Republic of the Philippines
CATANDUANES STATE UNIVERSITY
Main Campus Calatagan Proper Virac, Catanduanes

TERMS OF REFERENCE

PURCHASE OF MACHINERY AND EQUIPMENT (SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF 750 KVA STANDBY GENSET, TRANSFER SWITCHES, DISTRIBUTION PANELS, INCLUDING GENERATOR HOUSE AND UNDERGROUND CABLING)

I. BACKGROUND

The University's electricity is supplied by the sole electric power provider in the province. With the increasing power demand and due to the unreliable power supply and frequent interruptions, productivity of classes and office works are heavily affected; only the Administration Building has a stand-by generator. As such, continuous power supply is vital to support the electrical needs of classrooms and offices.

To address this problem, the University proposes to procure and install 750 kVA Standby Diesel Generator set with Generator House.

II. PROJECT DESCRIPTION

The project: PURCHASE OF MACHINERY AND EQUIPMENT (SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF 750 KVA STANDBY GENSET, TRANSFER SWITCHES, DISTRIBUTION PANELS, INCLUDING GENERATOR HOUSE AND UNDERGROUND CABLING). The project duration is for a period of one hundred twenty (120) calendar days.

The Standby Genset will supply emergency power to the selected buildings, viz: Admin building, Gymnasium, Auditorium, College of Business and Accountancy (CBA) Building, College of Information and Communications Technology (CICT), Building, Bachelor of Science in Entrepreneurship Building, Motorpool, PG Tabuzo Building, College of Arts and Sciences (CAS), Laboratory Building, College of Arts and Sciences (CAS) Building A and B, Main Library, E-Library, College of Education Proper, College of Education High School Building, Home Economics Building and with provision for future infrastructures to be constructed inside the University campus.

T	Dimension (mm) (L x W x H)	4300 x 1900 x 2300
	Genset Weight (kg)	6500
ENGINE	Number of Cylinders	6 in line
	Cycle	Four stroke
	Aspiration	Turbocharged & air to air intercooled; direct injection
	Bore x Stroke (mm)	159*159
	Displacement (L)	18.9
	Starting Method	24V Electric Motor Starters
	Speed Governor	Electronic
	Cooling Way	Water-cooled system
	Fuel consumption @100% load Prime load	161L/h
	Compression Rate	13.1
	Lube Oil Capacity	50
ALTERNATOR	Cooling way	Axial, Self-ventilated
	Excitation way	Self-excited, Brushless
	Connecting type	3 Phase
	Insulator	H degree
	Enclosure Class	IP23

III. SCOPE OF WORK

1. Supply, delivery, installation, testing and commissioning of one (1) unit 750 kVA Silent type Standby Diesel Genset complete with accessories. Standard accessories shall include but not limited to the following:
    - Heavy-duty steel skid type base frame
    - Subbase fuel tank (12 hrs. capacity)
    - Unit mounted tropical capacity radiator with engine driven blower fan
    - Electric starting systems complete with heavy-duty lead acid type starting batteries, battery mounting frame and battery cables
    - High-capacity air, fuel and lubricating oil filters – all dry type
    - Exhausts muffler
    - Battery charging alternator engine driven
    - Lubricating oil and battery solution
    - Complete set of operation and instruction manual of engine, alternator and control panel
2. Supply, construction and installation of exhaust system for Generator set.
3. Supply and installation of Electrical wirings from Generator set to Distribution Panels.
4. Construction of Generator house (see detailed scope of work).
5. Supply and installation of Transfer switches at selected buildings.
6. Supply, construction and installation of Underground Cabling system from Generator house to selected buildings includes restoration of damage pavement (see detailed scope of work).
7. Supply of fuel for testing and commissioning of Generator set.
8. Testing and commissioning of Emergency Power Supply System.

IV. SPECIFICATIONS

1. Generator set Specifications

G	Prime Power (kW/kVA)	545kW/600kVA
	Standby Power (kW/kVA)	600kW/750kVA
E	Rated Voltage (V)	230V
N	Rated Frequency (Hz)	60
S	Rated Speed (RPM)	1800
E	Power Factor	.8LAG

2. Operating Characteristics

The Generator unit shall be capable of providing the specified continuous power output under the most adverse ambient condition as specified in the technical specifications.

Speed and voltage control systems shall be designed to maintain the frequency and voltage within acceptable limits for the following loading conditions:

a) Under steady state (i.e., slowly changing) conditions, the frequency and voltage within acceptable limits for the following loading conditions.
b) At no time during any loading sequences shall the voltage fall below 85 percent of rated value and frequency fall below 95 percent of rated value.

3. Sound Control

The contractor shall ensure that the sound level of equipment covered by this specification are within the permissible limits for personnel as defined in DOLE's Occupational Safety & Health Standards for Noise and contractual requirements for overall school noise levels.

The sound pressure level for the diesel generating set and auxiliary equipment shall not exceed 85dBA measure at 1 meter distance from any point around the unit's enclosure or source.

Sound pressure levels shall be indicated in contractor's proposal for review and evaluation of CatSU.

If the contractor expects the maximum sound level of the equipment to exceed the specified level at a distance of 1 meter, the contractor shall use acoustical treatment features, subject to review of the university, to achieve the sound control design objectives.

V. CONTRACTOR'S ELIGIBILITY

The prospective bidder must possess the following minimum qualifications to be eligible to participate in this public bidding, to wit:

(a) Duly licensed Filipino citizen/sole proprietorships;
(b) Partnerships duly organized under the laws of the Philippines and of which at least sixty percent (60%) of the interest belongs to citizens of the Philippines;
(c) Corporations duly organized under the laws of the Philippines, and of which at least sixty percent (60%) of the outstanding capital stock belongs to citizens of the Philippines;
(d) Cooperatives duly organized under the laws of the Philippines, sixty percent (60%) of the interest belongs to citizens of the Philippines; and

(e) Supplier/contractor must have at least five (5) years experience in the market of supplying generator set.
(f) Supplier/contractor must have completed similar projects with the same rated capacity of the generator.
(g) Supplier/contractor must have the following duly licensed key personnel:
    - Project Engineer and/or Civil Engineer (full time)
    - Safety Officer
    - Registered Electrical Engineer (REE)
    - Master Plumber

VI. CONTRACT PRICE AND PAYMENT

1. The Approved Budget for the Contract (ABC) is **Thirty Million Pesos (P30, 000, 000)** inclusive of all applicable taxes, insurances/bonds, permits, licenses and/or other miscellaneous expenses and cost on the required works such as but not limited to civil works, mechanical works, electrical works, plumbing works.
2. An initial payment of Fifteen Percent (15%) of the contract amount is granted upon contractor's presentation of a written request for an advance payment together with irrevocable Letter of Credit (LC) from a universal or commercial bank also equivalent to fifteen percent (15%) of the contract amount.
3. Catanduanes State University (CatSU) shall pay the contractor progress payments based on the billing for actual works accomplished, as certified by Project Monitoring Office (PMO), and Project Monitoring Committee (PMC). In no case shall progress billing be made more than once every thirty (30) calendar days. Materials or equipment delivered on the site but not completely installed in place or used in the project shall be included for payment.
4. The first progress payment shall be paid by the CatSU to the Contractor, provided that at least forty percent (40%) of the work has been accomplished as certified.
5. Progress billing shall be divided in forty percent (40%), thirty percent (30%) and thirty percent (30%) progress accomplishment.
6. The Contractor shall use the advance payment for mobilization, purchase of materials, and the like for the project. The amount shall be recouped pro rata in the progress billing.
7. The following documents must be submitted before processing of payments to the Contractor can be made:

    i. Progress Billing

    ii. Detailed Statement of Works Accomplished (SWA)

    iii. Request of payment by Contractor