



AO GEP 02/23

SPECIFICATIONS FOR

The acquisition of a Drone with Visual & Thermal Cameras

Your speakers:

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GENERAL CONDITIONS:

1. TERMS OF THE CONSULTATION :

ARTICLE 1: OBJECT AND TYPE OF THE TENDER

This consultation has as aim the acquisition of an industrial rotary wing UAV (Unmanned Aerial Vehicle) equipped with visual and thermal sensors for the inspection of large-scale photovoltaic plants.

ARTICLE 2: REFERENCE DOCUMENTS

2.1 LAW

The contract resulting from this tender will be subject to the Moroccan law.

Any disagreement between Green Energy Park and the Provider shall be settled amicably by cooperation between the two parties; otherwise, litigation will be submitted to the competent court in Rabat unless specific clauses figure in the selling engagement of the supplier, in which case they shall prevail.

2.2 CONTRACTUAL DOCUMENTS

The obligation of the supplier for the performance of works that are the subject of this Tender will result in the whole constituent pieces of the engagement designated as bellow:

- *The contract concluded with its annexes and amendments
- *This Document
- *The orders
- *The submission and, where necessary annexes

After its notification, the engagement will be able to be modified only by amendments or letter exchanges accepted by both contracting sides.

ARTICLE 3: DEADLINE AND PLACE OF SUBMISSION OF TENDER

Tenders must be submitted according to conditions and delays planned by these specifications to the purchasing department by June 21st, 2023 before **12 PM GMT**.

Address of submission: IRESEN

16, Rue Amir Sidi Mohamed – Souissi – Rabat, Morocco

Foreign suppliers must establish a price quotation according to the Incoterm DDP Benguerir, Morocco disaggregating the cost of transporting the equipment.

Local suppliers must be able to submit a proposal including the shipping. This latter is their responsibility to the delivery place: Benguerir, Morocco.



ARTICLE 4: SUBMISSION FOLDER

Any tenderer is required to present a folder of submission containing:

4.1. ADMINISTRATIVE FILE:

This folder must contain:

- A declaration on honor
- Excerpt of K-BIS or the certificate of registration in the commercial register for persons subject to the obligation to register in accordance with the legislation in force
- A certificate or its certified copy of the original issued less than a year ago by the competent administration of the place of taxation certifying that the competitor is in a regular tax situation. This certificate must mention the activity under which the competitor is taxed;
- Company presentation
- The document or documents justifying the powers conferred on the person acting on behalf of the tenderer
- These specifications initialed, signed and sealed
- The document proving official representation from the original manufacturer

4.2. TECHNICAL OFFER

The supplier's technical offer must comply with, or exceed, the technical specifications as described in article 6 "**CHARACTERISTICS AND TECHNICAL SPECIFICATIONS**".

The technical offer must also include for each equipment the certificate of authenticity and the warranty document proving their quality and good condition as well as the references of the tenderer.

4.3. FINANCIAL OFFER

A Commercial Folder that contains « Detailed prices schedule »

The offer presented by each tenderer is put in a signed and sealed envelope. This folder contains three (03) envelopes:

- The first envelope: the administrative file. This envelope must be sealed and show, in addition to the information on the envelope, the mention "Administrative file".
- The second envelope: contains the technical offer. This envelope must be sealed and bear, in addition to the indications on the envelope, the words "Technical Offer".
- The third envelope: contains the tenderer's financial offer. This envelope must be sealed and bear, in addition to the information on the envelope, the words "Financial Offer".

ARTICLE 5: PROCEDURE FOR AWARDING



This consultation will be sold following the needs of Green Energy Park. The supplier will be chosen based on the equipment's quality, the respect of the formulated needs in article 6 and the financial offer;

2. SCOPE OF DELIVERY

ARTICLE 6: CHARACTERISTICS AND TECHNICAL SPECIFICATIONS

Presentation and composition of the system:

The drone must be a remotely piloted multirotor device, equipped with high-definition visual and thermal cameras. The drone must be able **to support several sensors at once with the possibility of modularity and interchangeability (removable sensors)**. It must also be equipped with functionalities facilitating the inspection missions of photovoltaic installations.

a. Drone vector part:

- A rotary-wing device;
- Its power supply (with spare batteries and associated chargers);
- A non-fixed payload: high-definition visual camera;
- A non-fixed payload: a thermal imaging camera;
- An air/ground data and video link allowing an elongation of at least 10km;
- Internal storage of acquired images.
- Airborne processing processor (Software Development Kit: SDK).

b. Ground station part:

- A main ground reception and visualization station displaying the video and data received and allowing the drone to be controlled.
- The station allows internal data storage with the possibility of storage expansion;
- Station charger.

c. Positioning and orientation systems:

- An antenna for positioning and orientation (GPS, IMU);

d. Auxiliary components to the system:

- Spare propellers;
- **4 Spare batteries with the charging station;**
- Suitcase for transport
- Cables.

Characteristics of the system and its components:

a. The drone:

The drone must be rotary-wing and robust. Any payload must be easily interchangeable, without the need for extensive tooling. The drone must be scalable, modular and allow in the medium term the integration of specific sensors (LiDAR, ...).

The drone must contain a configurable autopilot safety feature such as automatic return or an equivalent system in case of low battery or loss of link to the ground station.



The drone must allow operators to develop embedded solutions that can be integrated through its processing processor (SDK).

The drone equipped with its payload must be able to fly over the area concerned by the mission **for a duration of at least 40 minutes.**

b. On-board cameras

The drone must be equipped with two synchronized cameras for acquisition, one visual with high resolution and one thermal.

The visual camera must have a resolution of at least 20 mega pixels allowing inspection at different zoom levels with a high resolution for video acquisition.

The thermal imaging camera must have at least the following technical specifications:

- A minimum resolution of 640x512;
- An fps of 30 Hz;
- Thermal sensitivity < 50 mK;
- An optical and/or Digital zoom.
- Able to take videos
- A spectral band of 8-14 µm.

Both cameras must be installed on a gyrostabilized gimbal (Gimbal) allowing adjustment of the angle of view and stabilization during acquisition.

The recorded images must contain metadata containing geo-positioning information and must be usable in the Pix4dMapper software.

c. Ground station

The ground station must be endowed with a significant autonomy to ensure the smooth running of the mission. It must allow the management of mission planning and set the parameters of the flight mission. The station must be equipped with expandable storage that allows data from each mission to be stored so that missions can be rerun directly.

Summary table of solution characteristics:

Article	Specification	
Rotary wing drone	Autonomy	>= 40 min (with payload)
	Sensors	Modifiable and able to support multiple sensors at once
	Visual Camera	-A minimum resolution of 20 MP for zoom camera -Optical and / or digital zoom for taking images.

		-Geotagged produced images (metadata). -Installed on a gyrostabilized gimbal (GIMBL).
	Thermal imaging camera	-A minimum resolution of 640×512 -A frame rate of 30 Hz. -The thermal sensitivity <= 50 mK. -A spectral band of 8-14 μm. -Installed on a gyrostabilized gimbal (GIMBL).
	Positioning / Location	-Compatible with RTK -Compatible with GPS station for RTK positioning -Equipped with an inertial unit (IMU).
	Tools and maintenance	-4 Spare batteries with charging station -Spare propellers -Suitcase for transport
	Airborne treatment	Possibility of processing in the embedded processor and integration of developed solutions (SDK)
	Other features	-Suitable for solar inspection missions -Robust to severe weather conditions
	Remote controller	-Control the drone during the mission -Equipped with a battery with high autonomy -Extensible internal storage for storage of flights and mission information. -Able to read location data and display it on map to plan missions and delineate the inspection area.
	Cables	Drone and controller charging cables.
Support & Training		-Ensure the update of the various software -Ensure the proper functioning of the different parts of the drone system -Accompany in the customs clearance and registration of the drone in Morocco
Certificate of authenticity and guarantee of components		All components of the Drone must be accompanied by a certificate of authenticity and guarantee proving their qualities and condition.

ARTICLE 7: WARRANTY PERIOD

The equipment and all accessories are warranted on Green Energy Park facilities for two years starting from the end of installation, including spare parts and labor;



During the warranty period, the whole fees will be charged on the supplier or its representative and include supply of spare parts, labor and transportation fees, accommodation and living expenses.

ARTICLE 8: INSTALLATION AND COMMISSIONING

All the elements required for the installation of the equipment and for its commissioning must be provided by the supplier.

The supplier must ensure the upgrading of the various software implemented on the drone system and ensure the proper functioning of the different parts of the drone.

Furthermore, the provider must provide flight training so that the beneficiaries can effectively deploy the system and carry out flight missions.

Installation, commissioning and training must be carried out within the deadlines mentioned in Article 10 of these specifications, with the consequences mentioned in case of non-respect of deadlines.

ARTICLE 9: TECHNICAL DOCUMENTATION

The supplier commits to provide, upon delivery, all the necessary documentation for the use, repair and all the technical documentation of the system as well as the software licenses (if any).

ARTICLE 10: TERMS AND EXECUTION CONDITIONS

The equipment must be delivered within a maximum period of 8 weeks from receipt of the purchase order. If the delivery delay is other than 8 weeks, it must be specified on the offer.

The supplier must be able to provide support in the customs clearance and registration procedure of the drone in Morocco.

ARTICLE 11: LATE PENALTIES

In case of exceeding the execution delay agreed on the order, the supplier is liable to a penalty of 1% of the contract amount per day of late, with a maximum cumulative flat rate of 10% of the engagement amount, beyond which are applied dispositions of article 15.

ARTICLE 12: RECEPTION – VERIFICATION

a) Verification

The verification of the equipment subject of this order will take place in Green Energy Park facilities; they will be performed under the supervision of the project leader.

No delivery even if partial is accepted if the whole equipment does not respect the order form.

b) Reception

The reception and installation of the equipment with all components must be done within a period not exceeding one month (30 days).



The final acceptance will be pronounced with Green Energy Park satisfaction according to the following points:

- Verification of the conformity of the whole equipment with the purchase order
- Installation of the main equipment and its accessories
- Training of Green Energy Park team staff

ARTICLE 13: PAYMENT CONDITIONS

The payment will be made on 30 days end of month after receiving the invoice and the final acceptance receipt.

The Supplier must produce a commercial numbered invoice established in 03 copies signed, dated on letters written. It must indicate the references of the contract of the related order.

These invoices must be addressed to Green Energy Park's Accounting department, located at 16, Rue Amir Sidi Mohamed Souissi, Rabat-Morocco.

ARTICLE 14: HOLDBACK

A 10% holdback is provided upon the purchase of equipment that will be released after the warranty period.

ARTICLE 15: CONTRACT CANCELATION

Regardless of expected cases of common Law, the Contract resulting from these specifications may be terminated with plain rights by Green Energy Park, with Recipient faults, and after formal notice by registered letter within a period of 20 days in the following cases:

- ▶ Fraudulent acts relating to the nature, the quality and reliability of the equipment and services covered by these specifications
- ▶ In case of exceeding the maximum flat rate of late penalties as indicated in article 11.