



REPUBLIC OF TRINIDAD AND TOBAGO
MINISTRY OF ENERGY AND ENERGY INDUSTRIES

Entities interested in submitting Expressions of Interest (EOI) for the Supply of an Unmanned Aerial System (UAS) to the Ministry of Energy and Energy Industries are expected to comply with the following specifications.

Features	Specifications
Unmanned Aerial Vehicle (UAV)	
Design	Fixed-wing
Flight Height	At least 100m above ground level (AGL)
Flight Time	At least 20 minutes of continuous flight operation per battery
Source of Power	Battery powered
Communication Range	At least 3km
Speed	At least 50 km/h
Environmental Capabilities	Fully functional in light rains and in wind speeds up to 65km/h
Compliance	All features complies with local regulations and laws as set out by the Civil Aviation Authority of Trinidad and Tobago
Positioning System	
UAV GNSS Location	Onboard
Satellite Navigation System	GPS, GLONASS, Galileo
Precision Enhancement	Must have PPK/ RTK Capabilities
Acquisition System	
Pixel Resolution	12 Megapixel Minimum
Camera Lens	Mirrorless, Fullframe
Storage	SD memory capable
Camera Calibration	Calibration of camera system provided
Software	
Pre-flight System Self-Testing	Automated pre-flight system integrity
Mission Planning	Multi-mission flight survey design, external data integration
In-flight Operation	Manual Autonomous Piloting
Ground Sample Distance	Configurable
Flight Fail-safes	Automated safe zone and mission abandonment protocols
Data Format	Must be capable of importing/ exporting in several data formats (csv, dwg/dxf, dem, dat, etc.)
Computing Capabilities	Ability to compute volumes, generate DEMs and 2D/3D point clouds, topographic maps, orthophotos, contour maps etc.
Analysis	Orthorectification and Aerial Triangulation



REPUBLIC OF TRINIDAD AND TOBAGO
MINISTRY OF ENERGY AND ENERGY INDUSTRIES

Corrections for Noise/ tilt etc.	Ability to apply corrections to treat with issues such as these
Quality Control	Capable of identifying GCPs (Ground Control Points) and input of ground control coordinate data
Software Upgrade and Maintenance	UAV Software Updates, Upgrades and Re-licensing
Safety	
Engine Failure	Must be equipped to handle matters of this nature
Loss of Battery Power/ GPS signal or Communication Issues	Must be equipped to handle matters of this nature
Any additional Risks	Must be equipped to handle matters of this nature
Training	
UAV Hardware Training	Maintenance, component replacement and upgrading
UAV Preflight and Operational Safety	Acquisition of Civil Aviation Flight Permission, mission planning, setting parameters to achieve desired accuracy, data import, UAV system and camera calibration, radio operation, safe aerial operations and emergency protocols
Flight Navigation and Piloting	UAV Operations, mission execution, manual and automated flight
Software Usage	Data post-processing, photogrammetric analysis, product generation, quality control, data export
Troubleshooting	Ability to resolve common technical difficulties
Required Accessories	
UAV OEM Batteries	Two Spare Batteries (apart from what will be stocked in UAV)
UAV Battery Charger	Capable of charging multiple batteries simultaneously
UAV Remote Controller	One manual flight controller
UAV Hardcover Transport Case	Shock and weather resistant
Spare Body Kit	A complete external body parts package (parts that are susceptible of damage on impact of landing)
Launch System (if available)	Catapult, ramp with propulsion mechanism, launch cords, trigger
Data Transfer	2 USB Data Cables, external media adapters
Operational Manual	Complete Manufacturer's Manual
Minor Repair/ Service Toolkit	Flathead and Phillips screwdrivers, Allen keys (if necessary), repair tape and any other maintenance tools/ materials



REPUBLIC OF TRINIDAD AND TOBAGO
MINISTRY OF ENERGY AND ENERGY INDUSTRIES

Warranty and Support	
Spares and Replacements	Availability of hardware (for purchase) from supplier
Software Support	Provision of software maintenance, updates and support
Warranty Coverage	Submission of Two-year minimum Warranty Agreement to cover in-transit damages, manufacturer's defects, flight system failures and any other hardware/ software malfunctions.