
Consultation **01/2020 WESET**

Acquisition of equipment in electrical engineering
(Wind Energy).

for :

**The WESET-Erasmus project, funded by the
European Union in collaboration with the
University of Valladolid and
the University of Sfax.**

2020

Detail on the project subject of this consultation

WESET- Wind Engineering Skills in Egypt and Tunisia project inscribes in the modernization, development and internationalization strategy of the HEIs involved, that share the common objectives of aligning Master degrees with the needs of Industry and the Society at large, and of creating links with foreign institutions.

The main goal is to transfer knowledge and technology on Wind Energy among experts in European, Egyptian and Tunisian institutions, strengthening the links between academic institutions and industry to produce engineers with the skills needed to support industrial growth in the wind energy sector.

The project aims also at promoting Bologna Process standards in the in South Mediterranean region.

The proposed project will contribute to the Engineering objective of the Capacity Building action in Tunisia and Egypt. Thus, it directly addresses the thematic national and geographic priorities set by the programme for South-Mediterranean countries (and Egypt and Tunisia in particular).

WESET project's specific objectives are

- fulfilling the lack of Engineers with multidisciplinary knowledge of Wind Technologies
- providing specific training materials and laboratories that support the training in Wind Engineering and the links HEIs-industry
- promoting the use of Wind as a reliable, cost-effective and pollution-free source of energy in SM countries, supporting their economic development and independence
- supporting the activities of WE companies in those countries and the creation of new companies by entrepreneurs, thanks to the technically qualified manpower of international standards.

WESET will achieve the purposed objectives through the following activities:

- By developing Master modules and laboratories suitable for capacity building in wind energy for on-campus learning in Egypt and Tunisia, linked with industry and official organizations in SM countries through the Wind Engineering Centers to be created as part of WESET;
- By elaborating training materials openly distributed to be used as part of Masters in Engineering

- By training trainees from Egypt and Tunisia in Europe on real-life Wind Engineering aspects and by using those training materials for Master courses.

ADMINISTRATIVE CLAUSES

Article 1: Terms of Reference

The University of Sfax launches a consultation for the acquisition of equipment in electrical engineering (Wind Energy) for the project **WESET - Erasmus « Wind Engineering Skills in Egypt and Tunisia »**

Article 2: Purpose of the consultation

The **WESET - Erasmus** project intends to acquire the electrical engineering (Wind Energy) equipment for the benefit of the University of Sfax.

Article 3: Method of sending bid envelopes

Tenders must be sent to the University of Sfax office during the work schedule by registered, fast-track or hand-delivered no **later than: January 29, 2020 at 12:00 pm** with the following mention:

Do not open, Consultation 01/2020 WESET: Acquisition of electrical engineering (Wind Energy). equipment for the **WESET - Erasmus** project.

Address : Université de Sfax. Route de l'Aéroport Km 0.5 BP 1169 -3029 Sfax,

The stamp of the office of order of the University of Sfax or the post office being authentic.

The outer envelope includes, in addition to the two technical and financial offers, the following administrative documents:

- ✓ These specifications signed and initialed,
- ✓ The tax certificate provided by the legislation in force, valid. (Only for Tunisian Society)
- ✓ A certificate of affiliation to the CNSS, (Only for Tunisian Society)
- ✓ A copy of the register of commerce, (Only for Tunisian society)
- ✓ Letter of submission (Annex 01).
- ✓ Declaration of honor of no influence (Annex 02).
- ✓ Declaration of honor (Annex 3).
- ✓ Price slips (Annex 5).

The financial offer includes the duly completed and signed price schedule,

The technical offer includes the answer form + complete technical documentation (flyer-photo-sheets-etc.), obligatorily bearing the stamp of the tenderer

Note: The tenderer must provide all the characteristics (make - model) of all the elements constituting his tender and carefully fill in the point - by - point answer form.

Article 4: VALIDITY PERIOD OF THE OFFER:

All bidders will be bound by their bid for ninety (90) days from the day following the deadline set for receipt of bids. During this period, the bidder's proposed prices will be firm and non-revisable, on pain of nullity of the corresponding offer.

Article 5: ELECTION OF DOMICILE

For the performance of the consultation, the successful supplier elects domicile in his residence. In case of change of address, the holder of the contract must obligatorily and immediately inform the administration at any stage of execution of the consultation in question.

Article 6: CHOICE OF OFFERS:

- ✓ The financial comparison of the offers will be done by lot on the basis of the CFR (cost and freight) prices for residents and non-residents, after converting all the currency offers to Tunisian Dinars, applying the exchange rate on the day of the opening of the technical folds.
- ✓ In a first place, the internal commission proceeds with the opening of the bids and the counting of the financial offers batch by batch in an increasing order: the lowest bid is only admitted for the technical recounting
- ✓ If the lowest bid meets the technical requirements, it will be selected otherwise, the next bid will be examined in the same way and in the increasing order of the financial offers.
- ✓ The offers will be evaluated financially by lot (with the possibility of partial acquisition). The technical non-compliance of an item is rejected.
- ✓ The offer must be presented in separate lots.
- ✓ Each tenderer must submit one basic offer without variants. Any variant will not be considered.
- ✓ The offer must cover all items for a lot.

Article 7: COMPLIANCE OF EQUIPMENT:

The supply must comply with the characteristics and technical specifications given at the time of submission and specified on the descriptive sheets attached to the offer. The

University of Sfax reserves the right to call on experts or technicians of its choice to examine the equipment or products to be received.

In the case where the material or product does not comply with those required by the University of Sfax and whose technical characteristics prove to be not in conformity with those specified in the technical instructions attached to the offer, the expert's fees will be at the expense of the supplier without prejudice to the replacement of rejected equipment or products. Equipment or products missing, deteriorated or not in conformity with the offer will be the object of a statement, under which the University of Sfax will ask for its replacement or an indemnity compensation for the damage suffered.

Article 8: METHOD OF PAYMENT:

Payment will be made by the University of Sfax - Tunisia by bank transfer upon presentation of a pro-forma invoice in four (4) copies with the delivery notes plus the receipt reports.

NB: Invoices and quotes must include the following data: University of Sfax

Article 9: GUARANTEE:

The supplier guarantees the material to be delivered against any defect of manufacture or defect of material during a minimum period of one (1) year or more than one year, these cases will be specified in the technical characteristics, as from the date of reception Provision of equipment or products installed. This warranty includes material, labor and travel.

The supplier warrants that all supplies delivered under this consultation are new, have never been used, are the most recent model in use and include all the latest design and material improvements.

Article 10: TIME LIMIT

The consultation must be performed for the entire order. The execution period takes effect from the date fixed in the service order by the administration; this period is fixed at **90 days**. "Delivery time" means the delivery, the installation of equipment, with a detailed execution schedule that must include three components, namely: shipping, on-site delivery, installation and start-up. Ordered material.

Article 11: RECEPTION

The administration intends to buy equipment according to the rules of art, installed, and in working order. The receipt (in two phases) will be pronounced by the commission provided for this purpose, constituted by the representatives of the supplier and the Administration,

on the basis of the conditions of the bid submitted by the tenderer in accordance with the technical specifications. retained by the administration.

Reception will only be possible if the equipment and installation work meet the specifications specified in the specifications.

In case of refusal of equipment presented on provisional acceptance, because of the successful tenderer, the latter will bear the expenses related to the interventions necessary for its acceptance (equipment, services, etc.)

The reception of the equipment is done in two phases:

- ✓ Phase 1 Delivery: will be established following on-site delivery.
- ✓ Phase 2 "reception": PV will be established after switching on the equipment and checking the correct operation.

Article 12: COMPLAIN

Any claim of any kind whatsoever concerning the execution of this consultation and the installation of the material must be addressed to the University of Sfax Order Office.

Article 13: ELECTION OF DOMICILE

For the performance of the consultation, the successful supplier elects domicile in his residence. In case of change of address, the holder of the contract must obligatorily and immediately inform the administration at any stage of execution of the contract in question.

Article 14: PENALTY OF DELAY

If delivery times are exceeded, the supplier will be subject to a late penalty equal to 1/1000 for each day of unjustified delay, capped at 5% of the total amount of the supply.

Article 15: LITIGATION OR DISPUTE

In the event of a dispute or dispute arising during the performance of the contract and failing an amicable solution, jurisdiction shall be conferred on the competent courts of Sfax.

Any contractor entered into between the successful bidder and the University of Sfax will be governed by its interpretation and execution by Tunisian law.

Article 17: REGULATION

For all that is not stipulated in the provisions of these specifications, the execution of this consultation will be governed by:

- The code of public accounting.
- Decree No. 1039 -2014 of 13 March 2014, regulating public procurement.

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LU AND ACCEPT

The bidder

N.B.: The specifications and its annexes must be returned to the University of Sfax in their original form duly signed and initialed by the tenderer.

Minimum technical specifications

1 Introduction

This document presents the characteristics and expected functionalities of the electrical engineering (Wind Energy).

The equipment installation is scheduled **30 days** from the date of placing the order form.

2 General

The tenderer must provide all the characteristics (make - model) of all the elements constituting his tender and carefully fill in the answer form point by point.

The tenderer must deliver the material in question to the premises of the University of Sfax

List of equipment:

N°	Description	Quantity
01	Three Phase Supply unit with RCD	01
02	Synchronous machine PS 0.3KW	01
03	Excitation voltage controller 200 V/2.5 A	01
04	Machine test system 0.3 KW	01
05	Incremental Tachometric	01
06	Three-phase inverter 2 KW Three-phase inverter with IGBT + three-phase rectifier + recovery choppe	01
07	Resistive load	01
08	Inductive load	01
09	Capacitive load	01
10	Manual synchronisation unit	01
11	Rubber Coupling	03
12	Shaft end guard for the incremental Tachometric	01
13	Coupling guard	01
14	Voltmeter: Moving Iron Meter 100/400 V	01
15	Ammeter: Moving Iron Meter 6 A	01

Technical Specifications requested see Annex 4

TECHNICAL CHARACTERISTICS

Annex 4 : Technical Specifications requested / Technical Specifications proposed

Item	Technical Specifications requested	Qty	Technical Specifications proposed
01	<p>Three-phase supply unit with RCD To switch the 3-phase supply in experiments with electrical loads for line voltages of 400 V. Cam switch, 4 pole Earth-leakage circuit breaker, 30 mA Motor protection switch, 6-10 A Phase indicator lamps L1, L2, L3</p>	01	
02	<p>Synchronous machine PS 03KW Three-phase synchronous machine with smooth core rotor and damper cage for motor and generator operation. Ratings for motor operation: Power: 0.8 kVA / 0.8 kW Voltage: 230/400 V, Δ/Y Current: 2.66/1.52 A Excitation voltage: max.220 V Excitation current: max.1.6 A Frequency: 50 Hz Power factor: 0.8-1-0.8 Design: 4-pole Speed: 1500 rpm</p>	01	
03	<p>Excitation voltage controller 200 V/2.5 A Adjustable power supply with smoothed current and voltage for supplying power to a synchronous machine in the power class 0.3 kW or 1.0 kW. Adjustment of the output voltage can be carried out internally using the UP/DOWN push-button Output voltage V: 0...200 V Output current I: max. 2.5 A The output is overload-proof and short-circuit-proof. Supply voltage: 230 V, 50/60 Hz</p>	01	
04	<p>Machine test system 0.3 KW Equipment set for recording the characteristics of electrical machines of the 1 kW class, consisting of: Cradle-type three-phase asynchronous machine (Squirrel-cage rotor on oscillating bearing with integrated torque pick-up for recording speed, plus</p>	01	

	<p>stainless steel bending bar with strain gauge for measuring torque.)- Control unit (Microcontroller equipped device with integrated frequency converter for the power supply and control of the cradle-type three-phase asynchronous machine. Display of speed and torque of the machine under test. Manual and automatic recording of the characteristics in all four quadrants of the speed/torque plane. Connection to the PC via USB port.).</p> <p>Automatic digital speed control: ± 5000 rpm Automatic digital torque control: ± 19.9 Nm Automatic recording of run-up and load characteristics</p> <p>Load simulations: flywheel, freely adjustable fan drive ($M \sim kn^2$) freely adjustable winding drive ($M \sim k/n$), lift drive (constant torque) Characteristics recorded in accordance with user specifications ($M_i = n_i$) External control: ± 10 V Seven-segment display, 25 mm high Speed: 4 digits Torque: 3 digits Parallel operation is possible with the help of the software Temperature monitoring: Machine under test Cradle-type three-phase asynchronous machine Control unit Shaft guard monitoring: system shut-down with protection for unintended system start Four quadrant display with LEDs for operating mode of the machine under test Adjustable torque limiting (overload protection) and stop speed (for automatic characteristic recording) RMS measurement: three inputs for voltage measurement ($V_{max} = 600$ V AC/DC), one input for current measuring ($I_{max} = 15$ A AC/DC), all suitable for frequency converter USB connection for transmission of measured values and remote control via software CBM 10 Highest security standards: leakage current < 5 mA Power supply: 230 V, 47 ... 62 Hz, 2 kW</p>		
05	<p>Incremental Tachometric For registering the speed of electrical machines in the 1.0 kW</p>	01	

	<p>The TTL-compatible signals A, B and REF are accessible via 4-mm sockets. 1024 pulses at A or B corresponds to a mechanical angle of rotation of 360 degrees. The signals A and B are phase-shifted by 90 degrees for the determination of the shaft's rotation direction. The REF-pulse is generated 1 x per shaft revolution.</p> <p>The universal speed indicator is needed for the power supply and display.</p> <p>Connection via 6-pole DIN socket</p> <p>Speed: max. 10,000 min⁻¹</p> <p>Increments: 1024 pulses/360 degrees</p>		
06	<p>Three-phase inverter 2 KW</p> <p>Three-phase inverter with IGBT + three-phase rectifier + recovery chopper.</p> <p>build with à IGBT</p> <p>with Phase-commutated converter and DC choppers with recuperation ,B6U + E1CIF + B6CI</p>	01	
07	<p>Resistive load</p> <p>Three synchronously adjustable circular rheostats (step winding) with scale (100 - 0%), each with a series resistor and fuse in the sliding-contact connection, suitable for parallel, series, star and delta circuits</p> <p>Resistance: 3 x 1000 Ω</p> <p>Series resistance: 3 x 22 Ω</p> <p>Current: 3 x 2.5 A</p>	01	
08	<p>Inductive load</p> <p>Three inductors with taps suitable for parallel, series, star and delta circuits.</p> <p>0.2/0.4/0.6 H (0.65 A)</p> <p>0.8/1.0/1.2 H (0.5 A)</p> <p>2.4/4.8/6.0 H (0.25 A)</p>	01	
09	<p>Capacitive load</p> <p>Three groups of MP capacitors, each consisting of four capacitors, suitable for parallel, series, star and delta circuits</p> <p>Capacitances:</p> <p>3 x 2/4 μF, 450 V</p> <p>3 x 8/16 μF, 400 V</p>	01	
10	<p>Manual Synchronisation Unit</p> <p>Synchronisation unit with manual switch to connect the generator to the mains :</p> <p>Two 7-segment voltage displays</p> <p>Two 7-segment frequency displays</p> <p>One 7-segment zero-volt display</p> <p>One optical synchronoscope</p>	01	

	Six synchronisation lamps One optical synchronisation indicator One rotating field indicator One manual three pole switch		
11	Rubber Coupling Rubber coupling sleeve for mechanical connection of two electrical machines.	03	
12	Shaft end guard for the incremental Tachometric Attachable guard for protection against contact with electrical machine rotating parts.	01	
13	Coupling guard Attachable guard for protection against contact with electrical machine rotating parts.	01	
14	Voltmeter: Moving Iron Meter 100/400 V Moving iron voltage meter with 2 measurement ranges frame: 144 x 144 mm Front Class: 1.5 Measurement ranges: - 0 - 400 V ; - 0 - 100 V	01	
15	Ammeter: Moving Iron Meter 6 A Moving iron ammeter. Front frame: - Class: 1.5 - Measurement ranges Moving iron ammeter. Front frame: 144 x 144 mm Class: 1.5 Measurement ranges: 0 - 6 A	01	

All the parts should be compatible with each other.

Annex 5

University of Sfax

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BORDER PRICES

Acquisition of "Electrical engineering equipment (Wind Energy) within the framework of the project: WESET Erasmus

Social reason :.....

Tax identification number :.....

N°	Elements	Quantity	Country of Origin	U.P.E.T.*	Total E.T. *
1	Three Phase Supply unit with RCD	01			
2	Synchronous machine PS 0.3KW	01			
3	Excitation voltage controller 200 V/2.5 A	01			
4	Machine test system 0.3 KW	01			
5	Incremental Tachometric	01			
6	Three-phase inverter 2 KW Three-phase inverter with IGBT + three-phase rectifier + recovery choppe	01			
7	Resistive load	01			
8	Inductive load	01			
9	Capacitive load	01			
10	Manual synchronisation unit	01			
11	Rubber Coupling	03			
12	Shaft end guard for the incremental Tachometric	01			
13	Coupling guard	01			
14	Voltmeter: Moving Iron Meter 100/400 V	01			
15	Ammeter: Moving Iron Meter 6 A	01			
Total					

***Unit Price Excluding Tax (U.P.E.T)**

*** CFR price base (cost and freight) Excluding Tax.**

NB: residents must present their prices in Tunisian Dinars. Non-residents must present their prices in foreign currency (Euros or Dollars).

Total amount in words in Euro

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.....

(Signature and stamp of the tenderer)

.....,

ANNEXES

Annex 01

UNIVERSITY OF SFAX

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Sfax, le

SUBMISSION

Subject: Acquisition of equipment in electrical engineering (Wind Energy) on behalf of the project **WESET-Erasmus**

I, the undersigned

Company denomination :

Headquarters (address):

Telephone: Fax:

Tax registration number :

CWB No .:

Certify to have reviewed the specifications, concerning consultation 01/2020 WESET, and have no reservations and have collected, by my own care and under my full responsibility, all information necessary for the perfect execution of my possible obligations as they derive from the various provisions of these specifications for the acquisition of the equipment "electrical engineering (Wind Energy), within the framework of the **Weset-Erasmus** project, for the University of Sfax", and I pledge on the honor that the information provided above is accurate.

We undertake to provide, in accordance with the technical specifications and specifications, the related supplies and services.

The total amount of my tax-free submission is (in words):
.....

(Signature and stamp of the tenderer)

Annex 02

Declaration of honor of no influence

I, the undersigned:

Chief Executive Officer (CEO) - Manager :

Declares on the honor of not having done and undertakes not to do by myself or by an intermediary, promises, gifts or presents in order to influence the different procedures for concluding a market and the stages of its realization.

Done at: on,

(Name and surname, Quality,
Stamp and signature of the authorized person
to engage the company)

Annex 03

Declaration on honor

I, the undersigned:.....

Chief Executive Officer (CEO) - Manager :

Declare on the honor that I was not a public official at the University of Sfax

Sfax, having stopped my activity for less than five years.

Done at: on,

(Name and surname, quality, stamp and signature of the person authorized to commit the company)