

Call for bids

Pursuant to point 2.4 of the SAMRS financial guide No.1 / 2019 (Principles of awarding contracts - goods, services and construction works intended for official development assistance of the Slovak Republic)

Call number: 46230/13519/2019

1. Contracting authority: FCHPT STU v Bratislave
Address: Radlinského 9
City: Bratislava
Postal code: 812 37
ID: 00397687
Contact person: Ing. Barbora Duddášová
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2. Object of contract

Supply of laboratory equipment within the SAMRS / 2019 / AFG / 01/01 project and securing the delivery of goods at the destination.

3. Type of contract

Contract for supplying goods and services

4. Short description of contract

Laboratory equipment and devices specified in the attached table. It is a laboratory facility designed for the educational process in the solar power production demonstration. Delivery of all equipment as a whole from one supplier is required. Tenders containing only part of the facilities and services will not be accepted. The facilities are procured under the official development assistance of the Slovak Republic for Afghanistan. The place of delivery and operation of these facilities is Kabul Afghanistan. The offer must include export-related costs, cost of transporting the goods to the destination and cost of training of staff.

5. Estimated value of contract: EUR 47,000

6. Date of delivery (contract duration)

The goods must be transported and delivered at the place of delivery within four months after an official order is delivered to the supplier.

7. Main place of delivery of goods / provision of services

DAT Kabul, Afghanistan

8. Financing conditions and payment arrangements

The subject of the contract will be financed from the resources of the Slovak Development Aid for Afghanistan under the SAMRS / 2019 / AFG / 01/01 project.

The costs will be paid by the customer in three payments:

1. 10: when the equipment are ordered

2. 70%: when the equipment are prepared for shipping
3. 20%: up to weeks after delivery of equipment at the destination (Kabul airport)

9. Conditions of participation

1. The participant must submit an offer, which is complete and contains all the items listed in the attached table, the goods shall meet European quality standards, the participant must list all required information (price, producer and internet link) for each item.
2. The participant should provide services for delivery of the goods to the final destination (Kabul, Afghanistan)
3. The participant must provide warranty and post-warranty service of the equipment at the destination (Kabul, Afghanistan)
3. The participant shall prove the ability to carry out this contract at least by 3 references of similar performance, installation of similar equipment in developing countries.

10. Bid evaluation criteria

All offers will be evaluated in the first step to meet the equipment's technical requirements. Offers which are not complete or do not meet the required technical requirements shall be excluded. Subsequently, it is assessed whether the requirements of this call for delivery of goods in the place of destination are met, and also to guarantee the warranty and post-warranty service in Afghanistan. Offers that do not include these requirements will be excluded. Bidders who meet all the conditions set out in point 9 will be listed in ascending order, with the successful bidder being the first. We will start negotiating the delivery of the goods with the successful tenderer and sign the contract.

11. Tender deadline

Date and time: all offers must be supplied until October 31, 2019 at 4:00 pm

12. Tender Place

FCHPT STU in Bratislava, Department of Chemical and Biochemical Engineering,
Radlinského 9, 812 37 Bratislava

Contact address: barbora.dudasova@stuba.sk

Offers must be sent to the e-mail address listed

13. Content of offer

The offer must contain, in addition to the quotation, the following documents and documents in paper form (signed scans are required):

- a completed table annexed to this call
- company business licence
- min. 3 references of similar performance

In Bratislava October 15, 2019	Signature of the Contractor authority:
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No.	1
Name of the device	LABORATORY SET-UP “Photovoltaic solar system”
Specifications of the device	<p>The required laboratory unit have to be a computer controlled unit for the study of the conversion of solar energy into electric energy. The unit should enable at least the following measurements:</p> <ul style="list-style-type: none"> • Determination of the solar panel characteristic parameters. • Study of the p and n sides of a solar cell. • Study of the I-V and P-V curves. • Study of the inverse current or the saturation current. • Study of V, I and W according to different loads. • Measurement of the open-circuit voltage and the short-circuit current for a solar panel with load. • Measurement of the maximum power for a solar panel with load. • Study of the relationship between power generated and solar radiation power. • Study of the solar panel maximum power. • Study of the influence of temperature on the solar panel opencircuit voltage. • Determination of the photo-conversion efficiency. • Study of the efficiency of the solar panels connected in parallel and series. • Study of the photovoltaic power generation system operation with an auxiliary battery and supplying different DC/AC loads. • Study of the operation of the photovoltaic system in series/parallel with connection of different loads DC and with the support of the storage battery. <p>The set should include:</p> <ul style="list-style-type: none"> ○ At least two photovoltaic solar panels (polycrystalline): ○ Tempered glass modules with high level of transmissivity. ○ Encapsulating material: modified ethylene-vinyl acetate. ○ Output nominal power: min. 66 W. ○ Solar simulator composed of: ○ Frame ○ At least Eight halogen lamps of 400W each one, distributed into two independent voltage regulated circuits. ○ Ventilation system, computer controlled, that allows to analyze the temperature influence on the unit operation, formed by: Axial compact fans with guards. ○ DC load and battery charger regulator: Overvoltage disconnection, short circuit protection of load and module, overvoltage protection at module input, over-temperature and overload protection, and battery overvoltage shutdown. ○ Auxiliary battery charger: Battery: Nominal voltage: 12 V. Rated capacity (20 hours rate): 24A/H. ○ DC loads module: Metallic box with diagram on the front panel. Two lamps of 24 V. DC motor: voltage: 36V, power: 5W. Rheostat of 500W., Independent connection for every load with the help of the 4 positions selector: Solar panels working at open-circuit., Rheostat and lamps connected directly to the solar panels. Sensors: Solar radiation sensor to study the behaviour of solar photovoltaic panels., At least three “J” type temperature sensors to measure the environmental temperature, the temperature in the solar panel no. 1 and the temperature in the solar panel no. 2., DC current sensor and DC voltage sensor. The value of DC power must be visualized with the software. ○ Blinds to reduce a direct visual contact with the halogen lamps and to reduce the direct contact with the photovoltaic solar panels when the unit is working. ○ Anodized aluminum frame and panels made of painted steel. ○ The unit should include wheels to facilitate its mobility. ○ Main metallic elements made of stainless steel. ○ Diagram in the front panel with distribution of the elements similar to the real one. <p>Furthermore, the device should include a computer assembly meeting the following min. requirements: Processor: min two HDD: min. 500 gigabytes (7200 RPM), Memory: min. 4 GB DVD mechanics, Ethernet mininternet: min. 100 Mbps, Microsoft Windows 10 or higher, keyboard, mouse, monitor min. 21", connector DVI, HDMI</p>
Your catalogue name of the device and web link to the device description	
Your price DAT Kabul (EUR)	

No.	2
Name of the device	LABORATORY SET-UP “Thermal solar system”
Specifications of the device	<p>The required laboratory unit have to be a computer controlled unit for the study of the conversion of solar energy into thermal energy (heat). The unit should enable at least the following measurements:</p> <ul style="list-style-type: none"> • efficiency of the solar panel. • energy balance of the solar collector. • energy balance of the accumulator tank • thermosiphon operation. • luminosity profile of the lamps. • influence of the tilt angle of the lamps panel on the unit efficiency. • relation between the flow and the temperature. • Determination of the experimental efficiency. • influence of the angle of incidence on the temperature. • Other possibilities to be done with this Unit: <p>The set should include:</p> <ul style="list-style-type: none"> ○ Solar panel (thermal solar collector): Area of the panel: at least 1.90m², Material: tempered glass. Copper pipes, wrapped with insulating material, to connect the panel and the accumulator tank. ○ Accumulator tank: Vacuum vitrified boiler, high efficiency heating circuit and anti-corrosion protections. It has include a supporting heating group with a computer controlled heating element, power: min. 2400 W. temperature control, Volume: min 150 l. Max. pressure: 8 bar. Max. temperature: 110 °C. ○ Solar simulator: Aluminum structure with adjustable height. At least 16 solar spectrum lamps of 300 W. each one, distributed into independent circuits. Electricity security group, made up by magnetothermics. ○ Three different configurations, computer controlled ○ Pumping system: Computer controlled pump, flow range: 0 – 2 l/min., max. pressure: 0.6 bar. ○ At least three flowmeters: One of 0.2 – 2 l/min in the primary circuit (forced circulation with pump), One of 4-50 cc/min. in the primary circuit (free circulation, without pump), One of 1.5 – 10 l/min. in the secondary circuit. ○ At least two flow sensors, range: 0.2 – 6.5 l/min. ○ At least ten temperature sensors, “J” type. ○ Radiation sensor, range: 0.2 – 150 kW/m². ○ Manometer, range: 0 – 4 bar. ○ Safety valves for over-pressure protection. ○ At least two “Venetian” type blinds to reduce a direct visual contact with the lamps and to reduce the direct contact with the solar panel when the unit is working. ○ Anodized aluminum frame and panels made of painted steel. ○ The unit must include wheels to facilitate its mobility. ○ Main metallic elements made of stainless steel. ○ Diagram in the front panel with distribution of the elements similar to the real one. <p>Furthermore, the device should include a computer assembly meeting the following min. requirements: Processor: min two HDD: min. 500 gigabytes (7200 RPM), Memory: min. 4 GB DVD mechanics, Ethernet mininternet: min. 100 Mbps, Microsoft Windows 10 or higher, keyboard, mouse, monitor min. 21", connector DVI, HDMI</p>
Your catalogue name of the device and web link to the device description	
Your price DAT Kabul (EUR)	

No.	3
Name of the device	LABORATORY SET-UP “solar water pumping application”

Specifications of the device	<p>The required laboratory unit have to be a computer controlled unit for the study of the application of solar energy in water pumping. The unit should enable at least the following measurements:</p> <ul style="list-style-type: none"> • Commissioning the stand-alone water pumping unit. • Manual speed control of the water pump. • Computer control of the water pump. • Monitoring of sensors s • determination of the unit efficiency. • Sizing of solar panels and the variable speed drive for the unit • Identification the energy flows. • Definition of MPPT depending on the amount of sunlight. <p>The set should include:</p> <ul style="list-style-type: none"> ○ 180 W Solar variable speed drive. Power Supply: 230 VAC., Nominal Power: min. 180 W. ○ Centrifugal pump. Nominal Power: min 100 W. ○ Upper tank with level sensor. Water tank, Level sensor. ○ Lower tank. ○ Pump ON/OFF switch: Nominal voltage: 230 VDC, Nominal current: 5A. ○ Rotary dial to vary the voltage. ○ Pump running indicator: Green LED Lamp. ○ Pump error indicator: Red LED Lamp. ○ Mushroom head emergency stop button: Nominal voltage: 230 VAC, Nominal current: 3A. ○ Circuit breakers: Control coil: 24 VDC, Power contacts: 400 VAC. ○ 24 VDC power supply connection. ○ 300 VDC PV panel power supply connection. ○ 230 VAC main power supply connection. ○ Wind turbine power supply connection. ○ Flow sensor. ○ Pressure sensor. ○ LabVIEW interface for data acquisition. ○ Modbus/Ethernet gateway. ○ AC power supply lead. ○ Anodized aluminum frame and panels made of painted steel. ○ The unit should include wheels to facilitate its mobility. ○ Main metallic elements made of stainless steel. ○ Diagram in the front panel with distribution of the elements similar to the real one. <p>Furthermore, the device should include a computer assembly meeting the following min. requirements: Processor: min two HDD: min. 500 gigabytes (7200 RPM), Memory: min. 4 GB DVD mechanics, Ethernet minthernet: min. 100 Mbps, Microsoft Windows 10 or higher, keyboard, mouse, monitor min. 21", connector DVI, HDMI</p>
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