**Section II: Schedule of requirements**

E-Sourcing reference no: RFQ/2024/51925

Equipment under this RFQ shall be designed, manufactured, and supplied in accordance with applicable Ukrainian laws, codes, and regulations.

*Raw materials for granulation are reeds, straw, hay, dry corn stalks, cod, sawdust*

1. **Summary of Requirements for the provision of the line of industrial production of fuel granules(pellets) and additional equipment:**

**UNOPS requirements are comprised of the following 4 (four) lots:**

**Lot 1. Supply of the line of industrial production of fuel granules (pellets) - 1 unit**

**Including the below sections:**

1.1. Node of preparation of raw materials section - 1 section

1.2. Section for drying raw materials - 1 section

1.3. Raw material granulation section - 1 section

**Lot 2. Hay, straw, reed shredder - 1 item**

**Lot 3. Shredder of branches - 1 item**

**Lot 4. Briquetting press (Briquetter) 1 item**

**B. Technical specifications for Goods – Comparative Data Tables**

**Lot 1. Supply of the line of industrial production of fuel granules (pellets) - 1 unit**

| **N** | **UNOPS minimum technical requirements** | **Is Bid Compliant? Bidder to complete** | **Details of the offered goods. Bidder to complete** |
| --- | --- | --- | --- |
| **1** | **Line of industrial production of fuel granules (pellets) - 1 Unit consisting of sections:** | ☐ Yes ☐ No | Please insert the name of the equipment |
| **1.1** | **Node of preparation of raw materials section consists of following components:** | ☐ Yes ☐ No |  |
| 1.1.1 | Straw cutter with minimum technical characteristics: - рroductivity, 0,8-1,5 t/h; - drive power from 50-75 kW; Minimum cutting length: 1 mm  Maximum cutting length: 6 mm  Tolerance level of ± 0.5 mm | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.1.2 | Active cyclone (pneumatic system) included:  - sluice dispenser  - fan (impeller) | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.1.3 | Storage hopper of minimum volume 5 m3 with a movable bottom, electric power not less 2 kW; | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.1.4 | Inclined scraper conveyor, electric power not less than 2 kW. | ☐ Yes ☐ No | Please provide technical details of equipment |
| **1.2** | **Section for drying raw materials consists of following components:** | ☐ Yes ☐ No |  |
| 1.2.1 | Heat generator “Fuel Flexibility” not less 1.5 MW automatic, with minimum technical characteristics: - nominal heat power not less 1,5 MW; - fuel - granules (pellets), sawdust, shavings up to 30 mm) - fuel humidity 10-30 %;  - fuel consumption (pellets) with humidity 20% - 220-300 kg included: - hopper with a minimum volume of 1 m³ for fuel, electric power not less than 1.4 kW.  - blower fan; | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.2.2 | Spark arrester | ☐ Yes ☐ No |  |
| 1.2.3 | Adapter heat generator - drying drum | ☐ Yes ☐ No |  |
| 1.2.4 | Dryer drum AVM-0.65 (not less 4 kW) or equivalent, with minimum technical characteristics: - average productivity from 0,8-1,2 t/hour; - initial humidity not more than 65%;  - final humidity from 6-12%. included: - drive system;  - an air duct with a trap for heavy particles; | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.2.5 | Cyclone active for Dryer drum included:  - fan (impeller);  - sluice dispenser; | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.2.6 | Hammer crusher for Dryer drum, not less 35 kW | ☐ Yes ☐ No | Please provide technical details of equipment |
| **1.3** | **Raw material granulation section consists of following components:** | ☐ Yes ☐ No |  |
| 1.3.1. | Active cyclone (pneumatic system), not less 12 kW included:  - sluice dispenser;  - fan (impeller); | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.2 | Cyclone passive (pneumatic system) included:  - sluice dispenser | ☐ Yes ☐ No |  |
| 1.3.3 | Material Handling System for Storage HopperSystem Types: System Types: Acceptable systems include inclined screws, bucket elevators, pneumatic conveyors, designs for direct placement or loading, or other effective material handling technologies. [Please specify]  Function: To transport and load various biomass materials into the storage hopper for granulation. Technical Requirements: Motor Power: Minimum 2.8 kW (for inclined screw design).  Capacity: Must accommodate operational throughput requirements.  Material Compatibility: Suitable for handling abrasive biomass materials. Design and Operational Features: Construction: Durable materials resistant to wear and corrosion.  Adjustability: Capable of variable speed or capacity adjustments.  Integration: Easily integrated with existing granulation and storage systems.  Safety Features: Includes safety guards and emergency stops, complying with relevant safety standards.  Maintenance: Designed for easy access and minimal downtime maintenance. | ☐ Yes ☐ No | Please provide detailed descriptions, including technical specifications or examples of similar installations. |
| 1.3.4 | Storage hopper with minimum volume 3 m3 for іntermediate storage of raw materials, electric power not less 5.0 kW includes:  - vertical screw;  - rotary level sensor;  - ladder and service fence;  - viewing window;  - emergency hatch; | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.5 | Granulator dispenser made of stainless steel, electric power not less than 1.4 kW. Supply of raw materials from the hopper to the mixer  granulator | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.6 | Mixer/Conditioner not less 2,0 kW made of stainless steel complete with a rotameter with a flow regulator (regulating the moistening of raw materials); | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.7 | **Granulator, with technical characteristics: Technical Characteristics:**   * Productivity: 1 to 1.5 tonnes per hour. * Permissible Amount of Non-granulated Raw Materials: No more than 8%. * Material Compatibility: Capable of processing various biomass materials, including wood chips, sawdust, straw, and agricultural residues without the addition of binders. * Granulator Matrix: The diameter of the holes is 6-8 mm. It is made of high-strength steel or equivalent wear-resistant material. It is easily replaceable to allow different pellet sizes and manage wear. * Rollers: Equipped in assembly for easy maintenance. Adjustable to ensure uniform wear and consistent pellet quality. * Knife (Breaker): For cutting pellets to a predetermined length. Adjustable for length variations.   **Drive System:**   * Main Electric Motor: Power: Not less than 25 kW to ensure adequate torque for all materials. Equipped with an overload protection system and emergency stop. * Gearbox: Heavy-duty, two-stage gearbox to maximise torque and minimise stress on the motor. Equipped with an automatic gear lubricant system.  Additional Features:  * Automatic Roller Lubrication System: To reduce maintenance requirements and extend the life of moving parts. * Device for Forced Loading of Raw Materials: Ensures consistent feed rate and prevents blockages in the pressing chamber. * Roller Mounting Plates with Regulators: Allows for precise adjustment of roller pressure to optimise pellet density and quality. * Safety: Integrated safety switches and emergency stops to comply with relevant machinery safety directives. * Material: Stainless steel construction for the front cover and feeder to ensure durability and compliance with hygiene standards if required. * Service Access: Designed for easy access to all serviceable parts to simplify maintenance and reduce downtime. | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.8 | Noria made of stainless steel complete with plastic buckets, not less than 1,3 kW. Supply of hot pellets to the cooler. | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.9 | Vertical cooler | ☐ Yes ☐ No |  |
| 1.3.10 | Granule sifter with installed sieve | ☐ Yes ☐ No |  |
| 1.3.11 | Cooling cyclone (pneumatic system) not less 12 kW included:  - sluice dispenser  - fan (impeller) Cooling of hot pellets and removal of screening. | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.12 | Noria, not less 1.3 kW Moving the granules into the hopper is ready  products | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.13 | Storage hopper with minimum volume 2 m³ | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3.14 | Electronic scales for big-bags | ☐ Yes ☐ No |  |
| 1.3.15 | Control cabinet A centralised control system is preferred over multiple smaller systems, but the required amount is determined by the manufacturer. (Please confirm if a control cabinet is supplied and provide details on if one common control cabinet or several separate control cabinets are included) | ☐ Yes ☐ No | Please provide details |
| **2** | **General requirements for the equipment** | ☐ Yes ☐ No |  |
| 2.1 | Bid includes:  -brand/model of the goods  -manufacturer's technical literature/catalogue/operational manual  -technical schemes of equipment | ☐ Yes ☐ No |  |
| 2.2 | The period of validity of the Warranty. The warranty shall remain valid for 12 months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination. | ☐ Yes ☐ No |  |
| 2.3 | Warranty service. Within the warranty period, the Supplier or its authorised service centre shall provide maintenance and/or repair services to the equipment operation site not later than 10 (ten) workdays from the date of receipt of written or E-mail notification from an authorised party. The name of the company, address, telephone- and fax numbers, e-mail address must be mentioned in the bid. The service centre shall have at least one certified engineer in its staff. | ☐ Yes ☐ No | Please indicate warranty center, address, contact, phone |
| 2.4 | Technical documentation for maintenance and repair of the supplied goods. The minimum set of technical documents to be provided with each piece of equipment delivered is the following: - Technical passport, User Manual and Operating Instructions (in Ukrainian) for equipment included; - warranty cards for equipment;  - drawing: technological scheme, specifications, typical equipment location plans; | ☐ Yes ☐ No |  |
| 2.5 | Bid includes the Country of origin of the goods and FCA point of delivery. | ☐ Yes ☐ No |  |

**C.1. Delivery requirements for Lot 1**

| **UNOPS Requirements** | | **Is the bid compliant?** Bidder to complete | **Details**  Bidder to complete |
| --- | --- | --- | --- |
| **Delivery time** | The Bidder shall deliver the goods as soon as possible but not later than 120 calendar days after the PO is issued. Partial delivery of the goods within this period is acceptable. Bidders must provide a delivery schedule.  The offered goods are to be (DAP customs cleared) **delivered and unloaded only at Domanivka, Voznesensky district, Mykolaiv region, Ukraine, without:** -installation and commissioning works, transformer and electrical room;  - electric cables and ladders;  - construction works or construction of foundations;  - pneumatic pipe, steam pipe, water pipe, oil pipe and others;  - construction site project;  - management of installation and commissioning | ☐Yes ☐ No |  |
| **Delivery place and Incoterms rules** | DAP (customs cleared) Incoterms 2020 (**delivered at place and unloaded**) customs cleared Domanivka, Voznesensky district, Mykolaiv region, Ukraine, net of any direct taxes, customs duties, or indirect taxes | ☐Yes ☐ No |  |
| **Consignee details** | Delivery address and consignee details will be provided to the successful Bidder(s) | ☐Yes ☐ No |  |

**Lot 2. Hay, straw, reed shredder - 1 item**

| **N** | **UNOPS minimum technical requirements** | **Is Bid Compliant? Bidder to complete** | **Details of the offered goods. Bidder to complete** |
| --- | --- | --- | --- |
| **1** | **Hay, straw, reed shredder 1 item with minimum technical characteristics:** | ☐ Yes ☐ No | Please insert the name of the equipment |
| 1.1 | Voltage 380 V; | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.2 | Engine power:  Engine Power: 18 kW to 30 kW  Engine Speed: 1200 to 1800 RPM | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3 | Productivity from 600 - 1000 kg/h; | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.4 | Mesh diameter is 6 mm only and 10 mm only; if needed, interchangeable screens can be considered instead of fixed sizes [Please clarify in the details]. | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.5 | Complete set:  Table for Serving Bales;  Hopper with a Grinding Drum;  Control Cabinet;  Cyclone with Discharge: The system could support easy switching between one or two bags or include quick-release or dust-free connections to enhance usability and safety. | ☐ Yes ☐ No |  |
| **2** | **General requirements for the equipment** | ☐ Yes ☐ No |  |
| 2.1 | Bid includes:  -brand/model of the goods  -manufacturer's technical literature/catalogue/operational manual | ☐ Yes ☐ No |  |
| 2.2 | The period of validity of the Warranty. The warranty shall remain valid for 12 months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination. | ☐ Yes ☐ No |  |
| 2.3 | Warranty service. Within the warranty period, the Supplier or its authorised service centre shall provide maintenance and/or repair services to the equipment operation site not later than 10 (ten) workdays from the date of receipt of written or E-mail notification from an authorised party. The name of the company, address, telephone- and fax numbers, e-mail address must be mentioned in the bid. The service centre shall have at least one certified engineer in its staff. | ☐ Yes ☐ No | Please indicate warranty center, address, contact, phone |
| 2.4 | Technical documentation for maintenance and repair of the supplied goods. The minimum set of technical documents to be provided with each piece of equipment delivered is the following: -User Manual and Operating Instructions (in Ukrainian) for equipment included; - warranty cards for equipment;  - technical specifications | ☐ Yes ☐ No |  |
| 2.5 | Bid includes the Country of origin of the goods and FCA point of delivery. | ☐ Yes ☐ No |  |

**C.2. Delivery requirements for Lot 2**

| **UNOPS Requirements** | | **Is the bid compliant?** Bidder to complete | **Details**  Bidder to complete |
| --- | --- | --- | --- |
| **Delivery time** | The Bidder shall deliver the goods as soon as possible but not later than 120 calendar days after the PO is issued. Partial delivery of the goods within this period is acceptable. Bidders must provide a delivery schedule.  The offered goods are to be (DAP customs cleared) **delivered and unloaded Domanivka, Voznesensky district, Mykolaiv region, Ukraine only.** | ☐Yes ☐ No |  |
| **Delivery place and Incoterms rules** | DAP (customs cleared) Incoterms 2020 (**delivered at place and unloaded**) customs cleared Domanivka, Voznesensky district, Mykolaiv region, Ukraine, net of any direct taxes, customs duties, or indirect taxes. | ☐Yes ☐ No |  |
| **Consignee details** | Delivery address and consignee details will be provided to the successful Bidder(s) | ☐Yes ☐ No |  |

**Lot 3. Shredder of branches - 1 item**

| **N** | **UNOPS minimum technical requirements** | **Is Bid Compliant? Bidder to complete** | **Details of the offered goods. Bidder to complete** |
| --- | --- | --- | --- |
| **1** | **Shredder of branches (up to 170 - 200 millimetres) 1 item with minimum technical characteristics:**  Intended for processing round wood or large lumpy waste into chips. Rotary-type chipper-shredder, with 2 or 3 knives with a diesel engine.  The drive of the chopping disc is an autonomous diesel engine;  Design execution - on a car trailer; | ☐ Yes ☐ No | Please insert the name of the equipment |
| 1.1 | The mobile branch shredder should be designed for easy transportation and flexible operation and should be suitable for handling branches and similar organic materials. It could be mounted on a trailer or have built-in wheels and a towing hitch that allows it to be pulled by a vehicle.  **Mobility Options:**   * Towed: The equipment should be mountable on a standard trailer chassis with a towing hitch compatible with typical utility vehicles. This setup should include safety features such as brake lights, turn signals, and reflectors to comply with road safety regulations. * Skid-Mounted with Towable Options: For operations requiring frequent repositioning on a site, a skid-mounted system with optional tow bars or attachments can be proposed, enabling both fixed operation and limited mobility within a work area. * Track-Mounted: A track-mounted system that offers superior mobility across rough or uneven terrain, suitable for forestry operations or areas where conventional wheels may not suffice. | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.2 | Mechanism Drive for Mobile Branch Shredder The mechanism drive of the mobile branch shredder should be capable of efficient operation with a robust and reliable power source that is suitable for continuous heavy-duty use.  - Power Source Options: Diesel Engine, Electric Motor, Alternative Fuels (Please Specify)  Power Output: Must consistently provide sufficient power to process materials up to the maximum specified thickness and density. | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3 | The diameter of the knife disc is not less 850 mm | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.4 | The number of revolutions of the knife disk is between 600 and 1600 RPM | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.5 | Productivity from 2 - 4 t/h | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.6 | Size of raw material (wood): diameter minimum 200 mm, width minimum 235 mm, length minimum 200 mm; | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.7 | Size of Chip Fraction at OutputExpanded Chip Size Range: Diameter: From 10 mm to 60 mm  Width: From 5 mm to 30 mm  Thickness: From 3 mm to 15 mm | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.8 | The position of the loading hopper is horizontal | ☐ Yes ☐ No |  |
| 1.9 | The height of chip ejection is within the 2 to 4 m range. | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.10 | Angle of rotation of the throwing tube: 360 degrees | ☐ Yes ☐ No | Please provide technical details of equipment |
| **2** | **General requirements for the equipment** | ☐ Yes ☐ No |  |
| 2.1 | Bid includes:  -brand/model of the goods  -manufacturer's technical literature/catalog/operational manual | ☐ Yes ☐ No |  |
| 2.2 | The period of validity of the Warranty. The warranty shall remain valid for 12 months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination. | ☐ Yes ☐ No |  |
| 2.3 | Warranty service. Within the warranty period, the Supplier or its authorised service centre shall provide maintenance and/or repair services to the equipment operation site not later than 10 (ten) workdays from the date of receipt of written or E-mail notification from an authorised party. The name of the company, address, telephone- and fax numbers, e-mail address must be mentioned in the bid. The service centre shall have at least one certified engineer in its staff. | ☐ Yes ☐ No | Please indicate warranty center, address, contact, phone |
| 2.4 | Technical documentation for maintenance and repair of the supplied goods. The minimum set of technical documents to be provided with each piece of equipment delivered is the following: -User Manual and Operating Instructions (in Ukrainian) for equipment included; - warranty cards for equipment;  - technical specifications | ☐ Yes ☐ No |  |
| 2.5 | Bid includes the Country of origin of the goods and FCA point of delivery. | ☐ Yes ☐ No |  |

**C.3. Delivery requirements for Lot 3**

| **UNOPS Requirements** | | **Is the bid compliant?** Bidder to complete | **Details**  Bidder to complete |
| --- | --- | --- | --- |
| **Delivery time** | The Bidder shall deliver the goods as soon as possible but not later than 120 calendar days after the PO is issued. Partial delivery of the goods within this period is acceptable. Bidders must provide a delivery schedule.  The offered goods are to be (DAP customs cleared) **delivered and unloaded Domanivka, Voznesensky district, Mykolaiv region, Ukraine only.** | ☐Yes ☐ No |  |
| **Delivery place and Incoterms rules** | DAP (customs cleared) Incoterms 2020 (**delivered at place and unloaded**) customs cleared Domanivka, Voznesensky district, Mykolaiv region, Ukraine, net of any direct taxes, customs duties, or indirect taxes. | ☐Yes ☐ No |  |
| **Consignee details** | Delivery address and consignee details will be provided to the successful Bidder(s) | ☐Yes ☐ No |  |

**Lot 4. Briquetting press (Briquetter) 1 item**

| **N** | **UNOPS minimum technical requirements** | **Is Bid Compliant? Bidder to complete** | **Details of the offered goods. Bidder to complete** |
| --- | --- | --- | --- |
| **1** | **Briquetting press (Briquetter) 1 item- for the production of fuel briquettes minimum technical characteristics:**  Designed for the production of fuel briquettes of the NESTRO type with a diameter from 48-50 mm;  Raw material: sawdust of soft and hard wood, sunflower husks and other plant waste (cereal crop waste, flax processing waste, buckwheat, rice, oats, corn, straw, etc.) without the use of any binders. | ☐ Yes ☐ No | Please insert the name of the equipment |
| 1.1 | Productivity from 150-400 kg/h | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.2 | Briquette diameter: 40 mm to 80 mm | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.3 | Briquette length from 30-300 mm | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.4 | Power of the electric motor of the main drive is not less 15 kW | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.5 | The power of the raw material supply engine to the pressing zone is not less 2 kW | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.6 | The motor power of the screw feeder is not less 1.0 kW | ☐ Yes ☐ No | Please provide technical details of equipment |
| 1.7 | Complete set:  - Press;  - Storage hopper;  - Fuel briquette cooling unit;  - Control panel with cables and armoured hoses.  - Screw feeder  - Unit for loading the finished material into a container (bag type "big-bag", capacity from 1000-1200 kg | ☐ Yes ☐ No |  |
| **2** | **General requirements for the equipment** | ☐ Yes ☐ No |  |
| 2.1 | Bid includes:  -brand/model of the goods  -manufacturer's technical literature/catalogue/operational manual | ☐ Yes ☐ No |  |
| 2.2 | The period of validity of the Warranty. The warranty shall remain valid for 12 months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination. | ☐ Yes ☐ No |  |
| 2.3 | Warranty service. Within the warranty period, the Supplier or its authorised service centre shall provide maintenance and/or repair services to the equipment operation site not later than 10 (ten) workdays from the date of receipt of written or E-mail notification from an authorised party. The name of the company, address, telephone- and fax numbers, e-mail address must be mentioned in the bid. The service centre shall have at least one certified engineer in its staff. | ☐ Yes ☐ No | Please indicate warranty center, address, contact, phone |
| 2.4 | Technical documentation for maintenance and repair of the supplied goods. The minimum set of technical documents to be provided with each piece of equipment delivered is the following: -User Manual and Operating Instructions (in Ukrainian) for equipment included; - warranty cards for equipment;  - technical specifications | ☐ Yes ☐ No |  |
| 2.5 | Bid includes the Country of origin of the goods and FCA point of delivery. | ☐ Yes ☐ No |  |

**C.4. Delivery requirements for Lot 4**

| **UNOPS Requirements** | | **Is the bid compliant?** Bidder to complete | **Details**  Bidder to complete |
| --- | --- | --- | --- |
| **Delivery time** | The Bidder shall deliver the goods as soon as possible but not later than 120 calendar days after the PO is issued. Partial delivery of the goods within this period is acceptable. Bidders must provide a delivery schedule.  The offered goods are to be (DAP customs cleared) **delivered and unloaded Domanivka, Voznesensky district, Mykolaiv region, Ukraine only.** | ☐Yes ☐ No |  |
| **Delivery place and Incoterms rules** | DAP (customs cleared) Incoterms 2020 **(delivered at place and unloaded**) customs cleared Domanivka, Voznesensky district, Mykolaiv region, Ukraine, net of any direct taxes, customs duties, or indirect taxes. | ☐Yes ☐ No |  |
| **Consignee details** | Delivery address and consignee details will be provided to the successful Bidder(s) | ☐Yes ☐ No |  |