ITB23/02663: FPI/ Implementation of energy efficiency and renewable energy measures in households - "Green Home" Program (6 LOTs)

Annex 1- Schedule of Requirements

A. BACKGROUND

Moldova is part of the EU's European Neighborhood Policy (ENP) and in the Eastern Partnership framework, which aims at strengthening individual and regional relationships between the EU and countries in its neighborhood. Moldova is also part of the Energy Community Treaty since 2010 and has signed the Association Agreement with EU in June 2014, including the DCFTA which entered into force in 2016. As a follow-up, Moldova is required to ensure transposition of the EU acquis Communities, which underpins the EU energy legislation on electricity, gas, oil, renewables, energy efficiency and environment.

The energy sector is one of the top priorities for the Government and it is approached in Government's Plans and a number of policy documents, laws and regulations.

The Republic of Moldova has no energy resources of its own and is practically completely dependent on imports of fossil fuels and electricity. Starting from October 2021, the Republic of Moldova faced a significant crisis in the natural gas sector, these developments took place against the background of the European gas crisis, when gas prices rose above 1000 USD/cubic meter (5-10 times the levels of 2020), which emphasized the need to take more actions in order to develop the energy security of the country. The natural gas crisis was also discussed during the meeting of the Moldova-EU Association Council on October 28, 2021, where the EU and Moldova emphasized the importance of resistance against any potential efforts by third parties to use energy as geopolitical leverage.

Under these circumstances, the Government of Moldova will be assisted to tackle the current energy crisis and energy poverty and addressing prioritized systemic elements in the energy sector to cope with a potential future energy crisis. In partnerships with EU, UNDP Moldova will therefore, support the Government of Moldova:

- To tackle the current energy crisis and energy poverty and addressing prioritized systemic elements in the energy sector to cope with potential future energy crisis.
- To support the Government of Moldova in building its capacities towards strengthening national energy security, as well as in improving the legal and regulatory framework and operationalizing specific rapid large-scale interventions to tackle energy poverty and support the most vulnerable and affected groups of population and businesses.

UNDP provided assistance to the Government to create a new energy subsidy system and an IT platform to support this effort starting with 2022/2023 heating season. In this sense, one of the activities of the project is the implementation of energy efficiency measures and/or the valorization of renewable energy sources, in order to increase the accessibility of energy and the development of sustainable financing mechanisms, with a primary focus on vulnerable households, including households social service providers - family-type children's homes and professional parental assistance services, selected in an extensive exercise, organized together with representatives of the Ministry of Labor and Social Protection.

Thus, the "Green Home" program aims to help households affected by energy poverty to reduce their bills by implementing energy efficiency measures and renewable energy solutions in households. As part of this action, approximately 100 households will benefit from measures such as: thermal insulation of the building envelope, changing the heating source, installing photovoltaic systems, etc.

The project duration is envisaged between 2022- 2023 with support from Foreign Policy Instrument (herewith FPI) of EU.

B. OBJECTIVE OF THE ASSIGNMENT:

The general objective of the mission is to provide professional services for design works, supply and installation of equipment, implementation of measures to:

a) thermal insulation of the building envelope;
b) change of windows/doors;
c) installation/renovation of internal heating systems;
d) installation of biomass thermal power plants; and,
e) installation of solar collectors;

as needed for each individual household included in **Table 1.**

All the entire volume of works that will be carried out in connection with the implementation of the measures established according to the objective will be executed in compliance with all the requirements specified in this ToR and in accordance with the legislative and regulatory framework in force in the Republic of Moldova.

B. PROJECT STAGES:

Stage 1 – The selected contractor (Contracted companies) will sign a contract with UNDP on develop the design documentation/technical project by applying the most efficient technical solutions for the implementation of energy efficiency measures and/or the valorization of renewable energy sources proposed for vulnerable households, based on the General technical requirements and the Audit Reports carried out on each individual household.

The preparation documentation for the implementation of the measures, depending on the proposed measures, will include: technical project (or project sketch in some cases: Example Biomass Thermal Power Plants) and detailed cost estimates.

In the case of measures that include the installation of solar collectors on the roof of buildings, the technical expertise will be developed and as a result in some cases there might appear the necessity to replace the roof. The costs related to the replacement of the roof covering will not be covered from the financial sources of the project or from the UNDP funding, they will be fully covered by the beneficiary.

The design documentation/technical project is to be developed in 2 originals, on paper and on electronic format.

Contractor shall ensure that design documentation/technical project and all the construction and installation activities, are properly coordinated with the beneficiaries, the UNDP project implementation team and as the case if necessary with local authorities for requesting and obtaining necessary approvals. All costs for obtaining the necessary approvals and documents from local authorities shall be borne by the Contractor.

In the case of engineering systems such as: heating system; domestic hot water supply, Contractor should provide for each Site 2 copies of detailed documentation on the Operation and Maintenance of supplied heating system, including the solar collectors, the boiler plant and heat supply point. Documentation should be complete, cover all equipment and should include well-defined maintenance plan.

All the documentation should be in Romanian language.

Stage 2 – Based on the design documentation/technical projects coordinated and approved, the contractor will continue with the execution of the supply and installation of the necessary equipment to implement the measures of:

a) thermal insulation of the building envelope;
b) change of windows/doors;

c) installation/renovation of internal heating systems;
d) installation of biomass thermal power plants; and,
e) installation of solar collectors.

During the implementation of works the selected contractor will cooperate closely with the project engineer from the UNDP project implementation team, to ensure high quality works.

All equipment must be certified and have European certificate (CE) or local Moldovan certificates, which confirms its passport characteristics.

IMPORTANT: As per the ITB requirements, the contractor will arrange training sessions for the representatives of the beneficiaries following the installation of the biomass thermal power plants and solar collectors.

Stage 3 – After the completion of the works, it is expected that all parties involved in the implementation of the project, such as the Contractor, the Beneficiary of the project and the UNDP project implementation team, will participate in the final reception of the works with the signing of the appropriate documentation and the closing process of the project.

C. INFORMATION ABOUT HOUSEHOLDS:

For each household selected as an individual beneficiary of this program, Audit Reports were developed in which technical information is collected and potential energy efficiency (EE) measures and/or renewable energy sources (RES) utilization measures are identified, and the approximate volume required works and materials/equipment/facilities for each individual household are reflected in **Table 1**. "Sites", of this Schedule of Requirements.

All the work indicated in Table 1 will be carried out in accordance with the audit reports of the selected households and the specific technical requirements.

The audit reports of the selected households and the General technical requirements, which include data to be used for the preparation of the offer and/or technical project, can be found found hereby attached as follows:

1.1 Lot 1: Energy Audit Reports - Insulation and Windows.
1.2 Lot 2: Energy Audit Reports - Insulation and Windows.
1.3 Lot 3: Energy Audit Reports - Insulation and Windows.
1.4 Lot 4: Energy Audit Reports - Biomass Heating Systems.
1.4.1 Lot 4. General technical requirements for the design of solid biomass thermal power plants
1.5 Lot 5: Energy Audit Reports - Biomass Heating Systems.
1.5.1 Lot 5. General technical requirements for the design of solid biomass thermal power plants
1.6 Lot 6: Energy Audit Reports - Solar Collectors.
1.6.1 Lot 6. Technical conditions for 11 solar collectors.

Table 1. Sites and general information about households

	Name of Project	**Community/District**
Lot. 1: Thermal insulation and replacement of windows.		
1.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Lencauți, Ocnița
2.	Thermal insulation of facade walls; Thermal insulation plinth walls; Thermal insulation of the bridge floor. Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Ocnița

3.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Edineț
4.	Thermal insulation of facade walls; Thermal insulation plinth walls; Thermal insulation of the bridge floor. Installation of PVC windows with Low-e insulating glass.	Corpaci, Edineți
5.	Thermal insulation of the bridge floor. Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Soroca
6.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass.	Soroca
7.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass.	Dubna, Soroca
8.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Furduii Vechi, Glodeni
9.	Thermal insulation of facade walls; Thermal insulation plinth walls; Thermal insulation of the bridge floor.	Ciutulești, Florești
10.	Thermal insulation of facade walls.	Ciutulești, Florești
11.	Thermal insulation of the bridge floor. Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Ghindești, Florești
12.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass.	Bobulești, Florești
13.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Glinjeni, Fălești
14.	Thermal insulation of the bridge floor.	Glinjeni, Fălești
15.	Thermal insulation of the bridge floor.	Glinjeni, Fălești
Lot. 2: Thermal insulation and replacement of windows.		
1.	Thermal insulation of the bridge floor.	Mîndra, Telenești
2.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass.	Criuleni
3.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Vatici, Orhei
4.	Thermal insulation of the bridge floor.	Viscauti, Orhei
5.	Thermal insulation of the bridge floor.	Slobozia-Hodorogea, Orhei
6.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Slobozia-Hodorogea, Orhei
7.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Bulăiești, Orhei
8.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Step-Soci, Orhei

9.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Breanova, Orhei
10.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Bravicea, Călărași
11.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Bravicea, Călărași
12.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Bravicea, Călărași
13.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Rădeni, Călărași
14.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Peciște, Rezina
Lot. 3: Thermal insulation and replacement of windows.		
1.	Thermal insulation of facade walls; Thermal insulation plinth walls. Thermal insulation of the bridge floor; Flat roof thermal insulation; Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	s. Bîc, com. Bubuieci, mun. Chișinău
2.	Thermal insulation of facade walls; Thermal insulation of the bridge floor; Thermal insulation of the floor above the basement.	Trușeni, mun. Chișinău
3.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Colonița, mun. Chișinău
4.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Teșcureni, Ungheni
5.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Condrătești, Ungheni
6.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Tănătari, Căușeni
7.	Installation of PVC windows with Low-e insulating glass;	Tocuz, Căușeni
8.	Thermal insulation of facade walls; Thermal insulation plinth walls; Installation of PVC windows with Low-e insulating glass; Installation of PVC doors with Low-e insulating glass.	Opaci, Căușeni
9.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Ștefan-Vodă
10.	Thermal insulation of facade walls; Thermal insulation plinth walls.	Cărbuna, Ialoveni
11.	Thermal insulation of facade walls.	Ceadîr, Leova
Lot. 4: Installation biomass thermal power plant. Modernization/Construction of the internal heating system.		
1.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 5 radiators, equipped with taps with thermostatic heads.	Edinet

2.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 5 radiators, equipped with taps with thermostatic heads.	s. Briceni, Donduseni
3.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 5 radiators, equipped with taps with thermostatic heads.	Dubna, Soroca
4.	Modernization/Construction of the internal heating system 7 radiators, equipped with taps with thermostatic heads.	Furduii Vechi, Glodeni
5.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 14 radiators, equipped with taps with thermostatic heads.	Ghindești, Florești
6.	Installation biomass thermal power plant, 20 kW (But no less). Modernization/Construction of the internal heating system 15 radiators, equipped with taps with thermostatic heads.	Hîrtop, Florești
7.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 5 radiators, equipped with taps with thermostatic heads.	Glinjeni, Fălești
8.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 5 radiators, equipped with taps with thermostatic heads.	Glinjeni, Fălești
9.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 9 radiators, equipped with taps with thermostatic heads.	s. Breanova, Orhei
10.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 7 radiators, equipped with taps with thermostatic heads.	Bravicea, Calarasi
11.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 6 radiators, equipped with taps with thermostatic heads.	Bravicea, Calarasi
Lot. 5: Installation biomass thermal power plant. Modernization/Construction of the internal heating system.		
1.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 13 radiators, equipped with taps with thermostatic heads.	Vatra, Chisinau
2.	Installation biomass thermal power plant, 15 kW (But no less). Modernization/Construction of the internal heating system 8 radiators, equipped with taps with thermostatic heads.	Teșcureni, Ungheni
3.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 9 radiators, equipped with taps with thermostatic heads.	Condrătești, Ungheni
4.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 4 radiators, equipped with taps with thermostatic heads.	Ungheni, s.Condrătești
5.	Installation biomass thermal power plant, 12 kW (But no less). Modernization/Construction of the internal heating system 9 radiators, equipped with taps with thermostatic heads.	Rădenii Vechi, Ungheni
6.	Installation biomass thermal power plant, 24 kW (But no less). Modernization/Construction of the internal heating system 7 radiators, equipped with taps with thermostatic heads.	Tocuz, Causeni
7.	Installation biomass thermal power plant, 16 kW (But no less).	Durlesti, mun. Chisinau
8.	Installation biomass thermal power plant, 14 kW (But no less).	Ștefănești, Ștefan-Vodă
9.	Installation biomass thermal power plant, 12 kW (But no less).	Toceni, Cantemir

	Modernization/Construction of the internal heating system 4 radiators, equipped with taps with thermostatic heads.	
10.	Installation biomass thermal power plant, 16 kW (But no less).	Cărbuna, Ialoveni
11.	Installation biomass thermal power plant, 24 kW (But no less). Modernization/Construction of the internal heating system 8 radiators, equipped with taps with thermostatic heads.	Ceadîr, Leova
Lot. 6: Installation solar collectors for domestic hot water production.		
1.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Soroca
2.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Chișinău
3.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Criuleni
4.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Vișcăuți, Orhei
5.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Cojușna, Strășeni
6.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Rădeni, Călărași
7.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Comrat
8.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Crocmaz, Ștefan Vodă
9.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Durlești, mun. Chișinău
10.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Molești, Ialoveni
11.	Installation of solar collectors for the preparation of domestic hot water, bivalent heating boiler and all the elements necessary for operation.	Răzeni, Ialoveni

D. MANAGEMENT ARRANGEMENTS

Each construction project will be monitored by a designated UNDP Engineer (technical supervisors) which will carry out systematic monitoring site visits.

E. REQUIREMENTS FOR MATERIALS, INSTALLATIONS AND WORKS

Lot 1, 2, 3 Thermal insulation of buildings and replacement of windows and doors:

- Thermal insulation of the facade walls with 10cm thick mineral wool, λ= 0.044 W/mK, density not less than 120 kg/m3;
- Thermal insulation of the plinth walls with 10 cm thick extruded polystyrene, λ= 0.035 W/mK, density

not less than 35 kg/m3;

- Thermal insulation of the floor above the unheated basement with 10 cm extruded polystyrene, λ=0.035 W/mK, density 35 kg/m3;
- Thermal insulation of the bridge floor with 10cm thick mineral wool, λ= 0.044 W/mK, density not less than 135 kg/m3. (If the floor under the roof is used, it is necessary to apply a wooden structure above the heat-insulating material, for protection);
- Installation of new double-glazed PVC windows 4-16-4 low-e, U-value not higher than 1.5 W/m2K, as well as equipped with ventilation valves. It also includes the work of finishing the window frames and mounting the window sill;
- Installation of new 4-16-4 double glazed PVC doors, U-value no greater than 2.2 W/m2K. It also includes the finishing works of the door frames;
- *The thermal insulation works of the building will be carried out in accordance with the provisions of CP E.04.02 - 2013 "Technical rules for the execution of external and internal thermal insulation systems of buildings";*
- *The installation of PVC doors and windows will be carried out in accordance with the provisions of CP C.04.08:2015 "PVC window and door blocks. Installation work".*

IMPORTANT: Any other unforeseen situations or works, which are not the subject to project implementation, or any request from the beneficiary, to change the type of finishing materials, and heat-insulating materials, including the types of windows or doors, other than those selected following the approval of the project offer and included in the contract, will be reviewed and as the case may be will be accepted only if the beneficiary will support all the additional costs, and will assume all the risks of the work process.

Lot 4 and Lot 5. Installation of solid biomass thermal power plants and modernization/construction of internal heating systems:

All the supplied boilers must be manufactured and tested in accordance with the EN 303-5 standard confirmed by relevant certificates issued by an independent certification body.

The boiler efficiency must not be lower than 80% and the emissions level must not be worse than the EN 303-5:2012 Class 3 limits.

All the boilers installed within the contract will be operating with biomass fuel (briquettes) made of agricultural wastes compliant with EN 14961-6:2012. More specifically, the boilers shall be tested and demonstrated compatibility with a biofuel that meets the following characteristics as specified in **Table 2**.

Table 2. Briquettes or pellets characteristics

Property class	Units	Specification
Origin and source of raw material	n/af	Cereal straw, sunflower husks, mix of cereal straw and sunflower husks, wood sawdust. (without additives)
Moisture content	w-%	< 10
Density	Kg/m3	>900
Net Calorific value	MJ/kg	14.5-16.0 (3,5 – 5,0 KW/KG)
Ash content	w-% dry	In compliance with EN 14961-6:2012

The test fuel shall be in accordance with EN 14961-6:2012 and Table 2 above.

The contractor will have to supply the fuel, with characteristics as specified in Table 2, necessary for the start-up and testing of boilers and the heating system as a whole.

Each boiler plant shall be equipped with suitable tools or mechanisms for cleaning of heating surfaces, fire tubes (convective pipes), and flue gas duct/chimney, such as, but not limited to: ash bucket, poker, wheelbarrow, other tools depending on the specifics of each boiler plant and boiler manufacturer recommendations.

Following the commissioning of works the Contractor shall conclude a Servicing and Maintenance Contract with each beneficiary for the provision of the service and maintenance works according to the warranty terms indicated by the Manufacturer in the technical documentation, but not less than **3 years** for the entire installed system.

During the warranty period the service and maintenance works shall include:

- Unplanned maintenance and repair work;
- All the service and maintenance works shall be performed by the Contractor's competent personnel as per the equipment manufacturer's instructions;
- During the warranty period, emergency cases and on-site visit will be counted as an emergency service and maintenance visits, and will not be accounted for as additional cost for the beneficiaries;
- Warranty cases and related visits shall not be included in the service and maintenance works;
- During the warranty period, the Contractor shall replace any malfunctioning equipment or worn parts without any additional cost to the beneficiaries.

The life cycle cost of the biomass boiler and newly installed heating system, must not be less than a period of 10 years.

Biomass boilers must be designed to the maximum capacity necessary to fully ensure the comfort of all the people in the household during the cold period of the year.

All the main equipment should be marked with the manufacturer's original nameplate, which should include at least a year of construction, equipment manufacturer technical parameters and the type/ID of the equipment.

General information about the parameters of radiators which is to be installed in the process of modernization/construction heating systems:

- Radiator - made of steel;
- Maximum working pressure: 10 bar;
- Maximum working temperature: 110°C;
- White color;
- Warranty - min 10 YEARS.

IMPORTANT: Any other unforeseen situations or works, which are not the subject to project implementation, or any request from the beneficiary, to change the type of radiator, or the main equipment established within this project, will be reviewed and as the case may be will be accepted only if the beneficiary will support all the additional costs, and will assume all the risks of the process installation and subsequent operation of the entire heating system.

Lot 6. Installation of solar collectors for the preparation of domestic hot water

The solar system shall include all the components specified in the design documents, including a heat pipe vacuum solar collector, necessary accessories for fixing the solar collectors on the roof, bivalent (or monovalent) heating boiler, solar pump group, drain back tank, expansion tank for water heater, control panel, security valve, water meter, thermometer, manometer, pipes as may be applicable.

The solar collectors must be designed for the maximum capacity required for the preparation of domestic hot water, sufficient to fully ensure the consumption needs of all people in the household, during the spring-autumn period. In the period with insufficient solar radiation (winter period), the parallel connection of the reservoir source will be taken into account.

The solar collectors shall be certified and comply with the latest version of EN 12975-1 European standard.

All collectors must be freeze resistant, the systems must be filled with antifreeze heat transfer fluid.

Operating pressure: 6 bar, test pressure: 10 bar.

The solar panels will be oriented towards the SOUTH, mounted on metal supports with an inclination of 45 degrees.

The location chosen for the placement of the collectors: without their close shading in the time interval 9-16.

IMPORTANT: In the case of roofs covered with slate sheets (or of those identified following the technical expertise, as non-resistant), it will be necessary **to replace the roof coverage**. The costs related to the replacement of the roof covering will not be covered from the financial sources of the project or from the UNDP fund, they will be fully covered by the beneficiary.

IMPORTANT: Any other unforeseen situations or works, which are not the subject to project implementation, or any request from the beneficiary, to change the main equipment established within this project, will be reviewed and as the case may be will be accepted only if the beneficiary will support all the additional costs, and will assume all the risks of the process installation and subsequent operation of the entire system for the preparation of domestic hot water.

Following the commissioning of works the Contractor shall conclude a Servicing and Maintenance Contract with each beneficiary for the provision of the service and maintenance works according to the warranty terms indicated by the Manufacturer in the technical documentation, but not less than **3 years** for the entire installed system.

During the warranty period the service and maintenance works shall include:

- Unplanned maintenance and repair work;
- All the service and maintenance works shall be performed by the Contractor's competent personnel as per the equipment manufacturer's instructions;
- On-call technical assistance (telephone support) on the operation of the heating system during working days during normal working hours (8:00-17:00);
- The Contractor will attempt to resolve all the problems by telephone. If a visit is required, the Contractor will endeavor to visit the site as soon as is possible, but not later than 48 hours from the phone call.
- During the warranty period, emergency cases and on-site visit will be counted as an emergency service and maintenance visits, and will not be accounted for as additional cost for the beneficiaries;
- Warranty cases and related visits shall not be included in the service and maintenance works;
- During the warranty period, the Contractor shall replace any malfunctioning equipment or worn parts without any additional cost to the beneficiaries.

The life cycle cost of the solar system must not be less than a period of 10 years.

For all Lots indicated in this Schedule of Requirements, all materials/installations/equipment will be accompanied by certificates of conformity and or test reports confirming the minimum quality and required energy performance specifications.

Detailed technical information on all lots can be found hereby attached as follows:

1.1 Lot 1: Energy Audit Reports - Insulation and Windows.
1.2 Lot 2: Energy Audit Reports - Insulation and Windows.
1.3 Lot 3: Energy Audit Reports - Insulation and Windows.
1.4 Lot 4: Energy Audit Reports - Biomass Heating Systems.
    1.4.1 Lot 4. General technical requirements for the design of solid biomass thermal power plants
1.5 Lot 5: Energy Audit Reports - Biomass Heating Systems.
    1.5.1 Lot 5. General technical requirements for the design of solid biomass thermal power plants
1.6 Lot 6: Energy Audit Reports - Solar Collectors.
    1.6.1 Lot 6. Technical conditions for 11 solar collectors.

F. EXPECTED DELIVERABLES AND ESTIMATED TIMEFRAME.

LOT #	Deliverables, Description/Specification of Services	Estimated Delivery Date
LOT 1 **Thermal insulation and replacement of windows (15 households)**	Preparation of the detailed plan for the execution of the contract, using the critical path method of the GANT scheme, or other programs used at the international level.	10 days since the date of contract signature
	Supply of materials and equipment, execution of works, installation of all equipment and engineering installations, finalization of all works.	90 days since the date of contract signature
	Final reception of works and signature of relevant documentation, related to the thermal insulation of buildings and replacement of windows and doors.	90 days since the date of contract signature
	Final report and presentation of acts of reception of works (in 3 original copies).	105 days since the date of contract signature
LOT 2 **Thermal insulation and replacement of windows (14 households)**	Preparation of the detailed plan for the execution of the contract, using the critical path method of the GANT scheme, or other programs used at the international level.	10 days since the date of contract signature
	Supply of materials and equipment, execution of works, installation of all equipment and engineering installations, finalization of all works.	90 days since the date of contract signature
	Final reception of works and signature of relevant documentation, related to the thermal insulation of buildings and replacement of windows and doors.	90 days since the date of contract signature
	Final report and presentation of acts of reception of works (in 3 original copies).	105 days since the date of contract signature
LOT 3 **Thermal insulation and replacement of windows (11 households)**	Preparation of the detailed plan for the execution of the contract, using the critical path method of the GANT scheme, or other programs used at the international level.	10 days since the date of contract signature
	Supply of materials and equipment, execution of works, installation of all equipment and engineering installations, finalization of all works.	90 days since the date of contract signature
	Final reception of works and signature of relevant documentation, related to the thermal insulation of buildings and replacement of windows and doors.	90 days since the date of contract signature
	Final report and presentation of acts of reception of works (in 3 original copies).	105 days since the date of contract signature
LOT 4 **Installation of biomass thermal power plant. Modernization/Construction of the**	Preparation of the detailed plan for the execution of the contract, using the critical path method of the GANT scheme, or other programs used at the international level.	10 days since the date of contract signature
	Development of the design documentation/technical project by applying the most efficient technical solutions for the implementation of energy efficiency measures and/or the valorization of renewable energy sources proposed for vulnerable households, based on the General technical requirements and the Audit Reports carried out on each individual household.	15 days since the date of contract signature

internal heating system (11 households)	Coordination with the beneficiaries and the implementation team from UNDP.	
	Supply of materials and equipment, execution of works, installation of all equipment and engineering installations, finalization of all works.	90 days since the date of contract signature
	Pressure testing of assembled system (in the case of engineering installations, the final reception of works and signature of relevant documentation (for each individual Lot), training of beneficiaries.	90 days since the date of contract signature
	Putting into operation and giving into exploitation of all equipment and engineering installations.	95 days since the date of contract signature
	Final report and presentation of acts of reception of works (in 3 original copies).	105 days since the date of contract signature
LOT 5 **Installation of biomass thermal power plant. Modernization/Construction of the internal heating system (11 households)**	Preparation of the detailed plan for the execution of the contract, using the critical path method of the GANT scheme, or other programs used at the international level.	10 days since the date of contract signature
	Development of the design documentation/technical project by applying the most efficient technical solutions for the implementation of energy efficiency measures and/or the valorization of renewable energy sources proposed for vulnerable households, based on the General technical requirements and the Audit Reports carried out on each individual household. Coordination with the beneficiaries and the implementation team from UNDP.	15 days since the date of contract signature
	Supply of materials and equipment, execution of works, installation of all equipment and engineering installations, finalization of all works.	90 days since the date of contract signature
	Pressure testing of assembled system (in the case of engineering installations, the final reception of works and signature of relevant documentation (for each individual Lot), training of beneficiaries.	90 days since the date of contract signature
	Putting into operation and giving into exploitation of all equipment and engineering installations.	95 days since the date of contract signature
	Final report and presentation of acts of reception of works (in 3 original copies).	105 days since the date of contract signature
LOT 6 **Installation solar collectors for domestic hot water production**	Preparation of the detailed plan for the execution of the contract, using the critical path method of the GANT scheme, or other programs used at the international level.	10 days since the date of contract signature
	Development of the design documentation/technical project by applying the most efficient technical solutions for the implementation of energy efficiency measures and/or the valorization of renewable energy sources proposed for vulnerable households, based on the General technical requirements and the Audit Reports carried out on each individual household. Coordination with the beneficiaries and the implementation team from UNDP.	15 days since the date of contract signature

	Development of the Technical expertise reports of the roof to ensure the installation conditions. Coordination with the beneficiaries and the implementation team from UNDP.	15 days since the date of contract signature
	Supply of materials and equipment, execution of works, installation of all equipment and engineering installations, finalization of all works.	90 days since the date of contract signature
	Pressure testing of assembled system (in the case of engineering installations, the final reception of works and signature of relevant documentation (for each individual Lot), training of beneficiaries.	90 days since the date of contract signature
	Putting into operation and giving into exploitation of all equipment and engineering installations.	95 days since the date of contract signature
	Final report and presentation of acts of reception of works (in 3 original copies).	105 days since the date of contract signature

G. CONFIDENTIALITY

All data and information received from partners for the purpose of developing design work will not be disclosed to any person other than the Authorized Recipients, even after the completion of the contract.

All confidential information must be kept confidential and must not be used for any purpose other than for the terms stated herein.

I. WORK EXECUTION REQUIREMENTS

- The mounted equipment and mounting schemes must correspond to the developed and approved projects;
- In the case of engineering installations, the contractor shall be responsible for any systems that do not function correctly as a result of improper design and/or improper workmanship;
- The proposed equipment must ensure, during the period of operation, the minimum safety and health requirements according to the rules of the Republic of Moldova in force;
- The contractor shall clearly specify the warranty for the all work done and the main installed equipment.

J. CONDITIONS FOR RECEIVING WORKS/SERVICES

Upon completion of the works/services, the Contractor will notify the Project Beneficiary and the UNDP project implementation team about it.

In the case of engineering installations, the works will be isolated or hidden only after testing and approval by the working group consisting of representatives of the Contractor, the Project Beneficiary, and the UNDP project implementation team;

The beneficiary of the project together with the UNDP project implementation team is to receive the works/services performed within **15** days by signing the act of reception of the works, or to remit to the Contractor within the same period the refusal to sign the given act with the indication of objections.

The term provided for the reception of the works/services may be extended depending on the complexity of the procedure for the reception of the performed works.

If the existence of any shortages and/or deficiencies is found, they will be brought to the attention of the Contractor, establishing the necessary deadlines for completion or remediation.

The liquidation of the shortages and deficiencies is carried out at the expense of the Contractor, including the part of the materials necessary for their removal.

After the liquidation by the Contractor of all objections, the parties will carry out the reception again. Depending on the findings made, the Beneficiary of the project together with the UNDP project implementation team will approve the reception.

K. IMPLEMENTATION TIMEFRAME

The accomplishment of all construction works, supply and installation of all equipment, testing, regulation, putting into operation, giving into exploitation and training of operators, within **105 calendar days** from Contract signature.

L. GENERAL COORDINATION AND PAYMENT

Overall coordination of the implementation of the project will be carried out by the UNDP project team. Contracted companies will report to Project Manager and UNDP Energy and Environment Cluster Lead.

N. LEGAL CONTEXT

When developing the technical projects and performing the works, cumulative compliance with the provisions of the following normative acts will be taken into account:

- Law No. 128 of 11.07.2014 regarding the energy performance of buildings;
- Law No. 139 of 19.07.2018 regarding energy efficiency;
- Law No. 10 of 26.02.2016 regarding the promotion of the use of energy from renewable sources;
- Law no. 721 of 02.02.96 regarding quality in construction;
- Law No. 163 of 09.07.2010 regarding the authorization of the execution of construction works;
- Law No. 151 of 17.07.2014 regarding the ecological design requirements applicable to products with energy impact;
- Law No. 44 of 27.03.2014 regarding the labeling of products with energy impact;
- Decision No. 361 of 25.06.1996 regarding construction quality assurance;
- Decision No. 936 of 16.08.2006 for the approval of the Regulation on technical expertise in construction;
- Government Decision no. 285 of 23.05.1996 regarding the approval of the Regulations for the reception of constructions and related installations;
- Government Decision no. 1003 of 10.12.2014 regarding the approval of the Regulation on energy labeling requirements for products with an Energy impact.
- NCM M.01.01:2016 Energy performance of buildings Minimum requirements for energy performance of buildings;
- NCM A.03.03:98 Rules for certification of products used in construction;
- NCM A.08.01:2016 Organization of constructions;
- NCM M.01.01:2016 Energy performance of buildings Minimum requirements for energy performance of buildings;
- NCM E. 03.02:2014 Fire protection of buildings and installations;
- NCM G.04.08:06 (MCH 4.02-03-04) Thermal insulation of equipment and pipes;
- CP A.08.01:96 Instructions for quality control and reception of hidden works and/or in the determining phases of constructions and related installations;
- CP C.04.08:2015 PVC window and door blocks;
- CP E.04.02:2013 Technical rules for the execution of external and internal thermal insulation systems of the building;
- CP E 04.04: 2005 Execution of insulation, protection and finishing works in constructions;
- Law No. 721 of 02.02.1996 regarding quality in construction.
- Government Decision No. 353 of 05.05.2010 regarding the approval of minimum safety and health requirements at the workplace.
- Government Decision No. 362 of 27.05.2014 regarding the approval of the minimum requirements for the protection of workers against the risks to their health and safety generated or which may be generated by exposure to noise, especially against risks to hearing.
- Government Decision No. 589 of 12.05.2016 regarding the minimum safety and health requirements at work regarding the exposure of workers to risks generated by mechanical vibrations.
- Government Decision No. 80 of 09.02.2012 regarding the minimum security and health requirements for temporary or mobile construction sites.
- NCMA 8.02:2014 Safety and health at work in construction.

During the assignment, the Contractor's team of experts should prove commitment to the core values of the United Nations, in particular, respecting differences of culture, gender, religion, ethnicity, nationality, language, age, HIV status, disability, and sexual orientation, or other status.

UNDP Moldova is committed to workforce diversity. Women, persons with disabilities, Roma and other ethnic or religious minorities, persons living with HIV, as well as refugees and other non-citizens legally entitled to work in the Republic of Moldova, are particularly encouraged to apply. Applicants demonstrating equitable gender representation and diversity within the team will have an advantage.