

المواصفات الفنية الخاصة بالمنافسة العامة

رقم المنافسة : (٢٠١١/٢)

الخاصة بشراء وتوريد (٢,٠١٦) لوح خلايا شمسية

المؤسسة العامة للاتصالات السلكية واللاسلكية

الإدارة العامة للمشتريات والمخازن

إدارة المشتريات - قسم العقود والمنقصات

Technical Specification
For
Photo Voltaic Solar power systems
November 2010

1. Introduction:

This specification defines the technical and mechanical requirements for a heavy duty solar power modules, racks and Joint boxes.

The Photovoltaic power system consists of an array of photo voltaic solar modules, support, interconnects, accessories and installation materials to have complete solar power system for telecommunication equipments supply.

2. Environment:

The Solar power system shall be suitable for remote locations where no operation and maintenance services are available. The system shall be capable of withstanding extreme temperatures from – 10 deg C up to 65 deg C and relative humidity up to 98%. The structures should be strong and normally be capable of withstanding wind velocities up to 150 kilometers per hour.

3. Capacity:

According to B.O. Q attached:

3.1 The requirement total power from all solar modules is 151.2kw.

3.2 The nominal rated capacity of each module shall be 12 Volt, 75wp.

4. Module parameters:

4.1 The tenderer shall indicate the performance data under standard test conditions of the module chosen by him. He shall also give the expected performance of the module under varying solar radiation conditions and corresponding cell junction temperatures.



- 4.2 The tenderer shall indicate the cell crystal structure, its estimated life cycle and annual rate of performance deterioration, depending on various conditions of the environment.
- 4.3 The solar cell and module shall be mechanically well protected within an aluminum frame for a long term use over the entire life cycle against natural hazards such as rain, hail, storm, blowing sand, and small articles. The entire module casing should be impervious to moisture and rain water.
- 4.4 Each module shall be provided with water- proof connector box electrically protected and have enough space for easy connection with other modules in serial or in parallel.
- 4.5 The supplied solar modules must be of mono crystal type.

5. Array:

- 5.1 The solar module racks array consisting of plural solar modules (4 module each Group/frame) should be packed, pre-connected and mounted on the array frame with ready to produce-48v DC.
- 5.2 The support structure should be roof mounted, light weight, heavy duty, match fully the fitting of the module frames so as to form a strong and rigid mechanical structure. It shall be easily assembled.
The tenderer shall give complete details of the framework, the materials used, installation procedures (drawings to be attached).
- 5.3 The frame support should be such that the tilt angle can be adjustable type (10 ~ 40°) at site and the mechanical arrangements made for it shall be indicated.
- 5.4 At some of the locations dust storms frequently occurs and it is likely that dust accumulates on the panel surface. Provision shall be made for likely deterioration in performance, if any, on this account, alluminum is highly preferred.



5.5 The materials used in the array and support structure should be able to withstand the prescribed environmental conditions and winds laden with salt, hydrogen sulphate and similar to other elements available in coastal areas. All parts of the system including nuts, bolts and washers should be made of corrosion resistant materials (stainless steel). Processes such as surface painting for corrosion prevention which requires periodical re-works are not acceptable. In case of steel products (other than stainless for high level degree of galvanization) alluminum highly preferred.

5.6 The tenderer shall indicate the methods employed specially details of arrangements for blocking or by-pass diodes to prevent partial loss of array output in case of any module of array is shaded in parallel or series condition respectively.

5.7 The array shall be provided with water-proof Joint-box having enough space to connect 6 groups of panels along with proper gauge (see the attached B.O.Q).

5.8 The tenderer shall provide unit price.

6. Scope of Supply:

6.1 The Tenderer shall supply photovoltaic modules of 75w with total of 151.2kw, main jointing boxes, and interconnections, as per the attached B.O.Q.

6.2 The tenderer shall give following informations:-

- i. Solar cell characteristics.
- ii. Composition of solar array.
- iii. Mechanical structures and dimensions of solar modules. (Drawing to be attached)
- iv. Details information and drawings.

6.3 Tenderer shall supply three Soft & Hard sets of all documents for installation, testing, operation, maintenance.

6.4 The system as a whole unit and in each main part of it, should be protected against current reversion direction, lightning, sparks, earth leakage.

- 6.5 Tenderer must submit with his offer samples for each type of the models, joint boxes (tenderers which will not submit samples will automatically be rejected).
- 6.6 The tenderer must submit along with his tender document a table contains the P.T.C spec. With his statement of compliance item by item.
- 6.7 Tenderer shall supply one joint box for every 8 modules (2 groups). see attached B.O.Q.

7. Packing:

The packing shall withstand without damage, air, sea and road transportation.


* * * END OF SPECIFICATION * * *

Handwritten signature and stamp in blue ink, consisting of a stylized signature and a rectangular stamp with illegible text.

B.O.Q Schedule

For supply Photo Voltaic Solar power systems

Item	Type	Qty	Remark
1. Solar module, support structure (frames, support & foot angles... etc), accessories, installation materials consists of (Nuts, Bolts, washers, ... etc-Those materials must be of rust free and stainless steel type).	75watt	2,016 (module)	As per specification
2. Joint box.	6 Input 10 Amp 6mm gauge, 1 output 60AMP, 25mm gauge	252 (PCS)	Joint box for 2 groups (8 module)
3. Inter connection cable between module.	4mm cables	Standard length (4 module each frame)	Cable resist temp, upto 90°c
4. Electrical cable from module to join box.	6mm (4meter length from module to joint box)	4032m	Cable resist temperature upto 90°c



الرقم :
التاريخ :

المعايير الأساسية للخلايا الشمسية

- (1) أن تكون الخلايا ذات جودة عالية Heavy duty ونوع Mono Crystal.
- (2) توفير وثائق فنية متكاملة من الشركة المصنعة موضحاً فيها جميع البيانات للخلايا وللمحقات اللازمة كما ونوعاً ومتضمنة مخططات التوصيل.
- (3) توفير عينات للخلايا ولصندوق التجميع وتحتوي على نقطة للتأريض ومطابقتاً للوثائق الفنية المقدمة من الشركة المصنعة ومدون على العينة البيانات الفنية الأساسية:

اسم الشركة المصنعة - الموديل - الجهد - القدرة إلخ)

- (4) معدل القدرة لكل خلية (Nominal Power 75w/12 VDC).

(Handwritten signatures and marks)

الرقم : _____

التاريخ : _____

على الشركات المصنعة الالتزام بما يلي :

- 1- توفير الكابلات اللازمة بين الخلايا بعضها البعض وما بين الخلايا وصندوق التجميع وتوفير المحلقات اللازمة لت تركيب مثل قواعد تركيب الخلايا (قاعدة لكل أربع خلايا) وتحديد النوع والكميات مفصلاً في جدول طبقاً للمواصفات المرفقة وتحقيق تثبيت القواعد بشكل جيد لتكون مقاومه لسرعة الرياح حتى 150 كيلو متر بالساعة.
- 2- تصميم زاوية ميل الدعامة للقواعد (حامل الخلايا) لتكون قابلة للضبط في المجال من (10) إلى (40) درجة.
- 3- الإجابة على مواصفات المؤسسة بنبدأ بنبدأ مع توضيح من الشركة المصنعة عن مدى مطابقت المنتج لمواصفات المؤسسة.
- 4- صندوق التجميع يجب أن يصمم لعدد (8) خلايا وبعدهد (6) مداخل (+) و (6) مداخل (-) كل مدخل يتحمل (10A) ومخرج واحد لكل صندوق يتحمل (48V/60ADC) ويحتوي نقطة تأريض.
- 5- توفير عدد (3) ثلاث نسخ من الوثائق الفنية للتركيب والتشغيل مع كل مجموعة مكون من (4) خلايا (300w).
- 6- توفير ضمان لمدة (18) شهراً من أي خلل مصنعي وتغيير أي قطعة تالفة.
- 7- توفير ضمان تحقيق الأداء لمدة (10) سنوات مع تحديد العمر الافتراضي للخلايا وتحديد معدل تناقص القدرة التي تعطىها خلال عمرها الافتراضي.
- 8- المناقصة لا تشمل توفير المنظمات (Controller).
- 9- يجب أن يتضمن النظام وجميع أجزائه الرئيسية حماية من إنعكاس التيار والصواعق والشرارات الكهربائية والتسرب الأرضي.

