCF Project Implementation Unit will be formed within the Ministry, consisting of the Ministry's staff delegated to provide assistance to GCF project activities, and one GCF Project Assistant appointed through the project.

87. **The Ministry of Spatial Planning, Construction and Ecology of the Republic of Srpska (MSPCE)**: the Ministry's mandate is to carry out "administrative activities and professional tasks related to the environment: protecting assets of general interest, natural resources, natural and cultural heritage; inspection and supervision in the field of urban planning, construction, utilities and environmental protection; cooperation with relevant ministries and institutions of the Federation of BiH; providing information about its work through the media and other means of information dissemination; and performance of other tasks in accordance with the law and other regulations of the RS and BiH". The Ministry also carries out the role of national UNFCCC Focal Point, as well as the National Designated Authority for the GCF. There are five sectors within this Ministry: the Secretariat of the Ministry, the Sector for Urban and Spatial Planning, the Sector for Construction, the Sector for Environmental Protection, and the Sector for Project Coordination, Development and European Integration. The Ministry will be a Responsible Party for implementing, procuring, evaluation and contracting Activities 1.1.1,

[15] http://www.ba.undp.org/content/dam/bosnia_and_herzegovina/docs/Lega_lFramework/SBFA.pdf
[16] https://info.undp.org/global/popp/ppm/Pages/Defining-a-Project.aspx
[2] http://www.ba.undp.org/content/dam/bosnia_and_herzegovina/docs/Lega_lFramework/SBFA.pdf

1.1.3-1.1.7, as well as 1.2.1-1.2.2 in RS. A GCF Project Implementation Unit will be formed within the Ministry consisting of the Ministry's staff delegated to provide assistance to GCF project activities, and one GCF Project Assistant appointed through the project.

88. **FBIH Environmental Protection Fund** (EF FBiH) was established by FBiH Law on Environmental Fund ("O.G. of FBiH", No. 33/03) as a non-profit public institution, which is a legal entity with rights, obligations and responsibilities stipulated by the Law on the Fund and the Fund Statute. The activities of the EF comprise fund-raising, inducement and financing of programme preparation, implementation and development and other similar activities in the field of preservation, sustainable use, protection and improvement of the state of the environment and use of renewable energy sources, especially: professional and other activities in relation to obtaining, managing and utilizing the proceeds of the Fund, liaising with regard to environmental protection financed from funds of other countries, international financial institutions and bodies, domestic and foreign legal and natural persons; providing expert services in terms of financing environmental protection; maintaining databases of programmes, projects and other similar activities in the field of environmental protection; inducing, establishing and achieving cooperation with international and domestic financial institutions and other legal and natural persons to the effect of financing environmental protection in line with the Federal Strategy for Environmental Protection, environmental protection plans adopted on the basis of the Strategy, international agreements to which Bosnia and Herzegovina is a party and other programmes and documents relating to environmental protection. The Fund is administratively, economically and technically capable of working with energy efficiency and already participates in the GED Project as the key partner institution. The Fund will be a Responsible Party to implement Activities 1.2.1 and 1.2.2 in FBiH. A GCF Project Implementation Unit will be formed within the Fund consisting of Fund's staff delegated to provide assistance to GCF project activities, and one GCF Project Assistant appointed through the project.

89. The **Fund for Environmental Protection and Energy Efficiency of RS** was founded by the Law on the Fund and Funding of Environmental protection ("O.G. of RS", No. 117/11). The Fund conducts all activities in connection with collecting of funds and financing implementation of programmes, projects and similar activities in the field of conservation, sustainable use, protection and improvement of the environment, and on energy efficiency. The Fund is a legal entity with public authority. The Ministry for the Urban Planning, Civil Constructing and Ecology of RS conducts supervision of the work of the Fund. The Fund is managed by a Management Board, which consists of three members – the Ministry of Energy, Industry and Mining, the Ministry of Spatial Planning, Civil Engineering and Ecology, and the Ministry of Water Management, Agriculture and Forestry of RS. It is audited by auditors appointed by RS, while the annual results and planned activities are adopted by the Government of RS. The Fund is administratively, economically and technically capable of working with energy efficiency and already participates in the GED Project as the key partner institution from July 2016. The Fund will be a Responsible Party to implement Activities 1.2.1 and 1.2.2 of the project in RS. A GCF Project Implementation Unit will be formed within the Fund consisting of the Fund's staff delegated to provide assistance to GCF project activities, and one GCF Project Assistant appointed through the project.

90. Proposed implementation arrangements have been made in view and taking the following factors in the account:
- Complex administrative structure of BiH, which is most probably the world's most complicated system of government; even the Presidency of BiH consists of three members.
- Complex institutional structure in the public building sector whereby buildings fall under hundreds of different jurisdictions (as shown in Table 3);
- Complex policy and financing framework for public buildings;
- Ambitious project objectives, which include implementation of large-scale investment programme for public buildings EE retrofits along with policy reforms essential for market transformation.

91. Further, the proposed implementation structure is also a result of extensive stakeholder consultations held at project development stage: at the Concept Note stage only two RPs were envisaged, but subsequent consultations revealed the need to expand the structure, as currently proposed. It was simply not possible to identify one RP in each entity, which would have sufficient mandate and capacity to deliver on the envisaged scope of policy and investment support on its own, let alone there is no such entity in BiH with sufficient capacities and power of authority to ensure effective dialogue, coordination and synchronization of tasks between the two entities – the primarily rationale for chosen UNDP as the lead Implementing partner and DIM as the implementation modality. The rationale for selection of individual RPs is further detailed below.

92. Output 1: Policy de-risking: The Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska (MPUGERS) and the Federal Ministry of Physical Planning (FMPU) will be the lead Responsible Partners for their respective entities, RS and FBiH, which is fully in line with their mandate and responsibilities for overseeing the implementation of the

entities' Laws on Energy Efficiency and EE Action Plans. UNDP, as the project Implementing Partner will take the lead on coordination and synchronization efforts. In view of its neutral status, it is best positioned to play an honest broker role in this highly politically sensitive process.

93. Output 2: Financial de-risking and Investment Support: In addition to MPUGERS and FMPU, two additional Responsible Partners will be involved in this output, the Environmental Funds (EFs) of RS and FBiH. Their involvement, though originally not foreseen at CN stage, is critical due to their leading role as the centers of domestic environment and climate finance and the source of funds for EE retrofits both during the project, but most importantly after the project end to ensure sustainability and further scaling-up of the investment. Also important is that the EFs have mandate (but are in need of further capacity strengthening) to operate and blend a range of financial instruments, including non-grant instruments, such as loans and guarantees. Therefore to ensure stated project goal of market transformation and paradigm shift in the financing modalities for EE public retrofits from grants towards non-grant, EFs' participation as EAs is deemed as absolutely essential. The role of UNDP as Project Implementing Partner under output 2 will be to ensure quality design and monitor implementation of the proposed Financing Framework by EAs, as well as to aggregate and widely disseminate the resulting knowledge and experience. Such centralized manner of implementing these tasks is most effective (and cost-effective).

94. In view of the above and in line with UNDP POPP, the Direct Implementation Modality (DIM) has been chosen. This would enable the project to a) have central politically neutral Project Management unit responsible for implementation of centralized tasks, such as support to EMIS implementation, knowledge management, nation-wide policy development, design and monitoring of the National Framework for Low-Carbon Investment in Public Buildings, as well as over-all project coordination. This would not be possible under the National Implementation Modality, which would call for set-up of two PMUs in each entity and ultimately be more costly and less effective.

95. Therefore, UNDP with Direct Implementation Modality will assume full responsibility and accountability for the overall project management, including monitoring and evaluation of project interventions, achieving of project output and specified results, the efficient and effective use of resources, and reporting to GCF.

96. Due to above listed arguments, UNDP will use Responsible Partners for the implementation of project outputs and activities. The Responsible Partners will be accountable to UNDP and their engagement and status of responsible partners is conditioned by the proof of adequate administrative and financial management capacities and adequate performance regularly risk-based monitored and assured (risk based management approach) in line with policy on Harmonized Approach to Cash Transfer (HACT) to implementing partners. Aside from the requirement of HACT policy related to assurance activities, CO BIH applies very engaged support to Responsible Partners under DIM modality which entails regular quarterly monitoring and verification of all the activities/actions/financial reports, as well as knowledge sharing and training of staff within Responsible partner's institutions.

97. All Responsible Partners have extensive prior experience with implementing similarly complex EE projects, including international ones (with SIDA, EBRD, WB, UNDP, UNEP, GIZ, GEF and others). Both spatial planning Ministries (FBIH and RS) are also Project Implementation Units for WB's EE loan –sovereign loan to finance implementation of public building retrofits, as well as Implementing partners (together with Environmental Funds of FBIH and RS) within UNDP's US$ 11.2 million Green Economic Development project, as well as GEF's climate change mitigation and UNFCCC/National Communication and GEF's Special Climate Changes Fund for climate change adaptation projects. The Environmental Fund of FBiH successfully implemented in the period between 2013 to 2016 a total number of 327 projects in the area of air protection, water management, waste management and energy efficiency with total value of 12m USD while the Environmental Fund of RS on its last investment cycle alone, from 22nd March 2017, assured the financing of 1.5m USD worth EE and environment related (waste and water management) projects. From 2011 to 2016 the FBiH Ministry implemented and financed a total number of 305 projects in the area of EE, disaster risk reduction, protection of national monuments, worth in total 9.2m USD. Moreover, from 2015 to 2017 a total amount of 8.3m USD of WB's EE loan has been implemented by the FBiH Ministry. The RS Ministry was also the Implementing Agency of WB's 42.5m USD loan for solid waste management in BiH project. Operational capabilities of selected Responsible Partners' have been assessed and confirmed by UNDP via Harmonized Assessment for Cash Transfer (HACT).

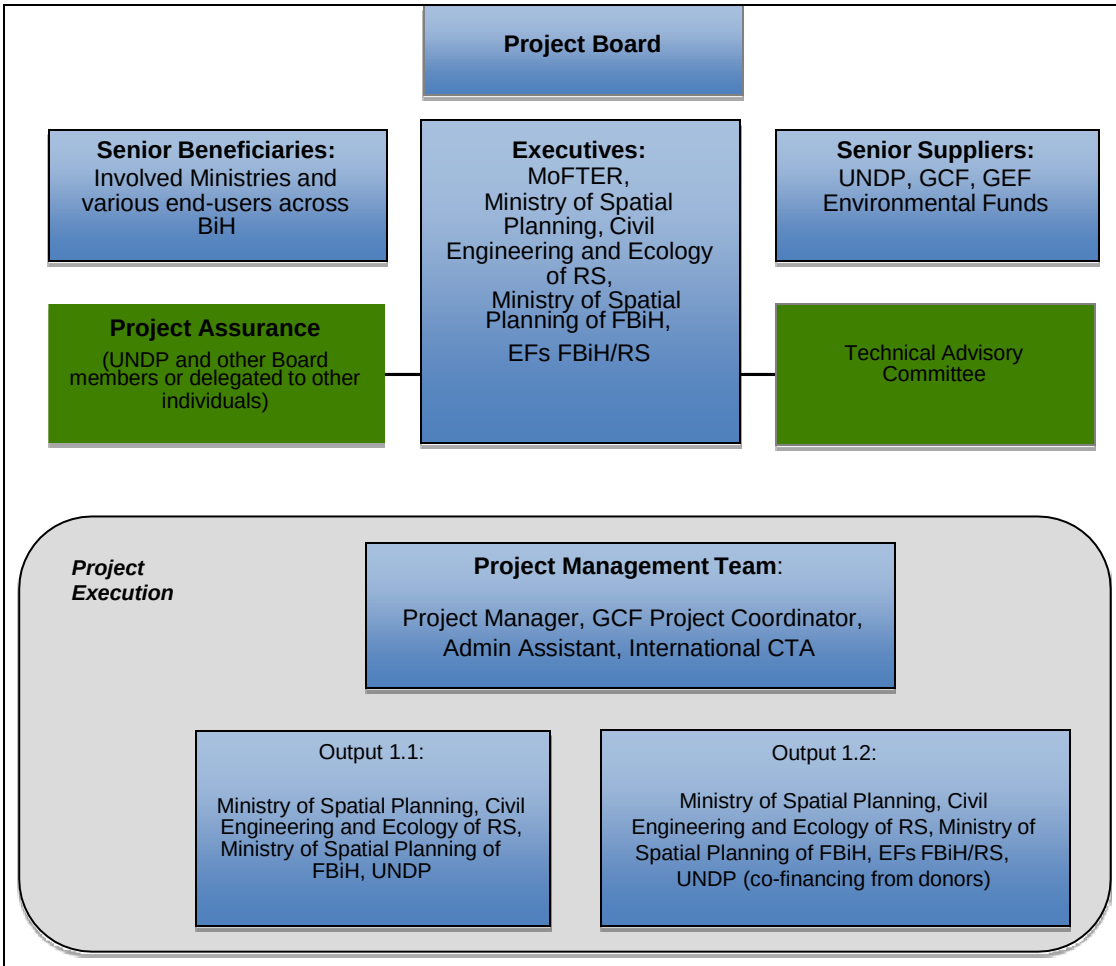


Figure 7 Project Implementation Structure

98. The **Project Board** is the group responsible for making, by consensus, management decisions for the project when guidance is required by the Project Manager, including recommendation for UNDP approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, Project Board decisions will be made in accordance with standards consistent with UNDP operating policies and procedures and, in particular, 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, the final decision shall rest with the UNDP Programme Manager. The Project Board will meet on a semi-annual basis and will be responsible for decisions, including:

- Approval of the annual budget and workplans under each Output to ensure that the project is executed in a timely manner and delays at Output level are minimised;
- Triggering the project mid-term and final evaluations and approval of the reports for submission to the GCF.

99. The **Project Manager (PM)** will run the project on a day-to-day basis on behalf of UNDP within the constraints laid down by the Project Board. The Project Manager function will end when the final project terminal evaluation report, and other documentation required by the GCF and UNDP, has been completed and submitted to UNDP. The Project Manager is responsible for day-to-day management and decision-making for the project. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The PM will be a local staff contracted by UNDP. The PM will be supported by **GCF Project Coordinator**, overseeing implementation of activities by Responsible Parties, an **Administrative Assistant**, as well as part-time international **Chief Technical Advisor** (all positions will be contracted by UNDP). In addition, each Responsible Party, two Ministries and two EFs from RS and FBiH, will have one **GCF Project Assistant** to support implementation of activities under their responsibility. GCF Project Assistants will report to the GCF Project Coordinator; the GCF Project Coordinator will report to UNDP's Project Manager; and the Project Manager will report to the

Project Board.

100. **Project assurance** is the responsibility of each Board member; however, the role can be delegated. The project assurance role supports the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project Assurance has to be independent of the Project Manager; therefore, the Project Board cannot delegate any of their assurance responsibilities to the Project Manager. A UNDP Programme Officer typically holds the Project Assurance role on behalf of UNDP. In addition, the UNDP-Global Environmental Finance Unit in the Istanbul Regional Hub provides oversight and quality assurance support.

101. **UNDP**'s overall role as an Executing Entity is to provide oversight and quality assurance through its Headquarters, Regional and Country Office units. This role includes: (i) project preparation oversight; (ii) project implementation oversight and supervision, including financial management; and (iii) project completion and evaluation oversight. It also includes oversight roles in relation to reporting and knowledge-management. The 'project assurance' function of UNDP is to support the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. The 'senior supplier' role of UNDP is to represent the interests of the parties that provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring, implementing). The senior supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project.

102. The UNDP Country Office will receive the GCF funds from UNDP Head Office on the basis of approved Annual Work Plans. When payments are to be effected by UNDP, the treasury and cashier functions will be performed by the UNDP BiH Country Office Finance Unit. At the level of each participating organisation (Responsible Party), in order to receive the funds advanced by UNDP, the Responsible Parties for the project will be required to open separate bank accounts to be used only for receiving UNDP advances and to make payments relating to their respective project output. The Project Manager, as well as UNDP CO Senior Manager will approve requests for cash advances on a quarterly basis. The cash advances requests would need to be substantiated with proofs of liquidity requirement. Once in the account of the Responsible Parties, the latter's treasury systems will be responsible for disbursement in accordance with approved work plans and liquidity needs. The Governments of RS and FBiH have well established treasury functions which operate in compliance with international norms. All expenses to be paid against cash advanced by UNDP must be made in accordance with the procurement and contracting procedures agreed in the project document, and must be related to the project activities and outputs envisaged in the annual work plan (cost eligibility criteria). The costs eligibility check for all expenses incurred by the Responsible Parties will be done by the project team prior to liquidation of advances in UNDP accounts and recognition/reporting of these expenses.

103. GCF funds will not be used to pay the salaries of Government personnel, whose costs will be fully covered by the relevant Responsible Parties. The Project Directors will be assigned by the Ministries and will be paid by relevant Government bodies as they are full-time senior officers. The Project Manager and other members of the Project Management team will be paid using GCF funds.

104. Under Output 1.2, no funds will be transferred directly to building end-users (municipalities and other public entities). RPs will receive GCF funds from UNDP in line with POPP. RPs will be responsible for implementation of the EE-RES measures and goods in buildings co-financed by the GCF, with installation to be sub-contracted to private sector firms. Responsibilityfor financing non-EE retrofit measures will be with building end-users.

105. Under Output 2, in line with the proposed National Framework for Low-carbon Investment in Public Buildings, RPs will assess full building retrofit costs and simple pay-back of the proposed EE-RE measures (based on detailed energy audit and building design); the results of this assessment will determine eligibility and the exact size of for GCF-financed investment subsidy. In line with proposed criteria as defined in the Table 5, buildings with simple pay-back period below 8 years will not be eligible for GCF support: in those cases, RPs will use IFI (WB) loan financing for project implementation. On the contrary, building retrofit projects with simple pay-back period of 8 years or above will not be eligible for IFI (WB) loan and will be supported by the GCF. Thus, it will be ensured that GCF resources are not blended with IFI financing as far as investment in specific building are concerned, but rather complement and fill in the remaining financial gap which can't be addressed through IFI's concessional funding.

106. For each GCF-eligible building detailed costs specifications will be prepared, the share and nature of GCF-covered costs (i.e. EE-RE works and products to be financed by GCF resources) determined, as well as the sources and measures

to be covered by entities' and end-users' co-financing. RPs will procure required works and products in line with agreed upon specification. Payment contribution from the GCF to the RP for each public building will be made upon successful commissioning of the retrofits, as checked by an independent verifier. No GCF monetary transfers will take place between either UNDP or the RP and the building end-users. The same approach – i.e. first-come, first-served and compliant with RP specifications for building retrofits – will be applied to all public buildings covered by the project, with caps on the maximum amount of GCF funds per building. Please refer to Annex XIIIe for organigram illustrating contractual and financial arrangements for output 1.2.

C.8. Timetable of Project/Programme Implementation

107. See Annex X.

D.1. Value Added for GCF Involvement

108. The GCF contribution is critical to address a complex set of financial and non-financial barriers to low-carbon investments in public buildings and to scale-up investment in the sector.

109. Under Output 1.1, grant resources are required in the form of technical assistance to remove non-financial barriers. At local level this, first of all, concerns high transaction costs of project identification, preparation and supervision. It is estimated that, on average, US$ 26,000 per building is required - hence a large share of the requested GCF grant will be allocated for pipeline development (in addition to co-finance). This form of GCF support has high leveraging potential: investment in the buildings with light fuel oil are for the most part already financially viable (positive NPV), hence no investment subsidy is needed to ensure that such projects reach financial close. As a result, a relatively small amount of GCF grant funds allocated for identification and detailed design of low-carbon public retrofit projects (technical and economic analysis, project design and assistance to the municipalities/other legal entities with tendering it out) will leverage sizable investment in the order of at least 1:10 (see Table 8) In other words, every US$ 20,000 of GCF grant invested in the development of a viable low-carbon retrofit project in a building with light fuel oil as a baseline fuel will yield US$ 200,000 of leveraged investment, or up to US$ 20 million in total against the GCF's US$ 2 million contribution to project development[17]. Second, technical assistance is required to address policy and regulatory barrier at State and Entity-level, in particular those related to ESCO market development and adoption of a harmonized and coordinated financial framework for low-carbon investment in public buildings.

Table 7 Detailed EE-RE project design and investment: illustrating leveraging potential

	Project preparation (GCF)	Project implementation (co-finance)
Costs	$20,000	$200,000
Share	10%	90%

110. For Output 1.2, grants are required to help bring low-carbon retrofit projects, which are not financially viable due to a number of structural barriers, to financial close. Specifically, investment in EE-RE retrofits of public buildings with coal as a baseline fuel are not financially viable under baseline conditions (see Table 9 and the financial model in Annex III) as a result of either or both: use of coal and/or under-consumption of energy (under-heating) in the baseline. Those projects that meet minimum technical, financial, socio-economic and environmental requirements (specified in the Table 5) will be eligible to receive GCF funding to co-finance investment and the GCF grant will be used at the minimum level to make those projects viable. Those requirements have been defined in such a way as to ensure that GCF resources are not blended with or crowd out IFI financing for a specific building retrofit project, but rather fill in the remaining financing gap which can't be addressed through concessional funding or other sources of co-finance. The exact amount of GCF co-financing per building will be determined on a case-by-case basis (also reflecting the broad socio-economic benefits of the investment) and on average will not exceed 20% of the investment cost. To illustrate the proposed approach, Table 9 shows the financial IRR and pay-back of the low-carbon retrofit of a hypothetical public building with coal as a baseline fuel and with different levels of thermal comfort (heating requirements met and under-heated): regardless of the baseline conditions, investment in EE-RE measures is not viable without a grant component. Depending on the building condition, a different level of grant will be needed to make it a viable investment (between 30% and 50%). The higher level of grant in the second case can also be justified by the resulting additional social benefits: i.e. achieving adequate comfort in public buildings, schools and hospitals in particular. The GCF funds earmarked for investment support will be applied alongside other sources of co-finance from RPs (as explained in the Section C.7) meaning that the expected 30 to 50% grant will be made up from GCF and non GCF grant resources. The total resulting leveraging ratio for GCF for the investment component is expected to be in the range of 1:5.

Table 9 Financial IRR and pay-back of EE-RES projects in an average building with coal as a baseline fuel

	Adequate occupancy conditions	Under-heating

	Financial IRR	Economic IRR	Financial IRR	Economic IRR
Without grant	2%	12%	-1%	7%
With 30% grant	8%	20%	3%	11%
With 60% grant	18%	20%	11%	15%

111. In the absence of GCF funds, barriers to investment in low-carbon public buildings in BiH will continue to exist and the financing paradigm will continue to be heavily dependent on scarce domestic public funding with limited room for private investors. Specifically, the following activities will not be implemented or will be implemented on a very limited scale, insufficient to create a strong signal to the market:

- Activity 1.1.1 Sustainable Energy and Climate Action Plans: will exist only in a handful of municipalities (which benefited from earlier donor support – no new donor funding is available for this work) without consideration of climate resilience and gender mainstreaming. Consequently, local budgets will not prioritize investment in low-carbon public buildings and support to energy management.
- Activity 1.1.2 Energy Management: EMIS application will continue in 2,100 buildings (supported by UNDP), fragmentation in data collection/building management will remain in the absence of centralized Entity-level energy management systems. This means fragmentation in funding allocation at central level will continue to exist, leading to sub-optimal resource distribution (in particular in the absence of a harmonized funding framework – see below).
- Activity 1.1.3 Project preparation: with only their own technical and financial resources, building end-users will only be able to identify and carry out the simplest solutions (e.g. windows replacement) that do not require technical expertise and funding for project design.
- Activity 1.1.4 Project implementation oversight: without assistance to ensure quality of EE-RES works, it is likely that even projects that secure financing will not be implemented to sufficient levels of quality since building end-users currently lack skills and knowledge to exercise proper quality control. This means that expected savings will not be realized in full as envisaged, as well as expected improvements in occupancy conditions.
- Activity 1.1.5 Training and capacity building for market stakeholders, in particular ESCO companies: this activity is needed when an ESCO policy framework is in place to educate companies about new opportunities and the specifics of ESCO and EPC contracts in BiH. In the absence of such a framework, it is redundant.
- Activity 1.1.6 Awareness for building end-users: this activity is meant to complement previous work on low-carbon project design and implementation to ensure that, once investments are undertaken, the resulting savings materialize and are sustained due to behavioural factors.
- Activity 1.1.7 Policy and regulatory framework for EE-RES in the public sector: in the absence of GCF support, the framework will not receive necessary elaboration and updating, and will continue to follow a piecemeal approach that is characterized by fragmentation, lack of coordination and absence of clear and conducive regulations to enable private sector investment.
- Activity 1.2.1 Implementation of the National Investment Framework for Low-Carbon Public Buildings: most important, fuel switch projects from coal to biomass in the public sector will not materialize without GCF support. On the contrary, LFO to coal switch projects would be the most attractive alternatives for building end-users willing to cut their energy bills: coal is currently the cheapest domestically available source of fuel and, as such, represents the most viable economic alternative to expensive LFO. This means that further increases in GHG emissions in BiH's public sector are likely to happen in the absence of GCF support (as opposed to a reduction, as envisaged in the NDC).
- Activity 1.2.2 Design and Monitoring Implementation of the National Investment Framework for Low-Carbon Public Buildings: Responsible Parties lack experience with designing and implementing coordinated and

[17] This only counts buildings with light fuel oil in the baseline. For the buildings with coal as a baseline fuel, leveraging ratio would be lower because.

harmonized approaches to financing low-carbon public building retrofits involving multiple sources of funds. Without additional assistance to ensure quality and provide oversight, the risk is that the proposed Framework will not be implemented properly and/or will face significant delays, hence compromising the idea and jeopardizing results.

- Activity 1.2.3 Evaluation and sharing lessons learnt (knowledge management): without GCF assistance, useful lessons and knowledge from project implementation will not be analysed and made available to relevant stakeholders in BiH or more broadly in the region and countries with similar challenges.

112. It is worth emphasizing that to ensure desired market transformation impact and the shift in financing paradigm, GCF assistance is required to address **both** financial and non-financial barriers simultaneously.

D.2. Exit Strategy

113. Sustainability and scaling-up principles are embedded in the project design, which is focused on comprehensive removal of the prevailing financial and non-financing barriers to investment in low-carbon public buildings.

114. As far as non-financing barriers are concerned, the project sustainability will be ensured by building the capacities of relevant partners at local and Entity level to identify, prepare and implement EE-RE retrofits of public buildings, as well as supporting the preparation of Sustainable Energy and Climate Action Plans (SECAPs) and associated local EE-RE targets. Municipalities will be further supported to collect data on, and monitor, building stock energy intensity through scaling-up and institutionalising the Energy Management Information System (EMIS), which currently covers fewer than half of BiH public buildings, so that public finances will be used towards more targeted and sustainable investments.

115. With regard to financial barriers, the project's strategy is two-fold. First, it will work with existing BiH institutions to help them make their programming and decision-making regarding allocation of public finance more effective and to adopt a new financing framework whereby the level of concessionality is determined by financial viability of the project and its socio-economic benefits, instead of the current financing paradigm whereby grants are being allocated to the most financially attractive projects.

116. In parallel, the market creation approach, whereby the private sector (ESCOs) will be gradually involved in financing and implementation of low-carbon investment, will help to gradually build the confidence of market players, thus reducing risks and the level of investment support required to make project viable. The technical assistance element of the project will focus on regulatory and legal reform and training of ESCOs to help make the ESCO market function properly in BiH.

117. The barrier related to ESCOs' access to affordable finance will likely remain, if only in weakened form, even after GCF intervention: to help address it once the initial preconditions for ESCO work in the public sector are established and experience with EPC gained, the project will explore various alternative options, such as designing catalytic vehicles with dedicated energy efficiency capital flowing from third-party investors to ESCO companies or municipal green/EE bonds.

E.1. Impact Potential

Potential of the project/programme to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

118. The project will result in a real and visible paradigm shift in the BiH public building sector towards low-carbon sustainable development, as specifically recommended in the Nationally Determined Contribution, the National Communication to the UNFCCC and the National Climate Change Strategy of BiH.

119. The project is expected to result in **direct** emission reductions of 2,019,976 tCO_2e by facilitating and scaling-up investment in low-carbon retrofits in 430 public buildings (representing 11% of the total public building stock in the country). Low-carbon retrofit projects include both EE and fuel switch measures in all buildings.

120. The estimated potential for GHG emission reduction in an average public building, depending on baseline fuel (coal or LFO), is between 178 and 314 tCO_2/year or 3,556 – 6,283 tCO_2 cumulatively over the 20-year investment life-cycle (See Table 10). Emission reductions are calculated based on avoided quantity of fuel consumption (coal or LFO) by multiplying baseline energy use by relevant GHG emission factor and lifetime of the investment (assumed to be 20 years). This approach is in line with relevant CDM methodologies for small-scale fuel-switch projects, e.g. AMS I-C "Thermal Energy Production with or Without Electricity" or AMS I-I "Biomass Thermal Applications for Small Users".

Table 10 Estimates of GHG emission reductions from EE-RE measures in an average public building

GHG Emissions Factor		
Coal	tCO2/MWh	0,357
LFO	tCO2/MWh	0,280
Baseline Coal		
Energy use in the BAU	MWh	880
GHG emission reductions	tCO_2/p.a.	314
Emission reductions over investment lifetime - TOTAL	tCO_2	6 283
Baseline LFO		
Annual energy savings per building	MWh	635
GHG emission reductions	tCO_2/p.a.	178
Emission reductions over investment lifetime - TOTAL	tCO_2	3 556

121. The aggregated GHG emission reductions enabled by the project for a total of 430 buildings (180 buildings heated with coal in the baseline and 250 buildings - with LFO) are presented in Table 11:

Table 11 Aggregated direct GHG emission reductions

GHG savings per year	tCO_2/p.a.	100 999
GHG savings over investment lifetime	tCO_2	**2 019 976**
Cost of GCF grant per tonne of abatement	US$/$tCO_2$	9

122. The project will undertake a number of activities beyond individual investments in low-carbon public buildings retrofits that will also stimulate the market for energy efficiency in the building sector. Therefore, there will be

indirect GHG emission reductions triggered by investments not within the direct control of the project– between 7.1 and 8,1 million tCO2. These are estimated using bottom-up and top-down approaches based on the GEF methodology, as presented in Table 10 and explained below.

123. For bottom-up emission estimates, the estimated direct reductions are multiplied by a replication factor – with the expectation that the volume of investments and GHG emissions reductions will increase by a factor of 4 over a 10-year period after project completion due to the project intervention. This is a modest replication factor according to GEF practice.

Table 12 Estimates of indirect GHG emission reductions

GHG EMISSIONS - Indirect		
Bottom-up		
Direct GHG emission reductions	tCO2	**2 019 976**
Replication factor	#	4
Indirect emission reduction bottom-up	tCO2	**8 079 904**
Top-down		
LFO		
# of units in the country	#	855
Investment per unit	USD	152 304
ER per unit over investment lifetime	tCO2	3 556
Total market potential	tCO2	3 040 380
Casuality factor	%	50%
Indirect GHG emissions	tCO2	1 520 190
Coal		
# of units in the country	#	918
Investment per unit	USD	152 304
ER per unit over investment lifetime	tCO2	6 283
Total market potential	tCO2	5 767 978
Casuality factor	%	50%
Indirect GHG emissions	tCO2	2 883 989
Other		
# of units in the country	#	2 004
Investment per unit	USD	129 219
ER per unit over investment lifetime	tCO2	2 719
Total market potential	tCO2	5 448 385
Casuality factor	%	50%
Indirect GHG emissions	tCO2	2 724 192
TOTAL Indirect emission reduction top-down		**7 128 371**

124. To estimate the indirect GHG emission reductions using a top-down methodology, total 10-year market size was estimated based on the following estimations:
- The total numbers of each public building by baseline fuel source (LFO, coal, other) in the country;
- The market-penetration rates over the course of 10 years after project completion if the project is carried out;
- The total emissions reduction over the lifetime of investments for each type of building;
- The total emissions reduction over the lifetime of investments for each type of building given these market penetration rates;
- The impact on this market development given an estimated GCF causality factor. For this calculation, a level 2 causality factor is used (modest – i.e. 50%)

125. The overall GHG emission results are summarized in Table 13.

Table 13 Aggregated GHG emission reductions: direct and indirect

	2017-2025	***2025-2035***
Direct GHG Emission Savings (tCO_2)	2,019,976	
Indirect Bottom-up Emission Savings (tCO_2)		**8 079 904**
Indirect Top-down Emission Savings (tCO_2)		7,128,371

126. Based upon a total grant of US$ 17,346 million, the cost per tonne of direct CO2 reduction would be US$ 9 Additionally, significant indirect emissions can be expected – between 7,1 and 8,1 million tonnes of CO2 reduction due to the project interventions– yielding a total estimated cost per tonne of CO2 reduced to US $1.8. Based on these calculations, the project is very cost-effective.

E.1.2. Key impact potential indicator

Provide specific numerical values for the indicators below.

GCF core indicators	*Expected tonnes of carbon dioxide equivalent (t CO_2 eq) to be reduced or avoided (Direct only)*	*Annual*	100,999 tCO_2
		Lifetime	2,019,976 tCO_2
	• *Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience);* • *Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)*	*Total*	150,000, including 80,000 women
		Percentage (%)	4

Other relevant indicators	*Regulatory systems: Level 5.1 – Institutional and regulatory systems that improve incentives for low-emission planning and development and their effective implementation.* *Number of lower energy intensity buildings: 430 public buildings*

Jobs created, including:	Full-term employment (FTE)	5,630
Unskilled	FTE	23
Semi-skilled	FTE	2,068
Skilled	FTE	2,987
Highly-skilled	FTE	345
University - grade	FTE	345

Describe the detailed methodology used for calculating the indicators above:

127. The analysis and calculations are based on the data generated by the Energy Management Information System (EMIS), detailed energy audits (DEAs), as well as the result of completed EE-RE projects in public building undertaken by UNDP and/or the Government (all background documents are attached in Annex II - Feasibility studies). The EMIS database enabled the identification of parameters for an "average' public building in BiH, as well as such essential information as the level of energy use, energy cost and "under-heating", number and gender of beneficiaries (building occupants/users). Data from energy audits and completed projects provided information about CAPEX and resulting energy and cost saving, as well as associated GHG emission reductions, job creation and other socio-economic benefits.

128. The analysis features two separate models for EE/RE fuel switch projects in an average public building with coal and light fuel oil (LFO) as the baseline fuel. For each of the two models, several parameters were analysed: average cost of measures per building; amount of financing and co-financing; GHG emission reduction potential; specific energy consumption (SEC) – estimated, real and post-project; cost of applied EE/RE measures; financial and economic IRRs and the associated socio-economic benefits (number of beneficiaries, including women, new jobs created, etc). An analysis of the required level of investment support for each building type has also been provided.

129. Direct beneficiaries of the project are estimated using the average building occupancy, taking into consideration the average number of daily users and average number of employees. This data is generated by the EMIS and relates to different types of public buildings and sectors (e.g. administrative buildings, hospital, kindergartens, healthcare centres, primary schools, municipal buildings, sports halls etc.) – see Table 14.

Table 14 Occupants and beneficiaries in the public buildings

	Building type	Average daily users	Average Employees
1	Administrative building	22.5	13
2	Ambulance	50	3
3	Hospital	155	88
4	Home for children/childcare	57.5	11
5	Kindergaten	78	10
6	Healthcare center	234	59

7	Faculty	600	55
8	Public building- general	85	15
9	Municipality building	84	57.5
10	Primary school	430	48.5
11	Primary school (sports hall)	567.5	49
12	Branch school	42	5
13	Police station	52	62
14	Office building	50	50
15	Theater	150	25
16	Social care	66	11.5
17	Sports hall	600	6
18	High school	550	55
19	High school with sports hall	700	80
20	Dormitory	189	18
21	Retirement home	111	48
22	Office	5	1

130. The number of jobs estimated to be created by the project is based on the UNDP 2016 Study "Green Jobs - Analysing the Employment Impact of Energy Efficiency Measures in BiH" attached as Annex XIIIa. The study uses empirical data from the completed energy efficiency projects in public buildings in BiH to estimate the job creation impact of such investment. Job-creation impact of the project in total and for different jobs categories is presented in the Table 19.

E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project/programme investment

E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

131. The Green Climate Fund is built on the premise of providing finance that is catalytic and plays a paradigm shifting role. This project directly responds to these challenges by proposing an approach that enables both: i.e. catalyzing larger flows of finance for low-carbon investment and shifting the established paradigm about how this investment has to be made. It will support implementation of low-carbon retrofits in 430 public buildings, thus essentially scaling-up current level of investment in the sector by a factor of four to five.

132. Specifically, it will change the established paradigm that investment in low-carbon retrofits in public buildings should be grant-based: instead, the project proposes a much more targeted financing approach to provision of public subsidies, whereby public subsidies are coordinated with other sources of financing (equity and soft loans).

133. The project will also change the established paradigm whereby assistance is provided by various agencies in isolation: instead, it will establish a mechanism that combines various financial sources and instruments under one Investment Framework and where resources from each partner are deployed to address a specific risk or barrier to investment, cumulatively ensuring much more attractive terms for investment than if the same assistance were provided in isolation.

134. Figure 8 and Figure 9 illustrate the paradigm shift potential that this project will deliver: a) a 4-fold increase in the amount of annual investment in low-carbon buildings; b) a shift from a grant-based model (87% in 2015)

towards a non-grant based model (only 15% in 2025); and c) diversification of funding sources and instruments. It is important to note that only the realization of an alternative financing paradigm will enable BiH to achieve its stated targets under the NDC by 2030.

Figure 3 Current Financing Paradigm for Low-Carbon Public Buildings - 2015

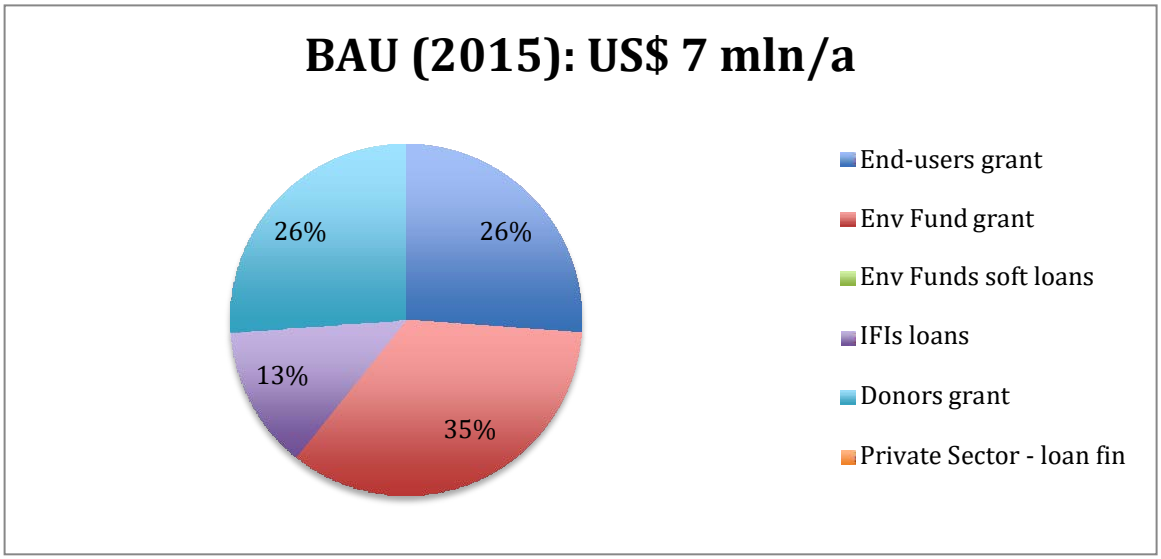
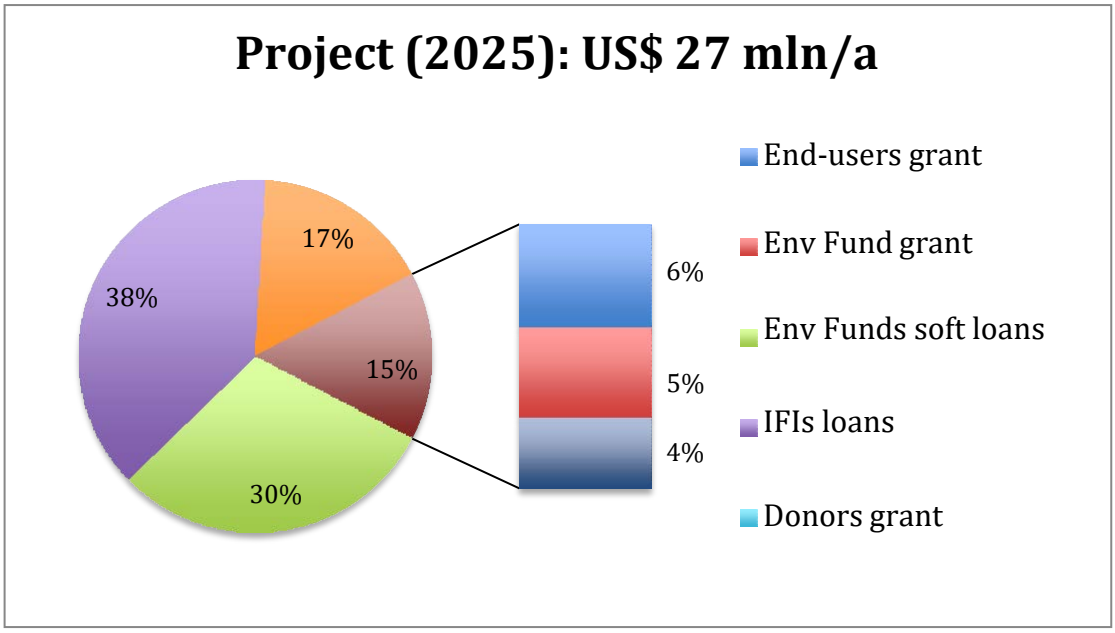


Figure 4 Alternative Financing Paradigm for Low-Carbon Public Buildings - 2025



E.2.2. Potential for knowledge and learning

135. The project will contribute to the creation of knowledge and collective learning processes, as follows:

- Under Output 1.1, Activity 1.1.5, training will be provided to various public building sector stakeholders, municipal energy managers and ESCO companies, as well as entity- and state-level authorities in the area of energy management, EE-RE project design and implementation. The end-of-project target is to provide such training and learning opportunities to at least 2,500 people, including at least 30% women;
- Under Output 1.2, Activity 1.2.3 includes systematic documentation, analysis and extraction of lessons learnt from project implementation, as well as related activities to present and disseminate this knowledge both in BiH and globally. The project will also make provision for a lessons learnt publication highlighting the achievements of the project and documenting lessons learnt;
- In addition, UNDP's M&E reporting includes lessons learnt as a specific section of evaluation reports. As there will be two interim reports and one final evaluation report, the lessons learned will be included therein and disseminated globally on the UNDP Evaluation Resource Centre (ERC) website.[18]

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E.2.3. Contribution to the creation of an enabling environment

136. The project will contribute to the creation of an enabling environment for investment in low-carbon public building retrofits by removing prevailing barriers to such investment. Output 1.1 of the project is aimed at comprehensively addressing a range of non-financial barriers at local and entity/state level, whereas Output 136.2 will address financial barriers via a harmonized and coordinated nation-wide Investment Framework for Low-Carbon Public Buildings. The principal characteristics of such an enabling environment (which are currently lacking) are:

- Existence of local political commitments to energy efficiency/GHG emission reductions in line with NDC;
- Existence of energy use data for all public buildings in BiH and the system to enable their systematic collection and analysis;
- Existence of municipal energy managers to identify and carry out projects;
- Existence of ESCO companies that are interested in, and capable of, undertaking low-carbon public building retrofits based on an EPC model;
- Harmonized and agreed-upon approach to allocation of public finance in such a way that it crowds-in private finance (instead of crowding out).

E.2.4. Contribution to regulatory framework and policies

[18] See, for example, http://erc.undp.org/evaluationadmin/manageevaluation/viewevaluationdetail.html?evalid=6610.

137. At the local level, Activity 1.1.1 will support the update, preparation and adoption of the local Sustainable Energy and Climate Action Plans in at least 30 municipalities across BiH; in addition, the project will support mainstreaming of gender elements in the SECAP and has set a target of at least 10 SECAPs to incorporate dedicated gender sections towards the project end.

138. At the state and entity-level, Activity 1.1.7 will support a number of important policy and regulatory changes essential for low-carbon public building sector, namely:

- Regulatory documents to enable implementation of EPC contracts in the public sector;
- Regulatory documents to enforce the requirements of the Law on Energy Efficiency regarding the use of IT systems for public energy management;
- Policy and regulatory documents to implement a harmonized approach to allocation of public financing for low-carbon investment in public sector.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

139. The proposed low-carbon solutions in public buildings will support the transition towards a zero-carbon public sector with corresponding significant reduction of GHG emissions. In addition, introduction of RE, in particular switch from LFO to locally available biomass will improve security of energy supply to essential public infrastructure, improve conditions for occupants and users of public buildings, most of whom are women and children; reduce local pollution and improve public health; and drive local economic growth and employment. A summary of the project's quantified sustainable development (SD) impacts is presented in Table 15.

Table 15 Quantified sustainable development benefits

Number of low-carbon public buildings	# of buildings	430
Share of low-carbon public buildings in total public building stock	%	9
Direct beneficiaries	# of people	150 000
# of women beneficiaries	# of women	80 000
Share of beneficiaries relative to total population	%	4%
Number of full-time equivalent (FTE) jobs created	FTE	5,630

140. The cumulative impact of the benefits of the application of the proposed low-carbon solutions in public buildings will:

- enable the transition towards a zero-carbon public sector with corresponding significant reduction of GHG emissions;
- make essential public infrastructure energy-independent, thus providing shelter and essential services to local communities during emergencies;

- improve conditions for occupants and users of public buildings, most of whom are women and children
- reduce local pollution and improve public health;
- drive local economic growth and employment.

141. The project's ambitious goal is to make 180 public buildings coal-free and to enable, in total, 430 public buildings (or 9% of the total building stock) to reach a zero carbon footprint (as far as heating energy use is concerned) by supporting implementation of low-carbon public building retrofits with combined EE and RE solutions: an ambitious goal considering the circumstances of a country.

142. In addition to contributing to global environmental benefits, the project will improve the access of local communities, including vulnerable communities, to clean, safe and affordable energy: the retrofitted public buildings will provide improved occupancy conditions, affordable clean, adequate warmth in schools and hospitals and improved indoor and outdoor air quality. The project's EE/RE integrated measures in the areas where the public buildings and infrastructure were affected by floods or are at risk will be aligned with the "Build Back Better" principle and will include flood-resistant building materials for EE measures and biomass fuel switch projects, all of which can strengthen resilience through improved resistance to floods and increased reliability and affordability of energy sources.

143. The project will also support duty bearers in the public sector to improve the delivery of services to communities (e.g. through a set of capacity building interventions that will improve skills and competencies to design, implement and operate integrated fuel switch interventions and improved local design of programmes and policies).

144. The project will promote women's participation in capacity building and awareness-raising through dedicated focus on gender-specific initiatives. It will provide market education and awareness to the public but especially to women about the positive effects on children's health and safety of the retrofitted schools and hospitals, and will seek to engage with NGOs, including women organisations, to become agents of change and promote the positive results of the energy efficiency measures in terms of environmental, social and economic benefits.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

145. BiH is highly vulnerable to climate change, in particular floods: the frequency and magnitude of flood disasters in BiH have tripled in the last decade. Significant variability in precipitation and increased climate variability in the past several decades has been noted across the entire country: 5 of the past 12 years were very dry to extremely dry, and four of these years were characterized by extreme flood events.

146. The Initial National Communication (INC) and the Second National Communication (SNC) to the UNFCCC recognize that climate change is affecting BiH and will accelerate during the remainder of the twenty-first century. Studies of temperature dynamics for the period 1961-2010 indicate that temperatures have increased in all areas of the country. During 1981-2010, the largest increases in average temperature during the summer months were observed in Herzegovina (Mostar 1.2° C) and in central areas (Sarajevo 0.8° C), while the largest increase in spring and winter temperatures was recorded in north-central areas (Banja Luka 0.7° C). The rate of increase in temperature has risen over the past decade. Although increases are over a short time period, it is of concern as it may indicate that the rate of climate change is accelerating

147. Although the total volume of annual precipitation has not significantly changed, the number of days per year with rainfall has decreased, while the number of days with intense rainfall has increased. This represents a significant change to the rainfall regime, particularly when combined with temperature increases. The result will be less moisture in the soil (potentially increasing the frequency and magnitude of drought), and an increased likelihood of floods as the frequency of intense rain events increases.

148. The assessment of the severe flooding of 14-19 May 2014 which affected BiH has concluded that the total economic impact of the disaster is estimated to have reached EUR 2.04 billion, most of which impacted the private sector, families, small medium/large businesses and agricultural producers. 81 municipalities in BiH suffered damage, losses and social/environmental impact of varying degrees, around 90,000 people became displaced as their houses were affected, and more than 40,000 took refuge in public or private shelter reliant upon Government support and international assistance.[19]

E.4.2. Financial, economic, social and institutional needs

149. BiH is a middle-income country, with a high unemployment rate (27.7%) and a GDP per capita of US$ 4,616 (2015). Economic growth was set to accelerate in 2014 but the severe flooding in May 2014 dramatically changed the outlook. Estimates have put the total economic impact of the floods and subsequent landslides at between 5-10% of GDP and revised expectations have pointed to modest economic growth ever since (1.4% in 2014; 2.8% in 2015; 2.4% in 2016).

150. Gender imbalances persist and BiH has the lowest economic activity rates of women in the region with only 33% of working-age women being economically active. According to the official statistics, the unemployment rate for women is 31.2%[20] (compared to 25.2% for men). The last census uncovered the startling fact that, of 89,794 illiterate citizens in total, the vast majority (77,557) are women.[21] The overall high levels of unemployment among women in BiH exacerbate economic dependency of women and diminish their role in public life.

151. The key economic challenge faced by the country is the imbalance of the country's economic model: public policies and incentives are skewed towards the public sector rather than the private sector (but are not pro-poor); consumption rather than investment; and imports rather than exports.

152. The study "Bosnia and Herzegovina: 2014 Flood Recovery Needs Assessment" estimates that the specific disaster recovery needs in the public sector (essential public buildings and facilities) over a short, medium and long term basis are as follows[22]:

	Recovery Needs, KM	**Reconstruction Needs, KM**
Public Services and Facilities	19,900,000	40,350,000

153. Regarding public buildings specifically, the Assessment concludes that, during the medium and long term, welfare support facilities will need to be refurbished in order to deal with an increasing number of vulnerable groups that are seeking support as a result of the flooding. Municipal institutions' capacities need to be restored/strengthened in order to secure public service delivery during crisis situations.

[19] Bosnia and Herzegovina, Recovery Needs Assessment http://europa.ba/wp-content/uploads/2015/05/delegacijaEU_2014090308560389eng.pdf

20 BiH Agency for Statistics, 2016.

21 http://www.popis2013.ba/popis2013/doc/Popis2013prvoIzdanje.pdf

[22] http://europa.ba/wp-content/uploads/2015/05/delegacijaEU_2014090308560389eng.pdf

154. Energy efficiency in buildings in this vulnerability context is viewed, therefore, as a core element of community resilience. The project's EE/RE integrated measures in the areas where the public buildings and infrastructure were affected by floods or are at risk will be aligned with the "Build Back Better" principle and will include flood-resistant building materials for EE measures and biomass fuel switch projects, all of which can strengthen resilience through improved resistance to floods and increased reliability and affordability of energy sources. By providing stable thermal comfort, such buildings can serve as shelters for residents in the event of a disaster.

E.5. Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project or programme

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

155. The proposed project is strategically positioned to respond to the energy efficiency priorities featuring prominently in the country's political agenda, supporting its commitments under the Stabilization and Association Agreement (SAA) with the EU, the International Energy Charter (2016) and the Energy Community Treaty (2009). The country has transposed a number of EU Directives and, as a member of the Energy Community Treaty, it has developed a draft National Energy Efficiency Action Plan (NEEAP); RS has already adopted an EEAP (in 2014).

156. The project is consistent with the priority measures listed in the NEEAP, where "*energy efficiency improvements in buildings"* are expected to make the single-largest contribution to achieving national EE target, with an annual reduction in energy consumption of 1,900 GWh.

157. The Second National Communication to the UNFCCC (2013) further indicates that there exists high potential to reduce energy use and GHG emissions by up to 80% by improving the thermal performance of building envelopes (thermal insulation of roofs, exterior walls, floors, better sealing, replacement of windows) and by replacing HVAC systems and biomass/coal boilers with more efficient models.

158. The project is consistent also with Bosnia and Herzegovina's **Nationally Determined Contribution (NDC)**, which confirms that the trend of energy consumption will lead the country towards increased emission levels, with a peak to occur in 2030 when expected emissions will be 20% higher compared to 1990 baseline levels. *"Systemic energy rehabilitation of existing buildings with particular focus on public sector*" is indicated as part of a set of envisaged climate change mitigation measures leading to an expected decrease in the emission levels of 3% relative to the 1990 baseline by 2030. However, this trend is conditioned on the country's access to international financial mechanisms and also by partnerships with International Financial Institutions for soft/concessional loans.

159. The proposed project builds on UNDP's strategic sequence of the integrated EE/RE pilot projects implemented so far. By demonstrating the potential and viability of energy efficient and resilient building retrofits combined with heating with modern wood biomass in public facilities used by large numbers of people (benefiting 300,000 of estimated daily users), the proposed project will give impetus to the achievement of the objective laid out in BiH's Climate Change Adaptation and Low Emission Development Strategy[23] - of phasing out fuel oil and coal for home and district heating and their replacement with, inter alia, integrated energy efficiency gains and biomass by 2020. The Climate Change Adaptation and Low Emission Development Strategy of BiH features four priority sectors for climate change mitigation, of which energy efficiency in buildings is highlighted as having the strongest potential for emission reduction and is suggested as a key priority at national level.

[23] Climate Change Adaptation and Low Emission Development Strategy for Bosnia and Herzegovina (2013). Available from http://www.unfccc.ba/

160. BiH is a highly decentralized country: therefore, ownership at local level is critical. The country's Constitution (Article III) defines the division of responsibilities between the institutions at state level and at entity level (sub-national level), the latter being mandated with the implementation of national and international commitments in the energy sector. In this respect, as many as 17 cities/municipalities in BiH have joined the Covenant of Mayors Initiative by developing and adopting Sustainable Energy Action Plans (SEAPs) and specific energy-saving and GHG emission reduction targets, which cumulatively represent a commitment to reduce 870,000 tCO_2 by 2030. Energy efficiency and renewable energy improvements in public buildings represent the largest part of this commitment. The proposed project builds on, and practically demonstrates, this commitment, with approximately 20% confirmed co-financing coming from local and cantonal authorities.

161. The proposed project will support municipalities to prepare and/or upgrade their SECAPs/SEAPs, and will therefore be a direct contributor to the signatory cities' pledged mitigation actions. The Plans will feature Baseline Emission Inventories to track mitigation actions, a Climate Risks and Vulnerability Assessment and an adaptation strategy that can either be part of the SECAP or developed and mainstreamed in a separate planning document. The GCF project will therefore be supportive of this bold political commitment, which marks the beginning of a long-term transformative path toward low-emission sustainable development, during which cities have committed to biennial mandatory reporting of their implementation progress.

E.5.2. Capacity of accredited entities and executing entities to deliver

162. Please refer to Section C.4 for information about the Accredited Entity and Responsible Parties.

163. UNDP has assisted BiH in fostering the development of the wood biomass and energy efficiency in the public sector for several years. Through the **UNDP-Global Environment Facility (GEF) project** focused specifically on the removal of market barriers to the growth of modern biomass energy in the country, UNDP raised awareness among diverse stakeholders on the potential and advantages of biomass energy, and has engaged with sub-national authorities through demonstrative pilot initiatives that switch heating systems running on fossil fuels to wood biomass in schools and public buildings. UNDP has since replicated and mainstreamed this approach in its **energy efficiency projects** and in the **reconstruction and rehabilitation of infrastructure in communities affected by the 2014 floods**. The **GEF final evaluation** concludes that: "the project has contributed in a significant way to increasing the awareness and confidence of a variety of stakeholders on biomass energy as a serious and cost-effective alternative to the use of fossil fuels in heating of schools and other public buildings" (Annex VIII). Furthermore, through the **Green Economic Development Project**, awareness-raising events for the public and structured round-table meetings with sub-national level authorities will be held until 2018, communicating the benefits of energy efficiency in buildings, energy management and the environmental and cost benefits of such measures.

164. UNDP supported the Government of BiH in developing its First and Second National Communications to UNFCCC, the First Biennial Update Report, as well as the Climate Change Adaptation and Low-Emission Development Strategy. UNDP has strong in-house expertise in the area of GHG inventory, analysis and monitoring, as well as competent team of sectoral experts in the field of energy efficiency, biomass energy, environmental and climate finance. UNDP has had a long-standing and on-going dialogue on energy efficiency issues with a wide plethora of stakeholders, including line ministries, cantonal and municipal authorities, NGOs and other development agencies and potential beneficiaries.

165. UNDP has maintained a Country Office in BiH since 1996. The Environment & Energy Unit is one of the largest within the Country Office, employing 2 staff and managing a US$ 8 million portfolio. Condsisting 9 projects. The Country Office is backstopped by the UNDP Regional Service Centre in Istanbul, which houses 4 climate change technical advisors.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

Stakeholder Engagement during the Project Proposal Design Phase

166. This **project idea** was generated during earlier workshops organized under the UNDP projects mentioned above, where the benefits of the fuel-switch and energy efficiency pilot projects were acknowledged by Government authorities, NGOs and cantonal/municipal authorities. Furthermore, there was a general consensus that biomass switch projects will support the transition to a low-emission economy by reducing GHG emissions, increasing energy security and creating green jobs – hence the strong expression of interest and support for a scaling-up phase.

167. The project idea was further elaborated with the Nationally Designated Authority (Minister of Physical Planning, Civil Engineering and Ecology of RS) who has provided an endorsement letter noting the full alignment of the concept note with national priorities (Annex I). The NDA has been actively involved in and has facilitated consultations on the project idea among all involved stakeholders both in RS and FBIH, as well as at the federal level. The project has been unanimously supported by all relevant partners, as demonstrated by their commitments to co-finance the project, presented in Annex IV. Support was also secured at the federal level by the Ministry of Foreign Trade and Economic Relations .

168. The draft project concept note was subsequently developed and elaborated during **the first project scoping mission** in October 2016, engaging both entity-level Ministries and Environmental Funds. The project strategy and support was again confirmed, as well as stakeholders' roles and next steps further discussed. Furthermore, a collaboration proposal was tabled with the World Bank Project Manager/Government representative with the view of exploring opportunities for synergies and leveraging new and additional co-finance. A validation multi-stakeholder workshop was conducted during **the second project scoping mission** (November 2016) to present and discuss the detailed project design with all stakeholders. A preliminary Local Project Appraisal Committee (LPAC) meeting was conducted in December 2016 and validated the presented full-fledged Funding Proposal (Annex VII).

169. All key partners have been consulted individually as well as collectively to gain an in-depth understanding of their needs and also explore ideas of how the needs could be addressed through the project. These consultations have resulted in important refinements and adjustments to the project design and implementation arrangements, specifically:

- The choice of Responsible Parties and their specific responsibilities for implementation of project outputs and activities have been confirmed and agreed upon. Consequently, the HACT process has been initiated and completed, confirming Partners' levels of implementation capacity to be in line with UNDP requirements;
- Composition of the Project Board has been confirmed. It was also agreed that the composition of the Technical Advisory Board will be constituted during the project inception phase due to the fast-changing structure of the sector (in terms of actors, in particular international);
- The project timeframe has been extended to address the risks of project delay due to the complex organizational and governance set-up in BiH; lessons learnt and experiences of the WB EE project (which experienced significant delays during the project inception and start-up phase) have also been taken into account;
- Estimates of the financial needs (in particular for project preparation, oversight, as well as CAPEX estimates) have been refined based on analysis of additional data from the WB EE project (e.g. the costs of preparation and oversight of EE-RE retrofit projects are now assessed at 10%, taking into account specific experiences with procuring such services under the WB EE project);
- Co-financing commitments have been secured from all project partners (see Annex IV) for the total of US$ 105.22 million. Co-financing from BiH Ministries include their own financing, as well as new loan from the WB, KfW or other IFI to co-finance proposed National Framework for Low-carbon Investment in Public Buildings (estimated at about US$ 32 mln for the duration of the first three project years).

However, the approval by the Governments of FBiH and RS of the complementary loans is conditional upon securing GCF support to the Framework (as stated in provided co-financing letters): without GCF project, debt finance, even at concessional terms, can't be justified and loan repayment ensured at proposed terms.

- The NDA re-confirmed its support to the project and issued a new Letter of No objection (see Annex I)

170. The National Designated Authority (NDA) will continue to be involved in the entire process. Women's representation will be additionally emphasized by including female staff representatives of the key ministries and agencies, and through structured discussions during the workshops.

171. In addition, during the project preparation phase, beneficiaries of the completed EE UNDP projects have been consulted to ascertain that there were no negative side effects (environmental or socio-economic) that might have affected communities. In actual fact, end-users of two public sector buildings (Kindergarden, Bosnaska Krupa and Hrvatska Bolnica Nova Bila, Nova Bila), which have been retrofitted in 2014 have been visited by the consultants preparing this project proposal with the aim to determine the effects of EE investments in these two public sector buildings. The local communities' representatives have expressed satisfaction with regard to energy and cost savings which resulted in additional EE investments and investments in educational (logopaedic and equipment of children with special needs) and medical equipment as well as reparation of CT scanner in Nova Bila Hospital (the now second CT scanner in Central-Bosnia Canton). It was agreed that civil society representatives, such as the "Centre fro Development and Support (CRP)", the "Regional Education and Information Centre for Sustainable Development in S-E Europe", the "Centre for Education and Raising Awareness of Energy Efficiency (ENERGIS)" would support project activities and liaison with local communities. In the course of project implementation, regular consultations with local communities will be conducted as part of projects M&E, before and after EE retrofit works. Also, the need to provide evidence of stakeholder consultations have been included in the list of minimum requirements for eligible buildings.

172. Stakeholder engagement during the Project Implementation

173. The principal platform for stakeholder coordination will be offered by the Project Board and Project Advisory Committee, which will provide an official forum for the coordination of various line ministries, agencies and funds, and NGOs' work in energy efficiency and renewable energy.

174. The **Project Board** is responsible for taking strategic management decisions and for guiding the project team, and will comprise the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska, the Ministry of Spatial Planning of Federation of BiH, the Environmental Protection Fund of the Federation of BiH, the Environmental Protection and Energy Efficiency Fund of Republika Srpska, and the Ministry of Foreign Trade and Economic Relations of BiH (MoFTER), as well as UNDP.

175. The **Technical Advisory Committee** will be established to serve as a platform for sharing knowledge and lessons learnt from the project, as well as to solicit advice from the broader expert community in BiH regarding specific aspects of project implementation. It will comprise representatives of relevant Ministries from both entities, municipalities, as well as relevant international organizations and projects, such as the WB, SIDA, GIZ and other development partners active in the EE-RE field.

176. Private sector representatives – e.g. ESCO/RESCO companies, construction companies, audit companies, etc. – will also participate in the project's seminars, training, workshops and select awareness-raising events. The project will build on the existing, albeit limited, interest of the private sector to invest in EE/biomass projects.

177. Civil society representatives (such as, but not limited to, the organisations listed below) will be invited to participate in a wide range of workshops and events organized under this project:

- The Regional Education and Information Centre for Sustainable Development in South-East Europe (REIC): REIC is coordinating activities under the Regional Urban Empathy[24] project for BiH aimed at bringing together projects, policy-makers and stakeholders to share concrete results to improve the efficiency of sustainable urban policies in the Mediterranean region;
- The Centre for Development and Support (CRP): CRP is involved in several educational and awareness-raising activities on the topics of sustainability and energy efficiency in BiH;
- The Centre for Education and Raising Awareness of Energy Efficiency (Energis): Energis is specialised in the provision of technical services and implementation of energy efficiency projects in BiH;
- Centar za razvoj (Centre for Development): an NGO focusing on climate change-related issues in BiH;

178. During its implementation phase, the project will strive to meet as many end-users as possible in order to determine the results of generated energy savings and human development stories. Stakeholders will be continuously engaged during implementation and will benefit from UNDP Stakeholder Response Mechanism and Social and Environmental Compliance Unit support, in case of breaching any social and environmental standards by any of the project activities.

179. The Social and Environmental Compliance Unit (SECU) investigates alleged non-compliance with UNDP's Social and Environmental Standards and Screening Procedure from project affected stakeholders and recommends measures to address findings of non-compliance.

180. The Stakeholder Response Mechanism helps project affected stakeholders, UNDP's partners and others jointly address grievances or disputes related to the social and/or environmental impacts of the project. [25]

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project/programme

E.6.1. Cost-effectiveness and efficiency

181. The GCF cost per tonne of direct CO2 reduction the project will generate is estimated at US$ 9. This is considerably lower than the social cost of carbon estimated by the US Environmental Protection Agency[26]. Additionally, significant indirect emissions are expected – between 7,1 and 8,1 million tonnes of CO2 reduction due to the project interventions– yielding a total estimated cost per tonne of CO2 reduced to GCF US $1.8. Based on these calculations, the project is considered very cost-effective.

182. Output 1 will provide technical assistance for the removal of non-financial barriers to investment; it is structured to be a capacity building component; consequently, financial and economic analysis is not considered pertinent for this Component. Output 1.2 (financial de-risking) has revenue-generation aspects but is not driven by a commercial logic: the GCF support to low-carbon public buildings is designed to ensure that projects which otherwise cannot reach financial close are implemented.

183. Further, it is important to bear in mind that the GCF grants will be augmented by considerable co-finance provided by project partners, building end-users, GEF, SIDA, and the entities. Therefore, the project is proposing a package for investors consisting of a mix of grants, loans and end-users' own resources, with GCF grant

[24] http://www.reic.org.ba/2013-05-23-13-12-44/2013-05-23-17-53-12/urban-empathy

[25] The methodology for filing a request is found on dedicated UNDP web site: http://www.undp.org/content/undp/en/home/operations/accountability/secu-srm.html

[26] Mid-range estimate is US$ 55: https://www.epa.gov/climatechange/social-cost-carbon

resources contributing on average around 20% of the total investment costs for EE-RE measures. This mixture will enable the project to mobilise more resources, over and above GCF funding, and hence scale-up the project to bring about the transformational change to the public building sector being sought by the GCF.

184. Economic and financial rate of return: Project-facilitated investments will have different IRRs, financial and economic, depending on a number of parameters, in particular the type of baseline fuel and baseline occupancy condition in the building. Table 16 illustrates how the IRR of a typical EE-RE project in a public building changes with different level of investment support. In particular, it demonstrates that low-carbon investment in a building with a coal-based heating system in the baseline is not viable, even with concessional terms of finance (the financial IRR ranges between 0% and 4). However, the economic IRR of such projects is much higher due to the high GHG emission reduction effect of fossil-fuel switch measures from coal to RE; this additional stream of economic benefits is not currently being factored into the financial analysis. As such, the provision of grant would allow realization of such projects and associated socio-economic and significant environmental benefits in the form of GHG emission reduction.

Table 16 Financial and Economic IRR of EE-RE Projects in Public Buildings

	Adequate occupancy conditions		20% Under-heating	
	Financial IRR	Economic IRR	Financial IRR	Economic IRR
Without grant	4%	11%	0%	8%
With 30% grant	8%	18%	3%	14%
With 60% grant	16%	32%	10%	26%

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

185. The total cost of the proposed initiative is estimated at USD 122.564 million by 2023. The GCF input of USD 17.346 million will cover 14% of the total financial requirements and will leverage an additional US$ 105.22 million of co-finance from a range of sources, such as the Environmental Funds, entity and municipal budgets, and international organizations (UNDP, GEF, IFIs, SIDA) – see Table 2 in Section B.1 for details.

186. The project involves a combination of investment (equity, debt and grant finance) and technical assistance. For technical assistance (Output 1.1, the Project Management and TA element of Output 1.2), the requested GCF funding is US$ 6.33 million to address non-financial barriers to low-carbon buildings. This will be complemented by in-kind co-financing from Responsible Parties, as well as co-finance from UNDP of US$ 1 million (grant) and the GEF of US$ 1 million (grant).

187. For investment support (Output 1.2), GCF financing in the amount of US$ 10.044 million is being requested to support implementation of the Investment Framework for Low-Carbon Public Buildings. This will be complemented by US$ 101 million in co-financing from end-users and from the Responsible Parties, including a new IFI loan (a World Bank second-phase loan under negotiation with the governments). See the overview of project financing structure in Annex XII.

188. The project has the potential to additional co-financing from the private sector, but specific commitments cannot be confirmed at this time, as the projects will be supported on a first-come, first-served basis subject to them meeting defined eligibility criteria.

E.6.3. Financial viability

189. Detailed financial and economic analyses have been conducted for Output 2, financial model which underpins this analysis is presented in the Annex III. Financial Internal Rate of Return (FIRR) and Economic Internal Rate of Return (EIRR) values, as well as NPV and payback have been computed for output 2; inputs, assumptions and methodologies of these calculations are described in section F.1 “Financial and economic analysis”.

190. EIRR and FIRR of the project are given in Table 17. The GCF funds increase the financial IRR from 5% to 10% and the economic IRR – from 11% up to 20% for the project as a whole. The effect on the IRR for different buildings is proportional to the grant amount, with the impact being greatest for low-carbon retrofits in coal-heated buildings (FIRR increases from 0% up to 10%). Investment in coal-heated buildings in the baseline are not viable at all (FIRR = 0%). For the buildings heated with LFO, the baseline FIRR is much higher (9%) and for the most part can be financed with concessional finance alone; GCF assistance in case of LFO-heated buildings is required to remove primarily non-financial barriers (with aide of TA under output 1.1); in case when grant will still be required to make a LFO-heated building viable (estimated at about 5-10%) – the required amount of subsidy will be covered by co-financing.

Table 17 Economic and Financial Internal Rate of Return (IRR)

Key performance indicator	Without grant	With grant
All project		
Economic IRR	11%	20%
Financial IRR	5%	10%
Coal		
Economic IRR	8%	26%
Financial IRR	0%	10%
LFO		
Economic IRR	14%	15%
Financial IRR	9%	11%

Please describe financial viability in the long-run beyond the Fund intervention.

191. The project includes technical assistance activities that focus on addressing systemic barriers to the market for low-carbon public buildings. This includes the development of policy, legislation and incentives to support various public building end-users to identify and carry out low-carbon investment projects. Through the use of grants, the market will be transformed such that, after the GCF intervention, additional investment in the market will continue to take place at a more rapid rate than before Fund intervention (see description of paradigm shift earlier).

192. The provision of a very modest amount of grant funding is needed to jump-start the EE-RE retrofits market. The amount and share of grants in total investment will be progressively reduced; together with measures to reduce the risks of EE investment (i.e. enactment of supportive policies and work with EFs), this strategy will ensure that the need for grant financing is minimized by the end of the project’s 6-year implementation period.

E.6.4. Application of best practices

193. Best available technologies (BATs) have been considered and will be applied. The energy efficiency parameters of the materials and measures will be higher than those required by national EE standards and are fully compatible with best EU practices, such as German EnEV standards (2014) – see Table 18.

Table 88 Maximum allowed U values - Umax W/(m²·K) for building components

#	Building part	**Proposed technical funding criteria BiH**	Local regulation (Bosnia and Herzegovina)				Croatian regulation (EU)		Germany EnEV 2014 regulation (EU)
			FBiH		RS				
			Into force from 01.10.2009.		Into force from 01.01.2016.		Into force from 01.01.2016.		Into force from 01.05.2014.
		Θi ≥ 18 °C	Θi ≥ 18 °C		Θi ≥ 18 °C		Θi ≥ 18 °C		Buildings with indoor temperature Θi ≥ 19°C
		$\Theta_{e,mj}$, min ≤3 °C min >3 °C	$\Theta_{e,mj}$, min >3 °C	$\Theta_{e,mj}$, min ≤3 °C	$\Theta_{e,mj}$, min >3 °C	$\Theta_{e,mj}$, min ≤3 °C	$\Theta_{e,mj}$, min >3 °C	$\Theta_{e,mj}$, min ≤3 °C	
1	Outer walls	0.28	0.60	0.45	0.45	0.30	0.45	0.30	0.24
2	Windows, window doors, roof windows	1.30	1.80	1.80	1.80	1.60	1.60	1.80	1.30
3	Glazing general	1.10	-	-	1.10	1.10	1.40	1.10	1.10
4	Outside doors, doors separating heated space and unheated stairs	1.30	2.90	2.90	2.40	2.20	2.00	2.40	1.60
5	Flat and pitched roofs above heated space	0.22	0.40	0.30	0.30	0.20	0.30	0.25	0.24

Note: $\Theta_{e,mj}$ is the mean monthly temperature of outside air for the coldest month in the building location.

194. Regarding mechanical equipment, the following benchmarks will be adopted:

- Minimum allowed boiler efficiency is 86% for boilers with a load of 50 kW or less
- Minimum allowed boiler efficiency is 88% for boilers with a load greater than 50 kW

195. Measures included in the analysis for public buildings:

- Insulation of the outer walls, of the cavities beneath the windows and of the roof
- Heating system replacement with a biomass-based boiler (or other suitable RE-based systems)
- Thermostatic valves for the heating system
- Hydraulic balance valves for the heating system
- Improved management

196. In terms of measure selection, the following best practices will be acknowledged:

- Each project will feature **both** EE and RE measures to maximize the cost-effectiveness of RE components and achieve maximum GHG emission reductions;
- The inclusion of energy management (and related soft activities, such as training) will ensure sustainability of project results;
- Projects will be carried out only in buildings covered by the EMIS – thus ensuring effective means of monitoring and verification of resulting energy saving and GHG emissions.

197. Best international practice is followed in terms of project design. The project includes both technical assistance focused on permanent reduction and removal of market barriers and the reduction of risks. The provision of targeted investment support to stimulate private investment in public sector buildings, coupled with systemic barrier removal activities, is considered best practice and a cost-effective means of creating markets: this is an approach widely used in OECD countries, for instance in the European Union[27], as well as by the Multilateral Development Banks.

E.6.5. Key efficiency and effectiveness indicators

GCF core indicators

Estimated cost per t CO_2 eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)

(a) Total project financing	US$ 122.564 million
(b) Requested GCF amount	US$ 17.346 million
(c) Expected lifetime emission reductions over time	2.02 million tCO_2eq
(d) Estimated cost per tCO_2eq (d = a / c)	US$ **61 / tCO_2eq**
(e) Estimated GCF cost per tCO_2eq removed (e = b / c)	US$ **9 / tCO_2eq**

Describe the detailed methodology used for calculating the indicators (d) and (e) above.

198. The project budget is presented in Section B.1.

Please describe how the indicator values compare to the appropriate benchmarks established in a comparable context.

199. The project is considered to be highly cost-effective, providing 2.01 million tCO_2e of **direct** emission reductions and additionally 7.1-8.1 million tCO_2e indirectly at a total GCF cost of about US$ 1,8/tCO_2e. This is considerably lower than the social cost of carbon estimated by the US Environmental Protection Agency.[28]

Expected volume of finance to be leveraged by the proposed project/programme and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)

200. *See section E.1.2 above.*

Other relevant indicators:

201. The project will also contribute to the increased employment creating 5,630 new full-time job opportunities, since most of EE-RE works in public buildings will be undertaken locally. The cost-effectiveness of project's job creation impact (11,000$/FTE) can be considered as very high. According to W.E. Upjohn Institute for Employment Research[29] the average range of costs of job creation is within 15,000$ and 50,000$ per job.

[27] https://ec.europa.eu/energy/sites/ener/files/documents/report_financing_ee_buildings_com_2013_225_en.pdf

[28] https://www.epa.gov/climatechange/social-cost-carbon

[29] http://research.upjohn.org/cgi/viewcontent.cgi?article=1021&context=confpapers

Table 99 Job creation impact (full-time employment, FTE):

Jobs created, including:	5,630
unskilled	23
semi-skilled	2,068
skilled	2,987
highly-skilled	345
university-grade	345

F.1. Economic and Financial Analysis

202. The financial model that underpins this proposal (presented in Annex III) has been developed based on characteristics of an average public building (2,600 m^2) and a standardized EE-RE retrofit package modelled separately for coal-heated (option 1) and LFO-heated (option 2) buildings. The following key inputs and assumptions have been used.

203. The **CAPEX costs** of proposed EE-RE package (see Section F.2 for technical details) have been estimated at about US$ 152,000 per building or US$60 per m^2. These costs (Table 20) are based on data from conducted DEAs, as well as actual investment projects carried out earlier by UNDP and the World Bank project. However, it is important to bear in mind that, as mentioned earlier in Section C.2, "public buildings… come in a wide variety of shapes, sizes and purposes, and they have been built at different times according to different standards." Consequently, actual CAPEX cost per building will vary and will be determined in the course of Activity 1.1.4; however in relative terms, US$60 per m^2 threshold is considered to be quite representative threshold and also rather conservative. In addition to CAPEX costs for EE-RE measures, additional investment will be required in essential non-EE related activities, as explained in the baseline section earlier. These additional investments are not included in the analysis: they will vary significantly on a case by case basis and will be entirely covered by end-users' co-financing. In the financial analysis the prices of EE and RE goods and works are used inclusive of VAT (17%) to reflect full investment costs to be incurred[30].

Table 20 Estimated average cost of low-carbon (EE+RE) retrofit

EE-RE Retrofit Project Costs		US$ (VAT excl)	US$ (VAT incl)
CAPEX - EE	Measure 1: Façade thermal insulation	40,470	47,350
	Measure 2: Roof and ceiling	18,981	22,208
	Measure 3: Joinery	62,073	72,625
	Measure 4: Pumps	2,565	3,001
	Measure 5: Thermostatic valves	5,130	6,002
CAPEX - RES	Measure 6: Biomass boiler	23,085	27,009
	TOTAL	152,304	178,196

204. Data for **energy use in public buildings** used in the analysis (Table 21) in the baseline and as a result of project investment have been derived based on a) energy audit data (theoretical consumption – energy needed to ensure minimum comfort requirements); b) real energy use data from EMIS (70-80% of theoretical consumption reflecting the widespread under-heating in public buildings i.e. energy use below the comfort/standard level, estimated at 80% for coal-heated and 70% for LFO-heated buildings) and c) energy use after EE-RE retrofit – based on DEA and results of completed projects.

[30] Responsible Partners (RPs), as public contracting authorities, are required to pay VAT (17%) on all goods and services procured and cannot recover VAT paid. In practical terms, VAT is charged on supplies and the public authorities pay the VAT, together with the price, to the supplier. VAT is then remitted to the State-level BiH Indirect Taxation Authority by the supplier of the goods or services via direct payment to the Single Account open at the BiH Central bank. Indirect Taxation Authority is the single state-level institution responsible for collection of VAT. All collected VAT payments are accumulated in the central budget. RPs, as entity-level public authorities, cant recover VAT from the central budget: there are no such provisions in the BiH VAT Law and/or Public Procurement Law, this is also consistent with relevant EU Directives

Table 21 Energy use in public buildings: BAU and Project Scenario

Energy use	Unit	BAU (real)	BAU (audits)	Project
Coal	KWh/year	704 000	880 000	
Fuel Oil	KWh/year	444 500	635 000	
Biomass	KWh/year			254 222

205. The following **fuel costs** (Table 22) have been used, derived from real fuel cost data collected via EMIS. Energy prices are assumed to rise by 1%/year (in local currency), also based on dynamics observed in previous years. Regarding prices for both LFO and coal used in the analysis, the following observations can be made.

206. UNDP's Study on Fossil Fuel Subsidies in the Western Balkans[31] notes the following: "*Despite the lower overall tax burden, these [Western Balkan] countries could have higher retail prices of liquid fuels than in Central Europe and the EU. This is linked to very high import prices, lack of economies of scale in import and trade, the monopolization of imports, high transport, terminal and pipeline costs, inadequate economies of scale in local oil refineries (which the introduction of EU fuel quality standards will further complicate), poor efficiency and complexity of oil refineries and low productivity of distribution channels."*

207. Regarding the price of coal: in BiH, there are two types of coal sales (and coal prices respectively): a) sale of coal to thermal power plants for the purpose of electricity generation (subsidized) and b) sale of coal on the general market (unsubsidized). For the purpose of this project, unsubsidized coal market prices are used (Euro 90 per tonne of coal). Coal market prices in BiH, while varying greatly depending on the source and quality of coal, remain significantly higher than those in developed country markets (for example, the average market price for coal in the US is US$ 32.5tonne, i.e. 3 times less expensive than in BiH).

Table 22 Fuel costs, US$/kWh

Coal	US$ / kWh	0.02
LFO	US$ / kWh	0.06
Biomass	US$/ kWh	0.03

208. Two **financial structures** have been modelled for coal-heated and LFO-heated buildings respectively (Table 23). The level of subsidy has been estimated based on sensitivity analysis (impact of subsidy on IRR), as presented in the Table 24: for coal-heated buildings, the required subsidy is at max 60% of the EE-RE costs and for LFO buildings - is at 5- 10%. Subsidy will be covered by a combination of GCF and EFs' own resources, noting that allocation of GCF subsidy is subject to a project meeting requirements established in Table 5 and will be used at the minimum level to fill in the remaining financing gap to make such investment viable. In the context of LFO-heated building this means that the grant component of such projects, if required, will be 100% co-financed. The rest of the financing package will come from end-users (also for non-EE measures), and other co-financiers. The terms of the loans for end-users will be in the range of 1,5-5% to be determined on a case-by-case basis in line with the following principles:

- Concessionality: loan interest rate shall not exceed the BiH Central Bank (lending) Interest rate (4,91% as of January 2017 down from 5,97% in January 2016). Based on latest observed dynamic the 5% threshold has been used;

[31] http://www.tr.undp.org/content/dam/turkey/docs/Publications/EnvSust/Fossil_Fuel_Subsidies_F.pdf

- Cost-recovery: fixed and variable costs of EF loan operations are determined annually based on available budget for programming, maximum size of loan (250,000 BAM – BH Convertible Mark), cost of individual loan processing in order to estimate required minimum level of interest to ensure EF's cost recovery
- Risk profile of a particular project and applicant: higher interest rate is applied to riskier projects (e.g. buildings with higher level of under-heating and/or in bad conditions, use of cheaper fuels in the baseline, etc)

Table 23 Proposed financial structure

	Unit	Project - Coal	Project - LFO
Own (building end-users)	%	30%	30%
Grant (GCF, EFs, GEF, other co-financiers)	%	60%	10%
Loan	%	10%	60%
Total EE-RE costs		100%	100%

Table 24 Impact of GCF grant on investment return

COAL		LFO	
Grant	**FIRR**	**Grant**	**FIRR**
10%	1%		
20%	2%	0%	9%
30%	3%	**5%**	**10%**
40%	5%	10%	11%
50%	7%	20%	12%
60%	**10%**	30%	15%
70%	14%	40%	17%
80%	22%	50%	21%

209. The minimum **lifetime of the investment** is assumed to be 20 years given the training and O&M provision in this project, as well as its emphasis on capacity building for energy management. Also, as reflected in Table 5 only buildings with minimum 20 years lifetime will be eligible forsupport.

210. **Discount rate**: the use of 10% discount rate as a benchmark in financial analysis is based on the consideration of the cost of capital in BiH and relevant benchmarks from countries with similar socio-economic conditions, namely:

a. The IPCC 4th Assessment report notes "…For mitigation effects with a shorter time horizon, a country must base its decisions (at least partly) on discount rates that reflect the opportunity cost of capital. In developed countries, rates of around 4–6% are probably justified. Rates of this level are in fact used for the appraisal of public sector projects in the European Union (EU) … ***In developing countries, the rate could be as high as 10– 12%***.";
b. The "Study evaluating the current energy efficiency policy framework in the EU and providing orientation on policy options for realising the cost-effective energy-efficiency/saving potential until 2020 and beyond"[32], provides the following information regarding the use of appropriate discount rates for EE retrofit projects in buildings in EU member states: "In countries like France, Germany or Austria, the interest rate is in the

[32] https://ec.europa.eu/energy/sites/ener/files/documents/2014_report_2020-2030_eu_policy_framework.pdf

lower range from 3.1% to 3.7% for typical residential building owners, ***4.7%-5.4% for non-residential buildings*** with higher values up to about 7.4% for low-income owners or elderly people. ***In countries like Romania or Bulgaria, the interest rates are in the higher range of 8-12% with higher values of up to 16% for low-income and aged building owners….*** It is important to underline that the discount rates defined in such a way still are based on a financial market perspective and are to be distinguished from a "social discount" rate which may be derived from a societal perspective, taking into account societal benefits";

c. Interest rate in commercial banks, e.g. available for EE and RE project in municipalities through WEFSEFF, are in the range of 8-12%.

211. The financial analysis methodology involves cash flow projections for costs and revenues to public building end-users (municipalities and other public entities in BiH) from the savings in operational expenses resulting from implementation of the proposed EE-RE measures. The feasibility of the investments is determined by computing the financial internal rate of return (FIRR) and financial net present value (FNPV), and comparing the FIRR with the assumed discount rate. Table 17 in section E.6.3 above summarises the FIRRs computed for the investment in Output 1.2, separately for coal- and LFO-heated buildings and in general for the overall project portfolio. Financial returns to building end-users from co-investing in this part of Output 1.2 are attractive only with grant support (co-financed by GCF and other sources), since the FIRR (10%) equals the discount rate (10%).

212. The GCF-financed share of the total investment envisaged under the project will be 9%. In other words, the project requests GCF to co-finance only a small share of the total required investment. The remaining part of the EE-RE investment, as well as non-EE related measures in buildings will be covered by co-financing from end-users and from other sources, including the Environmental Funds, entity budgets, UNDP, GEF, as well as new IFIs' loan. The key justification for the grant request is that certain types of EE retrofit projects are not viable even under concessional lending terms (i.e. FIRR = 0%) and require a grant component to be viable. On the contrary, there are projects, which don't require a grant component to be viable, but grant assistance is needed to help end-users identify such opportunities, prepare bankable proposal and monitor their implementation. In such cases, GCF-financed technical assistance is requested, but the investment cost will be covered by co-financing.

213. In the economic analysis, a price of US$ 28/tCO_2 has been used to estimate the additional benefits of GHG emission reductions. This assumption is line with relevant IFI guidelines: for example, EIB's guidance on the Economic Appraisal of Investment Projects[33] specifically mentions that: "The main economic benefits of energy efficiency projects are related to the economic cost of the energy saved, including environmental externality costs." With regard to specific values, the adopted value of $US 28/t$CO_2$e corresponds to the "central" range used by EIB in its economic appraisal of climate change mitigation projects (see Table 25).

Table 25 Value of carbon in EIB appraisal (EUR/t CO2e)

	Value 2010 emission	Annual adders 2011 to 2030
High	40	2
Central	25	1
Low	10	0.5

Source: EIB Economic Appraisal of Investment Projects, 2013

214. Table 26 demonstrates how the ERR changes depending on the different values of carbon: investment in buildings heated with coal are more sensitive to the cost of carbon, than investment in buildings with LFO (which have lower level of GHG emissions and consequentlylower stream of additional benefits).

33 http://www.eib.org/attachments/thematic/economic_appraisal_of_investment_projects_en.pdf

Table 26 Impact of carbon price on ERR in the baseline

Price of carbon	Buildings with Coal	Buildings with LFO
10 US$/tCO2	3%	11%
28 US$/tCO2	8%	14%
45 US$/tCO2	13%	16%

F.2. Technical Evaluation

215. UNDP has undertaken detailed energy audits (DEAs) of 90 public buildings in BiH (presented in Annex II – Feasibility Studies). These data have been used to estimate parameters for an average "hypothetical" building and a typical package of EE-RE retrofit measures used in the analysis, as presented in Table 20. Typical measures (recommended in 70% of DEAs) usually include thermal cladding of outer walls, window replacement, roof insulation and new doors. Besides that, mechanical measures such as thermostatic valve installation, fuel and boiler replacement (including fuel switch) and calorimeter installation are also suggested in 45% of DEAs. Recommendations to implement efficient lighting measures have been made in 30% of DEAs (and are excluded from aggregated analysis). These measures cumulatively reduce the need for heating or improve the efficiency of heating by 60% (compared to real energy use), combined with additional impact of mandatory fuel-switch measures this would lead to 100% GHG emission reduction compared to baseline.

216. The list of measures considered in the technical and economic analysis does not include some structural measures or non-EE works, which are essential for ensuring adequate occupancy conditions, as well as ultimately the energy-saving and GHG emission reductions from specific EE measures. Such works may include: supplementary interventions needed to be implemented alongside with building shell thermal energy improvements, such as drainage system improvement, improvements in the indoor ventilation though localised solutions (automatic vents at the top of windows), and/or installation of mechanical ventilation systems with heat recovery. The needs for, and scope of, such non-EE works vary considerably from building to building, it is not possible to include specific cost estimation in the model. Non-EE works will need to be identified and assessed on a case-by-case basis and will be co-financed by end-users.

F.3. Environmental, Social Assessment, including Gender Considerations

217. No substantial environmental and social risks have been identified. The project will be implemented according to UNDP's environmental and social policies to ensure minimisation of any environmental risks. The project has completed the standard UNDP social and environmental screening procedure (UNDP SESP attached as Annex VIa). The screening was undertaken to ensure that the project complies with UNDP's Social and Environmental Standards. The overall risk category is: **Low.**

218. As the project envisages retrofitting of already existing public buildings within their existing footprint, no land acquisition, resettlement, or any other adverse social impacts (such as loss of assets, loss of income due to retrofitting works) are expected.

219. GCF funds will be used to co-finance low-carbon retrofits in buildings meeting minimum technical, socio-economic, financial and environmental requirements (see Table 5), which would not be able to receive financing under the

baseline condition (or could not be financed in full – in particular, measures involving coal to biomass fuel switch – see Financial Analysis in Annex III).

220. The specific EE an RES measures involving construction/civil works will include:

a) Insulation of the outer walls, roofs and ceilings

i. Boiler replacement, such as installation of biomass boilers (or other suitable RE-based systems)

ii. Installation of thermostatic valves and hydraulic balance valves for the heating system

221. In addition, some non-EE related works, which are essential for ensuring adequate occupancy conditions, as well as ultimately the energy-saving and GHG emission reductions will be undertaken (co-financed by end-users). Such works may include: supplementary interventions needed to be implemented alongside with building shell thermal energy improvements, such as drainage system improvement, improvements in the indoor ventilation though localised solutions (automatic vents at the top of windows), and/or installation of mechanical ventilation systems with heat recovery. The needs for, and scope of, such non-EE works vary considerably from building to building and will be determined on a case-by-case basis.

222. The associated environmental impacts, as related to the construction works on the selected buildings will be temporary and easily mitigated (and include potential dust and noise generation, management of construction and other wastes, and ensuring minimal disruptions to building users and neighbors). Care will be exerted in planning the exact timing of works in schools (during breaks) or hospitals.

223. The project will implement the necessary actions needed to meet the requirements of the social and environmental performance standards where potential risk from retrofit works and failure of structural elements from the building retrofits may pose safety risks especially when third party labour is involved. These actions will include the presence of safety specialists on site and implementation of Operational Safety and Health Guidelines/Manuals according to the national legislation, in order to respond to the requirements of the UNDP Social and Environmental Standards and IFC Performance Standards on Environmental and Social Sustainability (e.g.PS2).

224. The project will hire health/safety specialists in order to prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, as far as reasonably practicable, the causes of hazards. The project will ensure that the following areas will be addressed, as relevant (i) identification of potential hazards to workers, particularly those that may be life-threatening; (ii) provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (iii) training of workers; (iv) documentation and reporting of occupational accidents, diseases, and incidents; and (v) emergency prevention, preparedness, and response arrangements. The project will also ensure that workers are provided with clear information on their rights, including those related to work hours and benefits; are trained and aware about the inherent occupational risks; are free to form workers committees, have access to grievance mechanism and have equal opportunity and fair treatment.

225. In addition, the project will work with registered and skilled contractors, taking all the reasonable efforts to ascertain when the case, that the third parties who engage these workers are reputable and legitimate enterprises and have an appropriate Environment and Social Management System (ESMS) that will allow them to operate in a manner consistent with the requirements of UNDP Social and Environmental Standards. Clear provisions will be included in contractual agreements and sub-contractors will be asked to also comply with requirements relevant to resource efficiency and pollution prevention standards and will be asked to dispose of waste generated from the civil works following the applicable regulations. Health and safety management as well as management of waste and debris will be part of the conditions and responsibilities in awarding the civil works to the contractors, in

accordance with health and security regulations on construction sites in BiH, e.g. FBiH and RS, both in line with European norms and standards.

226. Historic buildings (constructed before 1900) with cultural heritage significance represent only 4% of the total public building stock in BiH. The project objective is to support a standardized package of building retrofit measures while prioritizing cost-effectiveness and scalability of the GCF investment. It is not deemed feasible to focus on historic buildings due to higher costs of EE measures, as well as low potential for replication of such investment. Further, implementation of EE retrofit in the buildings with cultural significance will pose additional risks to the project and will fall into category of "medium" risks according to UNDP Environmental and Social Safeguard Policy. Therefore and in line with established requirements, such buildings will not be eligible to receive GCF support and will not be targeted by the project.

227. Minimum requirements for eligible buildings set up by the project only allows building with "low environmental and social risk" to receive GCF support. At appraisal stage, each sub-project will be reviewed for compliance with minimum requirements. UNDP's standard Social and Environment Screening Template (SESP –as presented in the Annex VIa) will be used to assess social and environmental risks of sub-projects, including the following performance standards:

- Biodiversity Conservation
- Climate Change Mitigation and Adaptation
- Community Health, Safety and Working Conditions
- Cultural Heritage
- Displacement and Resettlement
- Indigenous People
- Pollution Prevention and Resource Efficiency

228. Responsible Parties will undertake sub-projects' appraisal in line with Operational Guidance and UNDP's ESSP and present the results to UNDP. Also, at project inception stage, training will be provided to RPs to help understand and apply ESSP and conduct social and environmental appraisal of the projects.

229. On the contrary, the planned low-carbon retrofit measures are expected to have many positive social impacts. The retrofitting works will consist of modernization of heat systems and EE installations - therefore, no job losses are envisaged and instead a positive employment impact is expected. Other positive impacts include increased awareness among the participating communities, reduced local pollution (due to reduced use of fossil fuels in local boiler houses), and improved conditions to both staff and patients in the retrofitted buildings.

230. The long-term effects of the project are positive, and will be reflected in the savings made in heating bills, efficient use of natural resources and energy, and decrease in emissions into the atmosphere, in particular CO2, SOx, NOx, and PMs.

231. An EIA is not required for the envisaged type and scale of EE investments under this project according to relevant provisions of the following EIA Laws for FBiH and RS:

- Law on Environmental Protection of Federation of B&H (Official Gazette of FBiH, no. 33/03);
- Law on Environmental Protection of Republika Srpska (Official Gazette of the Republka Srpska, no. 71/12);
- Regulation on plants and facilities for which environmental impact assessment is obligatory and plants that can be built and activated only if they have environmental permit (Official Gazette of FBiH no. 19/04)
- Regulation on plants and facilities that can be built and activated only if they have environmental permit (Official Gazette of the Republika Srpska" no. 7/06);
- The relevant cantonal regulations

232. EE-RE projects and activities in the building sector are not subject to EIA, nor is the issuance of environmental permits required for such projects. Retrofitting of building envelopes and associated works are classified as building 'maintenance', which eliminates the need for permitting. Furthermore, in the case of combustion-based RE system installation with capacity below 1 MW, there is no need to obtain an environmental permit either. However, environmental considerations and risk assessment will have to be undertaken in the course of detailed technical and economic analysis and are also a mandatory part of detailed energy audit.

233. Consequently, in consultation with the Government the project has been assigned a 'low' category in UNDP's E&S Screening template based on to ensure consistency in environmental and social assessments among the Government and UNDP. However, the SESP recognises that categorisation of projects is an iterative process; should stakeholders raise concerns about the project's social and environmental aspects during implementation, the 'low risk' designation will be carefully reviewed.

234. Gender considerations are embedded in the proposed project in the *Gender Analysis and*, *Gender Action Plan* (Annex VIb) and have been further mainstreamed in the project's logical framework in the form of gender-sensitive actions and indicators. Stakeholders' engagement during project proposal preparation was participatory and gender-responsive.

235. In practical terms, the project's Technical Assistance component will seek to promote women's participation in capacity building and awareness-raising through a dedicated focus on gender-specific initiatives, by:

- Providing training to women representative of municipal/cantonal staff in preparing and implementing climate-smart programmes, projects and plans; operationalisation of energy information systems and their use in the prioritisation of climate-smart solutions for buildings;
- Providing training for the private sector, encouraging women entrepreneurs' participation in the development of new/green markets (e.g. biomass; (R)ESCOs);
- Creating opportunities for improved access by women to information and investments in energy efficiency measures;
- Training women to take up specific jobs with a focus on clean energy development, energy audits, flood resilience in the building sector, etc.

236. The project will provide market education and awareness to the public, and especially to women, about the positive effects on children's health and safety of retrofitted schools and hospitals, and will seek to engage with NGOs, including women-based organisations, to become agents of change and promote the positive results of energy efficiency measures in terms of environmental, social and economic benefits.

237. Under Output 1.2, each project submitted for funding will have to describe its impact on both women and men.

238. UNDP will ensure that the mandatory Social and Environmental Standards will be underpinned by an Accountability Mechanism with two key components: (i) A Compliance Review, to respond to claims that UNDP is not in compliance with applicable environmental and social policies and (ii) a Stakeholder Response Mechanism that ensures individuals (including workers hired at the project site) , people and communities affected by the project have access to appropriate grievance resolution procedures for hearing and addressing project related complaints and disputes.

239. The Social and Environmental Compliance Unit (SECU) investigates alleged non-compliance with UNDP's Social and Environmental Standards and Screening Procedure from project affected stakeholders and recommends measures to address findings of non-compliance. The Stakeholder Response Mechanism offers locally affected people an opportunity to work with other stakeholders to resolve concerns about the social and environmental impacts of a UNDP project.

240. SRM is intended to supplement the proactive stakeholder engagement that is required of UNDP and its Implementing partners throughout the project cycle. Communities and individuals may request an SRM process when they have used standard channels for project management and quality assurance, and are not satisfied with

the response. When a valid SRM request is submitted, UNDP focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns that have been raised. Given their relationships with local stakeholders, Country Offices are generally best positioned to lead the response to SRM requests. For more complex cases, UNDP regional and headquarters counterparts may be involved. UNDP may also seek agreement from requestors and other stakeholders to engage independent mediators to help resolve the issues. When parties are able to agree on a path forward, SRM will assist in monitoring implementation of the agreement to ensure commitments are met and the issues are adequately addressed. In situations where the concerns have not been resolved, SRM will work with partners and stakeholders to explore alternative avenues for resolution. More information on SRM Overview and Guidance, while the methodology for filing a request is found on dedicated UNDP web site: http://www.undp.org/content/undp/en/home/operations/accountability/secu-srm.html

241. However, based on UNDP previous energy efficiency refurbishment projects and discussions with a few former projects' beneficiaries during this project preparation phase, it is highly unlikely that the project will generate community level grievances, the project will work with local authorities and local NGOs in order to assemble a community level grievance redress group if such case will arise.

F.4. Financial Management and Procurement

242. The financial management and procurement of this project will be subject to UNDP financial rules and regulations, available here: https://info.undp.org/global/documents/frm/Financial-Rules-and-Regulations_E.pdf. Further guidance is outlined in the financial resources management section of the UNDP Programme and Operations Policies and Procedures, available at https://info.undp.org/global/popp/frm/Pages/introduction.aspx. UNDP has comprehensive procurement policies in place, as outlined in the 'Contracts and Procurement' section of UNDP's Programme and Operations Policies and Procedures (POPP). The policies outline formal procurement standards and guidelines across each phase of the procurement process, and they apply to all procurements in UNDP. See here: https://info.undp.org/global/popp/cap/Pages/Introduction.aspx.

243. The project will be implemented following the Direct Implementation Modality (DIM) following the UNDP POPP available here: https://info.undp.org/global/popp/frm/Pages/direct-implementation-dim-modality.aspx. For project activities carried out by the Government as a Responsible Party, fund transfer to the Government will follow DIM guidelines. Prior and post procurement reviews will be performed by UNDP in accordance with UNDP procurement guidelines. UNDP has ascertained the national capacities of the Responsible Parties by undertaking an evaluation of capacity following the Framework for Cash Transfers to Implementing Partners (part of the Harmonized Approach to Cash Transfers – HACT: see results of the HACT assessments in Annex XIIIb). All projects will be audited following the UNDP financial rules and regulations noted above and applicable audit guidelines and policies.

244. During implementation, UNDP will provide oversight and quality assurance in accordance with its policies and procedures, and any specific requirements in the Accreditation Master Agreement (AMA) and project confirmation to be agreed with the GCF. This may include, but not be limited to, monitoring missions, spot checks, facilitation and participation in project board meetings, quarterly progress and annual implementation reviews, and audits at project level on the resources received from UNDP.

245. The project will be audited in accordance with UNDP policies and procedures on audits, informed by, and together with, any specific requirements agreed in the AMA. According to the current audit policies, UNDP will appoint the auditors. In UNDP, scheduled audits are performed during the project cycle as per UNDP assurance/audit plans, on the basis of UNDP's guidelines. A scheduled audit is used to determine whether the funds were used for the appropriate purpose and in accordance with the work plan. A scheduled audit can consist of a financial audit or an internal control audit.

246. UNDP provides a variety of assurance activities which will comprise (but not be limited to): (1) Periodic on-site reviews (spot checks) of the financial records of the project. These may be performed by qualified UNDP staff or

third-party service providers; (2) Programmatic monitoring of activities, which provides evidence regarding the state of project implementation and use of the GCF resources; and (3) Scheduled and special audits (financial or internal control) of the financial records. UNDP prepares and reports financial statements in full accordance with the International Public Sector Accounting Standards (IPSAS). Full compliance with IPSAS was achieved effective January 2012. IPSAS was mandated by UN General Assembly Resolution 60/283 and is considered best practice in accounting for public sector and not-for-profit organizations.

247. A draft procurement plan (which will be further discussed and revised prior to UNDP Project Document signature) is provided in Annex XIIIc.

248. HACT assessments of the proposed Responsible Partners have been conducted and are presented in Annex XIIIb.

G.1. Risk Assessment Summary

249. The project approach to promoting low-carbon investments in public buildings is based on **UNDP's DREI approach**[34], which uses public instruments (public de-risking) to reduce financing costs of low-emission energy systems and/or infrastructure. Public de-risking measures are divided into three types: (i) policy de-risking instruments that *reduce* risks by removing the underlying barriers to investments (ii) financial de-risking instruments that *transfer* the financial impact of investment risks from the private sector to the public sector; and (iii) financial incentives that serve to *compensate* for residual risks (that cannot be otherwise addressed) and thereby increase returns.

250. **Summary of risks**: Technical risks include risks related to the lack of knowledge and skills necessary to identify, finance and implement EE-RE projects in public buildings. Financial and operational risks include those related to the low credit-worthiness of municipal authorities and low uptake of non-grant financial mechanisms by the public and private sectors, as well as the low financial viability of EE-RE investment in specific circumstances (buildings with coal as baseline fuel and buildings with sub-optimal comfort conditions). Legal and regulatory risks refer to BiH's fragmented administrative structure and complex governance framework, which poses additional barriers to effective energy management in public sector and the creation of enabling framework for private investors. The environmental and social safeguard risks are minor and will be comprehensively addressed by the standard UNDP social and environmental screening procedure.

G.2. Risk Factors and Mitigation Measures

Selected Risk Factor 1

Description	Risk category	Level of impact	Probability of risk occurring
Complex administrative and governance structure in BiH coupled with low capacities of public authorities, in particular at local level, poses risks related to the ability of relevant bodies to undertake and enforce required policy and regulatory changes, in particular as far as the creation of an enabling environment for private investment in low-carbon public buildings is concerned.	Policy and regulatory	High	High

Mitigation Measure(s)

Risk mitigation: Design of the project strategy and its implementation structure have been informed by the need to take due account of the BiH's administrative complexities and the need to address policy and regulatory risk. Several activities are proposed to address this risk, as follows:

- Activity 1.1.1 will support preparation, upgrade and adoption of SECAPs as a key policy instrument which establish specific commitments at the local level for GHG emission reduction, energy saving and renewable energy application in the public sector. SECAPs are also important to ensure availability of local co-finance for the project as budgetary allocations at local level are directly linked to SECAP investment priorities.
- Activity 1.1.2 will enable the creation and implementation of a comprehensive energy management system in the public sector which covers different jurisdictions and will enable the enforcement of key provisions of the Law(s) on Energy Saving of both FBiH and RS with regard to creation of building registry, monitoring energy use and prioritization of investment in EE-RE at entity-level. Through this activity, the project will also strengthen capacities of the two EFs to deliver on their mandate (in line with the EE Law) to implement entity-level energy management systems (i.e. to monitor and analyse energy use at entity-level and prioritize public investment) and therefore effectively overcome existing barriers that concern fragmentation and lack of clear authority over EE-RE promotion and financing in the public sector.
- Activity 1.1.7 will support the development and promote the adoption of a comprehensive policy and regulatory package aimed at creating a nationwide harmonized and coordinated Investment Framework for Low-Carbon Public Buildings. The project will work with and support both entities, FBiH and RS separately at first, to formulate a policy design that is appropriate for each entity. The project will also work with MOFTER and facilitate inter-entity dialogue and exchange of relevant experiences and approaches. The fact that this activity will be directly implemented by UNDP will additionally help

[34] http://www.undp.org/drei

mitigate the risk because of UNDP's impartiality and ability to negotiate and ensure harmonized approaches between the entities, as has been demonstrated in the course of the project design, which received the full support of stakeholders, at both entity level and local levels across BiH. The following specific policy and regulatory provisions will be worked out to address existing barriers to private investment from the policy angle:

- Regulations to enable implementation of energy-performance contracts in the public sector to open up market opportunities for private investment;
- Adoption of a harmonized and uniform approach to allocation of public financing for low-carbon investment in public buildings
- Building on the above two essential elements, development and coordinated implementation of BiH's Investment Framework and Programme for Low-Carbon Public Buildings.

The project will be implemented based on UNDP Direct Implementation Modality (DIM) whereby UNDP will take lead and ensure over-all project implementation and direct oversight and accountability of Responsible Partners, as well proper coordination between the entities and between national and sub-national activities. UNDP will closely monitor the performance of Responsible Partners (on a quarterly basis) and will take corrective measures in case of non-performance or slow delivery, for example, take over responsibility for delivery of specific outputs.
Responsible partners will be accountable to UNDP and their engagement and status of responsible partners is conditioned by the proof of adequate administrative and financial management capacities and adequate performance regularly risk-based monitored and assured in line with HACT policy. The assurance plan at the CO and project level is prepared on an annual basis for all HACT assurance activities, while at the project level CO BIH applies very engaged support to Responsible partners under DIM modality which entails regular quarterly monitoring and verification of all the activities/actions/financial reports. The substantive and financial reporting from responsible partners is defined within the legal instrument - Letter of Agreement that UNDP will sign with each RP individually. The minimum requirement for substantive and narrative reporting is on quarterly basis.

Recognizing the inevitable delays due to the need to conduct extensive coordination, the project has been designed for the total of 8 years (instead of 5-6 years for the operations of similar size). This is also to allow Responsible Partners to start slow and progressively increase their delivery towards the project end.

Finally, capacity building and learning-by-doing approach has been embedded in project design to enable all partners to gradually develop their internal capacities and skills for EE finance, project appraisal, etc. Much simpler and faster alternative would have been for UNDP to deliver the project on its own, as it has demonstrated on numerous occasions before in BiH in the context of EE retrofit or post-flood assistance implementation. However, the sustainability effect of such operations would be limited and the paradigm shift - unlikely.

Selected Risk Factor 2

Description	Risk category	Level of impact	Probability of risk occurring
Local municipal government lacks the institutional and individual capacities, knowledge and skills to identify and execute investment in low-carbon buildings. Planned local-level energy efficiency investments are, therefore, not able to leverage scarce public finance for maximum environmental, social and economic benefits. The risk is exacerbated by insufficient relevant technical staff at local level, insufficient number of energy managers within public authorities as well as limited relevant expertise available for energy audits and for the identification and implementation of feasible integrated EE/RE projects in buildings.	Technical and operational	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)

Risk mitigation: The project will mitigate this risk through the provision of expertise and technical assistance to municipalities to prepare/update their SECAPs (Activity 1.1.1) and implement energy management (Activity 1.1.2). Further, assistance will be provided to building end-users to identify, prepare and undertake detailed technical and economic analysis of proposed EE-RE projects in buildings. The project will also provide training to municipal energy managers in project identification, preparation and oversight.

Selected Risk Factor 3

Description	Risk category	Level of risk	Probability of risk occurring
Non-existence of technical data on energy (and water) consumption in the public building stock and lack of coherent information on building retrofit interventions lead to fragmented and uncoordinated approaches.	Technical and operational	Low (<5% of project value)	Medium
Mitigation Measure(s)			
Risk mitigation: The project's approach to mitigate this risk is two-fold. First, under Activity 1.1.2 it will support nationwide roll-out of the Energy Management Information System (EMIS) to ensure that towards project-end ALL 5,000 public buildings in BiH are covered: i.e. have a system in place that enables collection and storage of data about buildings' energy and water use, and HR capacity in place to operate the system. Second, under the same activity work will be done to establish entity-level "EMIS", which will aggregate individual building data into entity-level databases and will also cover other municipal energy users (e.g. utilities, such as street lighting companies, heating companies, etc.) so that relevant authorities (EFs – as mandated by the EE Law) have complete overview of their energy use at various level, can analyse energy data, establish benchmarks and targets (e.g. maximum energy intensity in public buildings), and prioritize and allocate public funds accordingly. Training and advisory services will be provided to all EMIS users from individual building to entity level to ensure human resources are adequate to implement on a nation-level scale. UNDP's experience with implementing a similar programme in Croatia proves that the task is doable, but requires a lot of systematic efforts and assistance, especially in the beginning, to ensure the system's sustainability in the long-run.			
Selected Risk Factor 4			
Description	Risk category	Level of impact	Probability of risk occurring
Limited access to finance for low-carbon investment in public buildings: low credit-worthiness of the municipal authorities and low uptake of non-grant mechanisms; operational barriers that prevent municipal budgets from retaining the financial savings from energy efficiency projects to be able to repay the loans.	Financial	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
Risk mitigation: The project will mitigate these risks by implementing a financial support mechanism that will combine several categories of financial instruments tailored to address various financing risks that EE-RE projects and public building end-users face. Additional financial incentives will be designed in order to stimulate investments in buildings with high CO_2 savings, socio-economic benefits potential and *compensate* for the low financial returns (e.g. investments in coal-heated buildings, considering the actual and perceived low financial return of such investments due to common under-heating standards found in public schools).			
Selected Risk Factor 5			
Description	Risk category	Level of impact	Probability of risk occurring
High transaction costs of project identification, preparation and supervision, and low attractiveness of coal-RE fuel-switch projects discourage potential private sector investments.	Financial	Medium (5.1-20% of project value)	Low
Mitigation Measure(s)			
Risk mitigation: The project will mitigate this risk by allocating grant resources in the form of technical assistance for project development and oversight to compensate for high up-front transaction costs related to project development, thus minimizing the risks faced by the private sector.			
Selected Risk Factor 6			
Description	Risk category	Level of impact	Probability of risk occurring

Climate change-induced extreme weather events, in particular floods, may affect some of the project's retrofitted buildings.	Social and environmental	Low (<5% of project value)	Low
Mitigation Measure(s)			
Risk mitigation: The project will cover some of the flood-prone areas and will therefore have to ensure that the energy efficiency measures applied to the buildings in flood-prone zones are adequate and suitable, in order to increase buildings' resilience and minimize economic loss in case of a disaster (e.g. dry-proofing and wet-proofing measures). Assessment of climate risks and vulnerabilities, as well as recommendations on specific climate risk mitigation measures will be undertaken in the course of SECAP preparation (Activity 1.1.1).			

Selected Risk Factor 7

Description	Risk category	Level of impact	Probability of risk occurring
Generation of waste from building retrofits	Social and environmental	Low (<5% of project value)	Low
Mitigation Measure(s)			
Risk mitigation: The project will set up measures to deal with the generation of waste from building retrofits, by including specific terms regarding (environmentally-friendly) waste disposal in the contractual agreements with building contractors, including special provisions for utilization of mercury-containing light bulbs and proper management of ant other potentially hazardous materials, as mandated by relevant national policies and regulations. UNDP has long experience with implementing and overseeing building retrofits works under on-going GED projects, including ensuring proper waste handling practices from construction sites. Under Activity 1.1.4 "project oversight and implementation support" the implementation of those provisions will be ensured by relevant project staff.			

Selected Risk Factor 8

Description	Risk category	Level of impact	Probability of risk occurring
Duty-bearers do not have the capacity to meet their obligations, such as in collecting baseline data for the EMIS and in managing EE building retrofit financing projects	Social and environmental	Low (<5% of project value)	Low
Mitigation Measure(s)			
Risk mitigation: The project will support duty bearers in the public sector to improve their skills and capacities for a better delivery of services to communities, including vulnerable communities: e.g. increased competencies to operate energy databases; capacities to design, implement and operate integrated fuel switch interventions, and improved design of climate-smart and inclusive programmes and policies.			

Selected Risk Factor 9

Description	Risk category	Level of impact	Probability of risk occurring
CAPEX costs may vary significantly depending on the basic parameters of the building, including the quality of its routine maintenance and/or the need to incorporate additional climate protection measures; therefore, in some cases additional non EE-RE related works and services will be required which would lead to higher than foreseen CAPEX.	Financial	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
Risk mitigation: Once the detailed economic and technical analysis is conducted, the eligible costs of EE-RE works will also be defined as well as the need for any additional investment. Those will have to be additionally co-financed by the building en-users. CAPEX estimates will be done by qualified sub-contractors as part of sub-project preparation appraisal work. Based on CAPEX estimates detailed financing plan per building will be prepared including securing co-financing by Responsible Partner. GCF financing will only be released after the completion of EE works and only in the amount agreed upon at project appraisal stage.			

Selected Risk Factor 10			
Description	Risk category	Level of impact	Probability of risk occurring
Co-financing: the need to ensure that co-financing is leveraged and disbursed at the same time as the GCF funds	Financial	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
Risk mitigation: Co-financing of the investment output will have to be disbursed at the same time as the GCF funds. It will be the responsibility of each Responsible Partner to ensure required co-financing. The sequence of actions will be the following (see diagram below and in the Annex XIII e): - For each sub-project (building), a detailed financing plan will be prepared and agreed upon up-front with building end-user, including the determination of the share of GCF grant in the total investment cost. - UNDP checks compliances with Operational Guideline and approves “financing plan”, including the eligible share of GCF-funded cost - Responsible partner procure EE works and services - After completion of works, UDP PIU certifies work completion in accordance with agreed plan - Responsible partner releases funds to sub-contractors. On semi-annual basis, each Responsible Partner a) report on the disbursement of the previous advance; b) provide certification of the completed works, including co-financing. Only after provision of a) and b) new request for funds can be made. At any point, if Responsible Partner fails to report or the report is unsatisfactory, UNDP can stop funds disbursement.			

H.1. Logic Framework.

Please specify the logic framework in accordance with the GCF's Performance Measurement Framework under the Results Management Framework.

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level[35]						
Paradigm shift objectives						
Shift to low- emission sustainable development pathways	The Project contributes to shifting BiH to a low-emissions sustainable development pathway in two ways: 1) it improves efficiency of energy use in public buildings by at least 50% and 2) it enables the switch from fossil to renewable (zero-emission) energy sources in public buildings.					
Expected Result	**Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target**		**Assumptions**
				Mid-term	Final	
Fund-level impacts						
3.0 Reduced emissions from buildings, cities, industries and appliances	Tonnes of carbon dioxide equivalent(tCO 2eq) reduced in public building sector	Energy Management Information System (EMIS) to provide data on baseline and post-project energy use and energy sources Project team to prepare annual report on GHG emission reduction based on EMIS data Mid-Term and Final Evaluation	0	500,000	2,019,976	• Estimation over investment lifetime (20 years) • Mid-term is 3 years after project start • The procurement process is efficient and timely • Co-financing realized

[35] Information on the Fund's expected results and indicators can be found in its Performance Measurement Frameworks available at the following link (Please note that some indicators are under refinement): http://www.gcfund.org/fileadmin/00_customer/documents/Operations/5.3_Initial_PMF.pdf

		Reports to have dedicated sections on CO_2 emission reductions - to independently verify project reports on GHG emission reductions				
	Number of people benefitting from improved working/occupancy conditions in buildings (disaggregated by gender)		0	35,000 (18,200 women)	150,000 (80,000 women)	•
	Number of people benefitting from improved working/occupancy conditions in buildings to total population		0	1%	4%	•

H.1.2. Outcomes, Outputs, Activities and Inputs at Project/Programme level

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	
Project/programme outcomes	**Outcomes that contribute to Fund-level impacts**					
5.0 Strengthened institutional and regulatory systems for low-emission planning and development	M5.1 Number of policies, institutions, coordination mechanisms and regulatory frameworks that improve incentives for low-emission planning and development and their effective implementation *Note: the project will support*	Records of City Council meeting Covenant of Mayors data-base on the status of SEAPs/SECAPs: http://www.eumayors.eu/actions/sustainable-energy-action-plans_en.html	14 SEAPs approved by City Councils	34 SECAPs updated/ approved by City Councils	54 SECAPs updated/ approved by City Councils	Local authorities' commitment to adopt and pursue sustainable energy targets remains strong

	update/preparation of the local Sustainable Energy and Climate Action Plans (SECAPs) as a specific policy and regulatory framework for low-emission planning at the local level in BiH					
	Number of gender-sensitive policies, and regulatory frameworks for low-emission planning and development	Records of City Council meeting Project report on "Monitoring status of gender in SECAP"	0	5	20	Local authorities' commitment to adopt and pursue sustainable energy targets remains strong Local authorities recognize and acknowledge the role of women in improving public buildings' energy efficiency
7.0 Lower energy intensity of buildings, cities, industries, and appliances	M7.1(a) tCO_2eq emissions reduced due to improvements in public sector building design and energy efficiency	Data from EMIS before and after implement-ation of EE-RE measures	0	500,000	2,019,976	• Estimation over investment lifetime (20 years) • Full comfort conditions are assumed in the baseline • Mid-term is 3 years after project start • The procurement process is efficient and timely • Co-financing realized
Project/programme outputs	**Component and outputs that contribute to outcomes**					
Component 1 (project)	Share of grant finance in the total investment for low-carbon public buildings	National report on the status of National Investment Framework for	87%	50%	15%	Authorities in both entities remain committed to adopting harmonized and

		Low Carbon Public Buildings				effective policy framework
	Number of jobs created via project-facilitated investment	National report on the status of National Investment Framework for Low Carbon Public Buildings	N/a	1,500	5,630	
Output 1.1 Non-financial barriers to investment in low-carbon public buildings addressed	Number of SECAPs updated/developed and adopted	Record of City Councils and SECAP global online data-base	14	20	40	Local authorities' commitment to adopt and pursue sustainable energy targets remains strong
	Number of public buildings covered by EMIS	EMIS data-base	2,100	4,000	5,000	Local authorities' commitment to adopt EMIS remains strong
	Number of EE-RES retrofit projects (DEAs) in public buildings identified, prepared and tendered out	Project reports	90	200	430	The procurement process is efficient and timely
	Number of people trained, including share of women (%)	Project reports	0	500 (30%)	2,500 (30%)	Local authorities' commitment to implement EE-RE in public buildings remains strong Learning opportunities offered by this project lead to private investment in EE-RES in public buildings
	Number of end-users covered by PR and advocacy campaign, including minimum share of women	Project reports	0	50,000 (at least 52% women)	150,000 (at least 52% women)	
	Status of BiH EE Investment Framework for low-carbon public sector buildings	Official legal and regulatory documents establishing the Framework Project progress reports	No Frame-work	The Framework is adopted	The Framework adopted and is under implement-ation in both entities	Authorities in both entities remain committed to adopting harmonized and effective policy framework
Output 1.2 Financial barriers to investment in low-carbon public buildings addressed	Amount of finance leveraged for investment in low-carbon public buildings	Reported data from project monitoring component Mid-term and final evaluation reports	0	US$ 20 mln	US$ 100 mln	Sufficient uptake of the EE-RES projects among the target market of municipal authorities and ESCOs

	Legal and operational status of the Framework	Mid-term and final evaluation reports Annual audit reports	N/A	Framework legally established	Framework is operational with positive audit statement	Minimal staff turn-over at Implementing Partners ensured Government maintains policy of promoting EE-RE in public sector

Activities	**Description**	**Inputs**	**Description**
1.1.1. SECAPs preparation	Updating and/or drafting and supporting the adoption of SECAPs	Specialized companies	Hiring of specialized companies to assist in preparation of SECAPs
1.1.2. Energy management	a) Implementation of a municipal energy management information system (EMIS) in public buildings and utilities, and carrying out energy intensity mapping b) Training and advice on energy management in national/entity level institutions, including design and introduction of appropriate IT solutions for municipal/entity-level energy management	Local consultants Specialized companies	Hiring of consultants to assist in implementation of EMIS: software installation, on-the-job-training to energy managers, data analysis Hiring specialized companies to support municipalities/entities with energy management, as well as to design and implement appropriate IT solutions
1.1.3. EE-RE projects preparation	Selection of public buildings and identification and designing projects in public buildings featuring integrated low-carbon solutions (EE-RE), including full technical, economic and financial analysis, and prioritization of investment followed by detailed technical design	Specialized companies and local consultants	Hiring specialized companies and local consultants to undertake technical and economic analysis, as well as to prepare technical design
1.1.4 Projects' oversight	Supporting municipalities throughout project implementation, including organisation of tenders, work supervision till the commissioning of the project and procurement of ESCO services using an EPC modality, once operational	Local consultants	Hiring legal, financial and technical advisors to assist municipalities in project supervision, as well as to structure ESCO contracts
1.1.5. Training for various stakeholders	Organizing training for various stakeholders, including ESCOs, municipal energy managers, etc.	Specialized companies or institutions	Hiring specialized company/institutions to deliver training programme
1.1.6. Awareness-raising and training for building end-users	Designing and conducting awareness-raising campaign	Specialized companies and local consultants	Hiring specialized companies and local consultants
1.1.7. Drafting BiH Investment Framework for Low-Carbon Public Buildings	Drafting required policy and regulatory documents	Local consultants	Hiring of consultants to assist in preparation of legal documents
1.2.1. Implementation of Investment Framework for Low-Carbon Public Buildings	Implementation of EE-RE retrofit measures in public buildings	Companies supplying works and services	Procurement of works and services for implementation of EE-RE projects
1.2.2 Oversight	Supporting set-up, implementation and monitoring of the Investment Framework	Local consultants and companies	Hiring local consultants/companies to assist with project assessment and monitoring
1.2.3. Evaluation, lessons learnt and knowledge sharing	Evaluation of project impact on ESCO market development and designing alternative financing scheme for ESCO financing Collecting, analysing, presenting and disseminating useful lessons learnt about the	Local and international consultants, specialized companies	Hiring consultants and procurement of services

	implementation of the project through: a) publications; b) a conference; and c) other modern media tools, such as webinars		
1.2.3 Knowledge Management	Project management	Local and international experts	Hiring local and international project staff

H.2. Arrangements for Monitoring, Reporting and Evaluation

251. **Monitoring and Reporting** will be conducted according to UNDP's POPP and the UNDP Evaluation Policy. The UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements will be undertaken in accordance with GCF policies.

252. **Project Manager**: The Project Manager is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Board, the UNDP Country Office and the UNDP Regional Technical Advisor of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

253. The Project Manager will develop annual work plans to support the efficient implementation of the project. The Project Manager will ensure that the standard UNDP and GCF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the Annual Project Report (APR), and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. environmental and social management plan, gender action plan, etc.) occur on a regular basis.

254. **Project Board:** The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling-up and to highlight project results and lessons learnt with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

255. **Project Responsible Parties:** The Responsible Parties are responsible for providing any and all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. The Responsible Parties will strive to ensure project-level M&E is undertaken by national institutions, and is aligned with national systems so that the data used by and generated by the project supports national systems.

256. **UNDP Country Office:** The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organize key M&E activities including the Annual Project Report, the independent mid-term review and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GCF M&E requirements are fulfilled to the highest quality.

257. The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the UNDP POPP. This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the APR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. annual APR quality assessment ratings) must be addressed by the UNDP Country Office and the Project Manager.

258. The UNDP Country Office will support GCF staff (or their designates) during any missions undertaken in the country, and support any ad-hoc checks or ex post evaluations that may be required by the GCF. The UNDP Country Office will retain all project records for this project for up to seven years after project financial closure in order to support any ex-post reviews and evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GCF.

259. **UNDP-Global Environmental Finance Unit (UNDP-GEF):** Additional M&E and implementation oversight, quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate, as outlined in the management arrangement section above.

260. **Audit:** The project will be subject exclusively to the internal and external auditing procedures provided for in the financial regulations, rules, policies and procedures of UNDP, which also include specific audits of the Responsible Parties.

261. **Inception Workshop and Report**: A project inception workshop will be held within four months after the project document has been signed by all relevant parties to, amongst others:

- Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project strategy and implementation;
- Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;
- Review the results framework and finalize the indicators, means of verification and monitoring plan;
- Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutions to be involved in project-level M&E;
- Identify how project M&E can support national monitoring of SDG indicators as relevant;
- Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender action plan; and other relevant strategies;
- Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and
- Plan and schedule Project Board meetings and finalize the first year annual work plan.

262. The Project Manager will prepare the inception workshop report no later than one month after the inception workshop. The inception workshop report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Advisor, and will be approved by the Project Board.

263. UNDP as an accredited entity shall provide to the GCF the following reports prepared in a form and manner compliant with the practices and procedures of the Fund for individual Funded Activities. As per clause 15.02 of the Accreditation Master Agreement this includes the Annual Performance Review (APR), interim or final reports, a self-assessment of compliance in accordance with clause 13.01 of the monitoring and accountability framework and a report of actions carried out or planned to be carried out as well as all such other reports that the AE may prepare or require in accordance with its own rules, policies, and procedures. The payments are to be made based on Procurement Plans aggregating financing request from approved sub-projects (as explained above) – see response to question 2). The project will adopt a phased approach to implementation of EE building retrofits. As described earlier, the release of funds to Responsible partners will be conditional upon successful accomplishments and reporting (substantial and financial) on the implementation of the previous phase.

264. **Annual Project Report (APR):** The Project Manager, the UNDP Country Office and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual APR covering the calendar year for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the APR submission deadline so that progress can be reported in the APR. Any

environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the APR.

265. The APR will be shared with the Project Board. The UNDP Country Office will coordinate the input of other stakeholders to the APR as appropriate. The quality rating of the previous year's APR will be used to inform the preparation of the subsequent APR.

266. **Lessons learned and knowledge generation:** Results from the project will be disseminated within and beyond the project intervention area 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 the project. The project will identify, analyse and share lessons learnt that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

267. **Independent Mid-term Review (MTR):** An independent mid-term review process will begin after the third APR has been submitted to the GCF, and the MTR report will be submitted to the GCF in the same year as the third APR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration.

268. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GCF-financed projects, available on the UNDP Evaluation Resource Centre (ERC). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

269. **Terminal Evaluation (TE):** An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin at least three months before operational closure of the project, allowing the evaluation mission to proceed while the project team is still in place yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability.

270. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GCF-financed projects, available on the UNDP Evaluation Resource Centre. As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publicly available in English on the UNDP ERC.

271. The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP Evaluation Resource Centre (ERC).

272. **Final Report:** The project's terminal APR, along with the terminal evaluation (TE) report and corresponding management response, will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lessons learnt and opportunities for replication.

273. The responsibilities of UNDP related to Know Your Customer (KYC), Customer Identification Programme (CIP), Anti-Money Laundering (AML), and Countering the Financing of Terrorism (CFT) are defined in the Accreditation Master Agreement (AMA). In accordance with 4.05 (a) of the AMA, UNDP is required to implement KYC and other similar checks under all laws and regulations as may be applicable. UNDP already has in place proper policies and procedures to deal with these matters.

274. UNDP operates anti-money laundering procedures in accordance with all laws and regulations that may be applicable to itself as an accredited entity. UNDP is also required to operate in a manner which is consistent with the anti-bribery laws of the Host Country and any other laws as may be applicable to the accredited entity. In addition, UNDP operates in such a manner as to carry out all due diligence as necessary of desirable in accordance with its own internal rules and procedures and usual practice when dealing with funds for which it has management or investment responsibility.

275. In legal terms, UNDP's project document shall be the instrument referred to as such in the Article 1 of the Standard Basic Assistance Agreement between the Government of BIH and UNDP, signed on 7 Dec 1995. All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner." The project will be overall implemented by UNDP ("Implementing Partner") and specific project activities will be implemented by Responsible Parties in accordance with their financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of a Responsible Party does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply. Having in mind that UNDP is overall Implementing Partner, UNDP will ensure that the certain obligations are binding on each responsible party, subcontractor and sub-recipient, by incorporating it in the legal instruments applied with them, and/or enclosing Project document that specify these obligations, i.e.:

- UNDP as the Implementing Partner will comply with the policies, procedures and practices of the United Nations Security Management System (UNSMS.)
- UNDP as the Implementing Partner will undertake all reasonable efforts to ensure that none of the project funds [funds received pursuant to the Project Document] 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.
- 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).
- 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.
- 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.
- UNDP as the Implementing Partner will ensure that the following obligations are binding on each responsible party, subcontractor and sub-recipient

UNDP will also be responsible to put in place checks and various measures (monitoring missions, spot checks, quarterly progress and annual performance reviews, mid-term reviews, audits, final evaluations) to ensure that funds are spent appropriately

276. Prior to signature of the Responsible Party legal instrument (Letter of Agreement), all National Responsible implementing Partners need to have undergone a Harmonized Approach to Cash Transfer (HACT) assessment by independent auditors engaged by the UNDP to assess their capacities (financial, managerial, internal control, etc.) to implement the project. HACT helps to ensure that all national implementing partners are appropriately qualified to implement the project and to insure that funds are not used for illicit purposes but for intended purposes. Under the HACT Framework, quality assurance activities shall comprise of (1) Periodic on site reviews (spot checks) of the IP's financial records of cash transfers. These quality assurance activities should be performed by qualified UNDP staff or third party service providers; (2) Programmatic monitoring of activities supported by cash transfers, which provides evidence regarding the state of programme implementation and use of resources provided by UNDP; and (3) Scheduled and special audits (financial or internal control) of the IP's financial records and financial management systems of internal controls related to the programme.

I. Supporting Documents for Funding Proposal

☒ No-objection Letter **Annex I**

☒ Feasibility Study **Annex II**

The following feasibility studies have been conducted by UNDP to support the elaboration of this project:

- Detailed energy audits of 90 public buildings have been conducted, including full technical and economic analysis and justification for investment and the required environmental and social impact assessment – provided;
- 4 Cantonal energy efficiency studies have been conducted covering over 1,265 public buildings – provided;
- Study of 550 public buildings in Federation of BiH (full details and assessment) - provided;
- Analysis of employment impact of energy efficiency measures in BiH - provided.

☒ Integrated Financial Model that provides sensitivity analysis of critical elements, as well as socio-economic analysis and analysis of GHG emission reductions **Annex III**

☒ Letters of co-financing **Annex IV**

☒ Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) **Annex V**

☒ Social and Environmental Screening Report **Annex VIa**

☒ Gender Assessment and Action Plan **Annex VIb**

☒ Appraisal Report: Minutes of the LPAC meeting **Annex VII**

☒ Evaluation Report of the baseline project **Annex VIII**

☒ Map indicating the location of the project/programme **Annex IX**

☒ Timetable of project/programme implementation **Annex X**

Additional information

☒ Project confirmation **Annex XI**

☒ Project Budget – GCF form **Annex XII**

☒ Additional Background Details **Annex XIII**

- **Annex XIIIa** UNDP 2016 Study "Green Jobs - analysing the employment impact of the energy efficiency measures in BiH";
- **Annex XIIIb** HACT assessments of the proposed Responsible Parties
- **Annex XIIIc** Procurement plan
- **Annex XIIId** Status of SECAPs/SEAPs in BiH
- **Annex XIIIe** Implementation Organigram for Output 1.2
- **Annex XIIIf** BiH Reform Agenda
- **Annex XIIIg** IMF report dated September 2016

☒ Responses to GCF comments on Concept Note **Annex XIV**

☒ Letter of Endorsement from UNDP Senior Management **Annex XV**

** Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.*

REPUBLIC OF SRPSKA
GOVERNMENT
MINISTRY OF PHYSICAL PLANNING, CIVIL ENGENEERING AND ECOLOGY
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Ref: 15.05-052-1580/17

NO OBJECTION LETTER

To: The Green Climate Fund ("GCF")

Banja Luka, 21st February 2017

Re: Funding proposal for the GCF by UNDP regarding "Scaling-up Investment in Low-Carbon Public Buildings and Infrastructure" project

Dear Madam, Sir,

We refer to the GCF USD 24,780,000 funding "Scaling-up Investment in Low-Carbon Public Buildings and Infrastructure" project in Bosnia and Herzegovina as included in the funding proposal submitted by UNDP to us on 20th February, 2017.

The undersigned is the duly authorized representative of Ministry of Physical Planning, Civil Engineering and Ecology of Republic of Srpska, the National Designated Authority/focal point of Bosnia and Herzegovina.
Pursuant to GCF decision B.08/10, the content of which we acknowledge to have reviewed, we hereby communicate our no-objection to the project as included in the funding proposal.

By communicating our no-objection, it is implied that:

(a) The governments of BiH have no-objection to the project as included in the funding proposal;
(b) The project as included in the funding proposal is in conformity with BIH's national priorities, strategies and plans;
(c) In accordance with the GCF's environmental and social safeguards, the project as included in the funding proposal is in conformity with relevant national laws and regulations.

We also confirm that our national process for ascertaining no-objection to the project as included in the funding proposal has been duly followed.

We acknowledge that this letter will be made publicly available on the GCF website.

Kind regards,

Name: Srebrenka Golić
Title: Minister of Ministry of Physical Planning, Civil Engineering and Ecology of Republic of Srpska, the GCF National Designated Authority/focal point of Bosnia and Herzegovina, the UNFCCC focal point of Bosnia and Herzegovina

Environmental and social report(s) disclosure

Basic project/programme information	
Project/programme title	Scaling-up Investment in Low-Carbon Public Buildings
Accredited entity	UNDP
Environmental and social safeguards (ESS) category	Category C
	Note: *Environmental and social report disclosure not required for Category C and Intermediation 3 projects and programmes.*
Environmental and social report disclosure information	
Description of report/disclosure	N/A