Terms of Reference

Preparation of technical design for retrofitting of public buildings

UNDP/GCF-BiH10/00103203-RFP-CQ-CS-21-22-FRS

1. BACKGROUND

The Environmental Protection and Energy Efficiency Fund of Republic of Srpska has been financed by UNDP/GCF towards the cost of an Scaling-up Investments in Low-Carbon Public Buildings in Bosnia and Herzegovina. The project development objective is to demonstrate the benefits of energy efficiency improvements in public sector buildings and support the development of scalable energy efficiency financing models.

The objective of the Energy Efficiency Project's corresponds to goals underlined in the Law on Spatial Planning and Construction of Republic of Srpska and the Law on Energy Efficiency of Republic of Srpska, both adopted in 2013.

Scaling-up Investments in Low-Carbon Public Buildings in Bosnia and Herzegovina will support energy efficiency investments ("subprojects") in schools, hospitals and clinic centers. A small number of other public facilities (e.g., elderly homes, orphanages, other administrative buildings) may also be included. The project will finance energy efficiency upgrades/renovations of buildings, as well as related technical consultancy services (e.g., energy audits, technical and social monitoring and evaluation, technical designs, supervision and subproject commissioning). The selection and implementation of subprojects will be conducted in three annual batches.

These investments will reduce the energy consumption of selected public buildings, and demonstrate the economic viability of energy efficiency improvements, including reduced recurring energy costs and associated public expenditures. In addition, the subprojects will generate demonstrable co-benefits, such as reduced CO_2 emissions and improved indoor comfort levels (e.g., improved indoor temperature, better lighting and indoor air quality). The results indicators against which the implementation progress of (Low carbon will be measured against include: lifetime energy savings, lifetime fuel savings, greenhouse gas savings, increase in end-user satisfaction, number of buildings with EU-compliant energy certification, number of municipal energy managers trained, number of subprojects commissioned, and direct project beneficiaries.

The Project Implementation Unit (PIU) within the Environmental Protection and Energy Efficiency Fund of Republic of Srpska will be responsible for preparation, coordination, management and implementation of the project, including procurement, contracting, and payments of all goods, works and services related to the project.

These Terms of Reference (ToR) define the nature and detailed scope of an assignment to provide engineering services, which include preparation of technical designs.

2. DESCRIPTION AND SCOPE OF SERVICES

2.1 GENERAL DEFINITION OF SERVICES

For the preparation and implementation of energy efficiency investments in public buildings that are planned to be retrofitted from 2021 to 2026, the PIU on behalf of the Environmental Protection and Energy Efficiency Fund of Republic of Srpska ('the Client') intends to hire a Consultant Company ('the Consultant') who will perform services described below.

The services will be performed for public buildings (schools, hospitals and other public buildings) in Republic of Srpska. List of buildings will be provided by the Client.

The services to be provided by the Consultant are described in detail in section 2.2. The Consultant shall work in compliance with all relevant and valid regulations in Republic of Srpska, including but not limited to the Law on Construction and Physical Planning, as well as the following rulebooks: 1) Regulation on Energy Certification of Buildings, 2) Regulation on Minimum Requirements of Energy Performance of Buildings and 3) Regulation on Methodology for Calculation of Energy Performance of Buildings published in Official Gazette of Republic of Srpska 30/15.

2.2 DETAILED SCOPE OF WORK

Task 1.Urban and technical requirements

As part of this task, the Consultant shall:

- Consult with the municipality on which territory the building (in Annex 1) is located (after Fund announce the final location), if urban and technical requirements are necessary;
- Inform the PIU about the necessity of preparation of urban and technical requirements (within 3 days);
- Prepare urban and technical requirements, if required by the municipality, in accordance with Law on Spatial Planning and Construction of Republic of Srpska;

Output: Documentation for urban and technical requirements for each building in Annex if required by the municipality on which territory the building is located in accordance with Republic of Srpska Law and to be delivered in Serbian language.

The duration of this task: (1) to inform the PIU about the necessity of preparation of urban and technical requirements is expected to be 1 (one) week. (2) To prepare urban and technical requirements, if required by the municipality is expected to be 7 (seven) weeks.

Task 2. Technical Design for Buildings

The Consultant will prepare the technical design documentation for each building. This will include the following activities:

- Prepare calculations in accordance with above mentioned Law and rulebooks above 2.1 GENERAL DEFINITION OF SERVICES. Prepare lay-outs, drawings, technical specifications, detailed technical designs and bills of quantities for energy efficiency measures; the drawings will include the details that are usually produced in the Republic of Srpska and will be issued at the scales required by the Republic of Srpska norms and standards; a template with required details will be provided.

  As for product materials or equipment that are included and to be described in the technical requirements and specifications, the Consultant shall provide a list of standards (Serbia/EU/DIN or other recognized international standards) and internationally recognized certificates and tests that these materials or equipment (including assembled windows) must comply and be accompanied with.

  Technical specifications include: (i) detailed description and physical characteristic of each component for each energy efficiency measure (for instance: rock wool density, lambda, size, thickness; cement-mortar; nails; finishing coat, rendering for external insulation); (ii norms and standards available in the Republic of Srpska, or in Serbia, or in the EU; (iii) certificates issued by an institute with a license accepted by the Republic of Srpska Government. If any of the required certificates cannot be provided by a relevant laboratory in Republic of Srpska, certificates issued by a relevant EU laboratory is acceptable. Each detailed drawing of doors and windows will include the following technical specification: U-value, material of frame, number of chamber, low E, argon, ratio glass/frame, etc.

  The design (and technical part of the bidding documents, as described below) shall also take into account relevant regulations in the Republic of Srpska on environmental protection, any environmental management plans for government facilities such as hospitals, and the environmental management plan provided by the Client;
- Provide the coloured facade rendering (2D and 3D) and present it to the Client and the Beneficiaries, and get approval from Beneficiaries and Client.
- Warn the client about existing material identified as including asbestos, and recommend adapted works for removing it if it is necessary to do so in the framework of the present project.
- The Consultant shall work in close cooperation with the Client and seek its approval of the design and technical parts of the bidding documents, incorporate revisions, as required, and reflect the Client's recommendations on the quality of materials, applicable technologies, etc., if any.
- Prepare draft plan for execution of construction works in cooperation with beneficiaries (schools) to accommodate their needs and work schedule; and prepare draft plan for organisation of site works in cooperation with beneficiaries (schools).
- On behalf of beneficiaries seek approval from local authorities for reconstruction and/or building retrofit (urban technical requirements or whatever document is required under Law on Physical Planning of Republic of Srpska or municipal regulations) and prepare all required technical documents to obtain these approvals (fire protection elaborate etc..). The Consultant is expected to discuss and clarify with the beneficiary, local authorities and line ministries the type of documentation and approvals required.

Output: Final technical documentation (lay-out, drawings, technical specifications and detailed technical design) for energy efficiency investment packages for each building, as agreed with the PIU, and all

necessary approvals (including related additional documentation) by the local authorities in accordance with Republic of Srpska Law and in Serbian language.

The duration of this task is expected to be around 18 (eighteen) weeks. When technical documentation is prepared for each building it shall be sent to the Client immediately, without waiting to complete others, as per agreed individual building work schedule.

Task 3. Technical part of bidding documents

The Consultant will prepare the technical part of bidding documents for each building. This will include the following activities:

- Prepare technical documentation for bidding document: technical description of all works (phases), bill of quantities (Word format will be provided by Client), design / drawing in PDF format, conditions and instructions for the execution of works, etc.

Output: Technical part of bidding documents (including bill of quantities, templates will be delivered by Client) prepared for the selected buildings (in Serbian language) arranged in procurement packages and in a format provided by the Client. This part will be delivered in two electronic copies.

The duration of this task: To prepare technical part of bidding documents is expected to be 5 (five) weeks.

2.3. DESCRIPTION OF POTENTIAL ENERGY EFFICIENCY MEASURES

The proposed investment package and its measures will have to be approved by the Client and the project beneficiary, and the selection of the specificities of each measure will be coordinated and discussed with the Client. The investment packages could include but not be limited to the following energy efficiency measures:

Roof thermal insulation and renovation

The Consultant shall design energy efficient repair and insulation and renovation of both pitched and flat roofs using both the thermal insulation material and waterproof roofing.

The list of reconstruction/renovation alternatives is as follows:

- Full replacement of roofing with insulation preserving the existing structure;
- Substitution of the flat roof with a pitched roof including insulation material;
- Repair and thermal insulation of a pitched roof;
- Replacement and thermal insulation of a pitched roof;
- Any of the above may also include thermal insulation of the ceiling of the top floor and basement

Wall thermal insulation

The Consultant shall design the wall renovation considering both the thermal insulation material and plaster board.

The insulation measures include the following options:

- Inside thermal insulation including a plaster board, allowing painting
- Outside thermal insulation

- Possibly, other insulation options.

Retrofitting of windows

The consultant shall design retrofitting of windows and other glazed external partitions, which could include:

- Full replacement of all windows with no reduction of glazing area
- Full replacement of all glazed external partitions (such as entrance doors, glass walls and alike)

The type and scope of the retrofitting will be selected based on the condition of the building and environment. Generally, design of new windows should follow the existing facade scheme, using minimum five-chamber PVC profiles with steel reinforcement, and double glazed low emission hermetically sealed glass. Exceptionally, when architecturally implied, aluminum multi-chamber profiles with thermal bridge brakes may be used.

In case a building is under protection as cultural heritage, protection conditions given by the responsible institution have to be followed during the design of the retrofitting works.

In any scenario, excellent thermal and infiltration protection should be achieved. Good natural ventilation by means of various window wings opening patterns should be ensured; minimum natural ventilation has to be provided even with windows fully closed.

When replacement of windows takes place, opening and closing function of the windows that is adequate for the building at hand, needs to be ensured.

Basement thermal insulation

Whenever it is physically feasible and energy cost effective, the Consultant may propose the installation of insulating material on the ceiling or on the walls of the basement, depending on whether the basement is heated or non-heated.

The implementation cost shall take into account all constraints related to the materials and piping that are usually located in the basement.

Retrofitting of buildings' heating, cooling and domestic hot water systems, including reconstruction of boiler houses

This could include:

- Replacement, upgrading or repair of heat generation (boiler, heat pump, chiller, etc.), including fuel conversion; in case of conversion to the gas or district heating network, the consultant should design a new heat substation or boiler room in accordance with technical conditions obtained from the gas or district heating utility; for buildings heated by centralized systems, transition to consumption-based billing will be required, if not already the case
- Replacement, repair or adjustment of boiler burners,
- Cleaning and repair of external and internal air-conditioning units
- Switch from local to centralized heating, cooling and/or domestic hot water system,
- Replacement, upgrade or repair of heat substations, including installation of meters and switching to consumption based billing in case of district heating
- Upgrading or installing modern temperature control system, including controllers, temperature sensors, thermostat, three-way valves, thermostatic radiator valves, riser valves, pipe network balancing, fan coil switcher, etc.; heat meters if external heating sources are used
- If dismantling of radiators would be needed during installation of new valves, the opportunity should be used to implement thermal insulation material between the radiators and the wall (particularly in

buildings where the radiators have been installed in a recessed niche). The design should include works for supplying and installing the thermal insulation and reflecting material behind the radiators.
- Thermal insulation and reconstruction of pipe installation in the buildings, etc.
- Installation/refurbishment of solar water heaters.

Upgrading of indoor lighting

Potential measures include:

- Installing energy saving bulbs or complete luminaries
- Improvement of the lighting control system
- Replacement of electro-magnetic ballast with electronic ones in fluorescent bulbs,
- Reconstruction of indoor lighting in class rooms and patient rooms, etc.

Construction materials used for above listed energy efficiency measures and installed in buildings shall meet requirements in terms to allow the building to achieve energy savings and thermal protection in accordance with law and other regulations related to construciton material.
The investment packages could include but not be limited to the following non - energy efficiency measures:

- Replacement of gutter, horizontals and verticals,
- Replacement of obsolete sheet metal,
- Replacement of lightning rods, horizontal and vertical,
- Creating a special construction required in accordance with the law of the Republic of Srpska for the purpose of obtaining the operating permit and full functionality of the facility (Creating a ramp for disabled persons, construction of a anti-fire staircase, hydrant extract etc.)

Construction materials used for above listed non-energy efficiency measures and installed in buildings shall meet requirements in accordance with law and other regulations related to construciton material.

2.4 COORDINATION

Besides the Client, the Consultant is expected to closely work with local administration (e.g. to get information about necessary licences and approvals to be obtained according to the Law on physical planning and construction of Republic of Srpska), the end-beneficiary (school/hospital administration), the municipal energy manager, and other stakeholders as needed.

The Consultant will be assisted by the hospital/school administration and local authorities, namely in collection of information and data on the selected building, required approvals and technical documents for the retrofits, access to the facility and its infrastructure, and any issues regarding heating, lighting or other infrastructure internal to the building.

In case of school, hospital and other institution administrations and local authorities ask for additional investments to be done (e.g. general rehabilitation measures), the Consultant should keep in mind that all requests have to be approved by the Client, and that only limited funding is available under the UNDP/GCF (up to 10% of total investment costs per subproject) for additional ancillary measures (i.e. energy efficiency measures with longer payback periods or other measures) that are necessary to ensure reasonably full renovation of longevity of the investment. Other general reconstruction measures (e.g. bathroom, flooring, etc.), are not eligible for financing under the project, unless the beneficiary can finance such investments.

3. DELIVERABLES

3.1 TASK 1 - Urban and technical requirements

No.	Deliverables	Number of copies / languages	Deadline
1.	Public building 1	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
2.	Public building 2	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
3.	Public building 3	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
4.	Public building 4	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
5.	Public building 5	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
6.	Public building 6	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
7.	Public building 7	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
8.	Public building 8	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
9.	Public building 9	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
10.	Public building 10	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
11.	Public building 11	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
12.	Public building 12	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
13.	Public building 13	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
14.	Public building 14	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
15.	Public building 15	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks
16.	Public building 16	5 hard and 3 electronic copies in Serbian	Contract signing +7,0 weeks

3.2 TASK 2 - Technical Design for Buildings

No.	Deliverables	Number of copies / languages	Deadline
17.	Public building 1	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
18.	Public building 2	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
19.	Public building 3	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
20.	Public building 4	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
21.	Public building 5	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
22.	Public building 6	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
23.	Public building 7	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
24.	Public building 8	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
25.	Public building 9	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
26.	Public building 10	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
27 .	Public building 11	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
28.	Public building 12	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
29.	Public building 13	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
30.	Public building 14	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
31.	Public building 15	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks
32.	Public building 16	5 hard and 3 electronic copies in Serbian	Contract signing +25,0 weeks

3.3 TASK 3 - <u>Technical part of bidding documents</u>

No.	Deliverables	Number of copies / languages	Deadline
33.	Public building 1	1 electronic copies in Serbian	Contract signing +30,0 weeks
34	Public building 2	1 electronic copies in Serbian	Contract signing +30,0 weeks
35.	Public building 3	1 electronic copies in Serbian	Contract signing +30,0 weeks
36.	Public building 4	1 electronic copies in Serbian	Contract signing +30,0 weeks
37.	Public building 5	1 electronic copies in Serbian	Contract signing +30,0 weeks
38.	Public building 6	1 electronic copies in Serbian	Contract signing +30,0 weeks
39.	Public building 7	1 electronic copies in Serbian	Contract signing +30,0 weeks
40.	Public building 8	1 electronic copies in Serbian	Contract signing +30,0 weeks
41.	Public building 9	1 electronic copies in Serbian	Contract signing +30,0 weeks
42.	Public building 10	1 electronic copies in Serbian	Contract signing +30,0 weeks
43.	Public building 11	1 electronic copies in Serbian	Contract signing +30,0 weeks
44.	Public building 12	1 electronic copies in Serbian	Contract signing +30,0 weeks
45.	Public building 13	1 electronic copies in Serbian	Contract signing +30,0 weeks
46.	Public building 14	1 electronic copies in Serbian	Contract signing +30,0 weeks
47.	Public building 15	1 electronic copies in Serbian	Contract signing +30,0 weeks
48.	Public building 16	1 electronic copies in Serbian	Contract signing +30,0 weeks

4. QUALIFICATIONS OF THE FIRM AND KEYSPECIALISTS/INDIVIDUALS

The Consultant should be a qualified firm, or a Joint Venture that has demonstrated experience in all areas required for this assignment, including preparation of technical design documentation. Interested companies must provide information indicating that they are qualified to perform the services by providing a reference list of similar assignments in the last 5 years. The reference list should contain information about the clients, assignment descriptions, value of the contracts and period of execution, etc.

The Consultant must propose a team capable of successfully carrying out all aspects of the ToR with in-depth experience in executing similar assignments. The Consultant shall demonstrate his capability to mobilize enough skilled staff for carrying out the project activities within the allocated period of time including sufficient capacity to perform tasks in parallel for different sites at the same time. For this purpose, the Consultant is expected to include as part of the technical proposal a detailed work schedule and activity timeline, including allocation of number of staff, man hours, availability as well as their qualifications and experiences, including Curriculum Vitae of the proposed key staff and team members (CVs will be evaluated by the Client and could be subject to scrutiny).

The Consultant will provide details on the organization of teams (including engineers and technicians), including the need for several teams to operate simultaneously. The Client will appreciate the methodology proposed to achieve all the simultaneous tasks that have to performed, in terms of quality and quantity of staff.

In accordance with the RS Law on Physical Planning and Construction the firm has to possess licenses for preparation of technical documentation for architectural phase, civil engineering phase, part of electrical engineering phase –installations of high voltage systems and electric power plants and mechanical phase-thermal mechanics, heating, gas, ventilation, air conditioning installations for buildings for which construction permit is issued by local governments. Firm has to have at least one graduated engineer of appropriate profession with licence for preparation of technical documentation for each of the above mentioned phases.

If Consultants do not have above mentioned licenses, they may associate in form of JV or sub-consultancy with firms which have the above mentioned licenses. JV or sub-consultancy agreement has to be submitted in the Proposal.

Key experts are expected to include (basis for evaluation of the technical proposal):

- Position K-1: Project Manager, responsible for managing/overseeing the entire consultancy contract implementation; University degree (Master's equivalent) in mechanical, or civil construction engineering, or architecture; minimum ten (10) years of general experience; minimum five (5) main designs of buildings which include the implementation of energy efficiency measures; minimum five (5) years of experience in works supervision.
- Positions K-2, K-3 and K-4: graduate architects (university degree) with at least seven (7) years of general experience in design; minimum ten (10 main designs of buildings which include the implementation of energy efficiency measures) .

- Positions K-5 and K-6 : graduate mechanical engineer (university degree) with minimum seven (7) years of general experience in design; minimum ten (10) main designs of buildings which include the implementation of energy efficiency measures .
- Position K-7 and K-8: an electrical/lighting engineer (university degree) with minimumm seven (7) years of general experience in design; minimum ten (10) main designs of buildings which include the implementation of energy efficiency measures .
- Position K-9 and K10: a civil construction engineer (university degree) with at least seven (7) years of general experience in design; minimum ten (10) main designs of buildings.

Key experts shall prepare at least 90% of all technical designs.

In addition, for preparation of technical design interested Consultants may also include additional non-key staff with experience in design which include the implementation of energy efficiency measures, as needed to meet the TOR and workload.

5. SUPPORT FROM THE CLIENT

The Client will ensure to the Consultant full access to the site facilities as well to assist the Consultant in provision of contacts with local energy companies, municipal authorities and ministries.

6. TYPE OF REMUNERATION

The Consultant will submit its technical and financial proposals for tasks described in paragraph 2.2 for 7 public buildings. It is expected that the original contract will be signed for the first phase (described services for 7 public buildings, with possibility of extension via contract amendment for second phase, subject to satisfactory performance.

Tasks 1, 2 and 3 will be based on lump-sum remuneration inclusive of all expenses. The contract form will be prepared on the basis of Lump sum payments.

Annex 1- List of public buildings for retrofitting

No.	Building	Area[1]
1.	Public building 1	≤3000m2
2.	Public building 2	≤3000m2
3.	Public building 3	≤3000m2
4.	Public building 4	≤3000m2
5.	Public building 5	≤3000m2
6.	Public building 6	≤3000m2
7.	Public building 7	≤3000m2
8.	Public building 8	≤3000m2
9.	Public building 9	≤3000m2
10.	Public building 10	≤3000m2
11.	Public building 11	≤3000m2
12.	Public building 12	≤3000m2
13.	Public building 13	≤3000m2
14.	Public building 14	≤3000m2
15.	Public building 15	≤3000m2
16.	Public building 16	≤3000m2

NOTE:
Aforementioned area of the buildings refers to approximate heated area of the building.

Estimated building area is 2500m2.

[1] The area represents the estimated heated area of the building