higher education & training
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Higher Education and Training
REPUBLIC OF SOUTH AFRICA

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MALUTI TVET COLLEGE

MALUTI TVET COLLEGE (MTVETC)

HEREIN REFERRED TO AS MTVETC

REQUEST POTENTIAL BIDDERS FOR PROPOSALS (RFP)

REQUEST FOR PROPOSAL

DESCRIPTION OF TENDER: THE SUPPLY, DELIVERY COMMISSIONING OF RENEWABLE ENGERGY KITS

TENDER NO: PU2611/033

Prospective Suppliers who are interested in participating in the aforementioned tender are invited to submit a proposal in full compliance to the requirement of this tender document. Completed documents with all attachments must be signed and submitted on the PURCO SA Website.

Proposals in response to **PU2611/033 THE SUPPLY, DELIVERY AND COMMISSIONING OF RENEWABLE ENERGY KITS**

The closing time and date for receipt for online tender **PU2611/033** is at **11h00** on Friday,

30 May 2025.

Tender number	**PU2611/033**
Date issued	**09/05/2025 (09 May 2025)**
Tender closing date	**30/05/2025 (30 May 2025) on Friday at 11h00 AM** **Tender Submission will be Electronic on the PURCOSA website: www.purcosa.co.za Supplier Hub- Online Tender Submission Guide.**
Non-compulsory Information Session	**19/05/2025 (19 May 2025) at 09:00 AM** **An online Non-Compulsory Information session will be facilitated via MS Teams.**

1.1 DELIVERY INSTRUCTIONS

All Suppliers must submit their responses in the following format:

Appendix Number	***Description of Appendix***	***Requirement***
Appendix A	RFP Document	Each page of the RFP document to be initialled by a delegated representative
Appendix B	Completed technical specifications and pricing	A signed copy of the print out of each page of the electronic document
Appendix C	Proof of Bank Account	Cancelled cheque or signed letter from bank
Appendix D	Company registration documents	Company registration documents
Appendix E	Tax Pin	An original valid Tax Pin
Appendix F	BBBEE certification	A valid BBBEE certificate from a SANAS accredited agency or Auditor registered with the IRBA (Specific Goal)
Appendix G	Declaration of Interest	Please sign point 9 of this tender document
Appendix H	OEM	OEM's or authorized resellers or distributors. Must provide signed letters that states that they are authorized resellers/distributors of the product in South Africa.
Appendix I	Registration National Treasury (CSD)	Provide a copy of the full report of registration on National Treasury Central Supplier Database.

The response deadline is **21/03/2024 at 11h00.** Only responses to this RFP received by due date and time will be considered. No exceptions will be considered.

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1.2 STAGE 1: EVALUATION OF FUNCTIONALITY

Tenderers need to obtain a minimum percentage score of 70% and above in order to progress to the next stage of evaluation.

FUNCTIONALITY CRITERIA		POINTS ALLOCAED
Provide three (3) contactable reference letters • of contracts of similar nature or service • for the past five (5) years: • Letters must be clearly dated (Commencement, Completion and Duration)	3 References verified = 30 Points 2 References verified = 20 Points 1 Reference verified = 10 Points No evidence provided = 00 Points	**30**
Company Profile Company profile including demonstrated experience providing Renewable Energy Training Kit for TVET Colleges	Less than five years' experience = 0 (Points) Up to ten years' experience = 10 (Points0 More tha ten years' experience 20 (Points0	**20**
Compliance requirement All required training kits must comply with SABS standards and SANS 10142-1	Evidence provided to confirm compliance with SABS and SANS 10142-1 = 10 Points	**10**
Expected Lead times The Bidder is expected to commit in a from of a signed letter addressed to the Bid Evaluation committee as it relates to their	More than three months = 00 (Points) One-Two months = 05 (Points) Less than one month = 10 (Points)	**10**
Technical Specifications: The bidder is expected to respond to the Term of Reference for each item requested. The successful bidder proposal must cover the following area: - Wind Energy Experimental Kit College - Hydrogen Fuel cell experimental Kit for teaching - Wind power Generation Trainer - Photovoltaic System - Installation and Commissioning - Transport - Software - Training	Products does not meet the technical specifications = 00 The proposal is Generic and doesn't quite respond to the requirement = Max 20 (Points) The proposal adequately respond to the requirements and the bidder has provided images of the equipment = max 30 (Points)	**30**
Total Points		**100**

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1.3 SPECIFICATIONS

Maluti TVET College seeks to appoint a service provider capable of the supply and delivery of equipment and materials for vocational training for the following programme:

1. **RENEWABLE ENERGY TECHNOLOGIES NCV LEVEL 4**

Subject:	Renewable Energy Technologies Level 4
Subject code:	12041044
Programme Type	National Certificate Vocational (NcV)

Equipment Description	Qty
Wind Energy Experimental Kit Colleges	15

The Kit must enable the students to carry out all experiments in the field of wind energy. The Kit must have a modular concept for the lecturer to adapt and meet the course requirements.

2. **The Kit must have the following educational content functionality**
3. Measuring the force of the wind
4. Power output of the generator depending on the blade profile, the number of blades and the position of the blades
5. Discharge with different load
6. Power output depending on the wind force
7. User interface (UI) characteristics curve of a generator
8. Design an island
9. Characteristics curve of a Savonius rotor and the power output of a Savonius rotor.
10. **Product Content**

1. Case with die cut components
2. Base for assembly modules and multimeters
3. Wind machine
4. Flat blades minimum 4 per unit
5. Digital multimeter minimum 4 per unit
6. Experimental manual with solutions
7. Storage box
8. Flat blades (4)
9. Storage box with Nickel metal hydride (NiMh) accumulator
10. Measuring module with a variable resister
11. GoldCap and blocking diode

11. **HYDROGEN FUEL CELL EXPERIMENTAL KIT FOR TEACHING**

Equipment Description	Qty
Hydrogen Fuel Cell Experimental Kit for teaching	15

The Kit must allow for fundamental experiments in Hydrogen fuel cell technology without requiring extra materials. The Kit must enable experiments to be built up and removed quickly for safety reasons.

12. **The kit must be able to perform the following experiments:**

1. Measuring the volume ratio of the generated gases
2. Measuring the generated volumes of the gases per unit of time depending on the current
3. Building up of a stand-alone operation network/system
4. Determination of the power efficiency and the Faraday efficiency of the electrolyser
5. Operation of electrolyser with wind energy
6. Electrolyser operation with solar cells and wind energy as a hybrid system.

13. **The equipment to be supplied.**

1. Plastic suitcase
2. Gas storage
3. Power supply
4. Current control box
5. Electrolyser
6. 2x Multimeter with minimum of 2mm connectors
7. Measuring box with a variable resister
8. Syring
9. Distilled water
10. Instructions and solutions
11. Basic board with the frame to place the experimental boxes and multimeters
12. Connecting highly flexible cords, contacts brass and hard copper gold plated.

14.

15. **WIND POWER GENERATION TRAINER**

Equipment Description	Qty
Wind Power Generation Training kits	15

The trainer must :

1. Allow students to study the functions and operations of a modern wind power plant.
2. Operate through a brushless machine with simulation software that allows for the performing of experiments, visualisation and the management of the collected data through internal PC.
3. The control unit of the training kit must allow for controlling and operating of a speed variable for double feed asynchronous generator.
4. The training kit must perform the following experiments:
   a. Starting method of a wind system.
   b. Analysis of electrical parameters within an induction generator.
   c. Operation of modern wind power plant.
   d. The control unit must allow:

      i. For an integrated power switch for switching the generator on line

ii. Active and Reactive power, voltage control and frequency control.

16. **Software functionality**

1. Must store values and graphs.
2. Able us to printing the documents
3. Simulation of wind power and profiles
4. Measurement and graphic representation of mechanical and electrical parameters.
5. Interactive experiment set up.

17. **Components**

Item	Qty	Item	Qty
Workbench	1	Kit of connecting leads	1
Power circuit breaker	1	Braking resistance	1
Base and Frame	1	Three phase power meter	1
Inverter	1	Three phase supply unit	1
Modbus communication hub	1	Software Scada	1

Wind simulator	1	Personal Computer	1
Three phase socket holder	1	Three phase transformers	1
Brushless controller with motor	1	Three phase over voltage device	1

RENEWABLE ENERGY TECHNOLOGIES NCV LEVEL 2

Subject:	Renewable Energy Technologies Level 2
Subject code:	12041042
Programme Type	National Certificate Vocational (NcV)

18. **PHOTOVOLTAIC EXPERIMENTAL KIT FOR COLLEGES**

Equipment Description	Qty
Photovoltaic experimental kit for colleges	15

19. **Functional Specification**

1. Measuring the amount of illumination of different light sources.
2. Solar cell as an energy converter
3. Solar Cell as an energy converter and diode function
4. Open circuit voltage of a solar cell under different shade conditions
5. Short circuit current of a solar cell under different shade conditions
6. Short circuit current of a solar cell depending on the angle of incidence
7. Series connection of solar cells under different shade bypass diode
8. Parallel connection of solar cells under different shade
9. Design island network
10. Characteristics curve of a solar cell
11. Characteristics curve of a solar cell U/P and Maximum power point (MPP) and calculate the efficiency
12. Charging of the battery with the solar cell
13. Simulate the short circuit current of a solar cell.

20. **Technical Specifications**

1. Case with die compartments
2. 2 digital multimeters
3. Solar module with four cells
4. The base of assembling the modules and multimeters
5. User manual
6. Storage box with accumulator

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7. Low voltage halogen lamp
8. Load module with electric motor
9. Sensor module to measure light intensity
10. Blocking Diode

21. **PHOTOVOLTAIC SYSTEM**

Equipment Description	Qty
Photovoltaic System	1

22.

23. **Specifications**

8 Switched solar simulators	2 Photovoltaic Panel 50W
3 PV inputs	1 PV panel thin film 155W
2 Solar Batteries	2 Grid Tied Inverter
4 Multimeter, Auto Ranging	2 Power Analyser
1 Charge Controller	4 Undedicated Switches
1 MPPT Charge Controller	3 AC loads
2 DC Loads	7 Undedicated Fuses
1 Undedicated DC load	2 Plug socket outputs
1 Power Inverter 12/230V	1 Main ON/OFF switch
1 Power Inverter 24/230V	1 Set Safety cables
1 Grid Tied Inverter	1 Manual and CD ROM

24. **Size**

Basic unit	1700H x 600D x 138
Power	240VAC16A

25. **Contents of the Theory and Practice**

Introduction	Solar radiation
Site survey and prep-planning	System components and configuration
Cells, Modules and Arrays	Batteries

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Charge controllers	Inverters
System Sizing	Mechanical integration
Utility interconnection	Maintenance and trouble shooting
Economic Analysis	

All required training kits must comply with SABS standards and SANS 10142-1. Evidence should be provided.

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