



# Caribbean Community Climate Change Centre

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March 9<sup>th</sup> 2020

**Re: Invitation for Bids: “Design, Supply, Installation and Commissioning of 4.5 MW Solar photovoltaic generation and 2.0 MW MicroTurbine systems and other Components for specified Barbados Water Authority Pumping Stations”:**

**Ref: ICB No. Contract # 13/2020/WSRN S-Barbados/GCF/CCCCC:  
Response #4 to Additional Queries Raised**

Dear Sirs,

We write with reference to *paragraph 7.1 of the Instructions to Bidders (ITB)* that addresses the subject of ‘*Clarification of Bidding Documents*’. In accordance with paragraph 7.1 of the ITB, a Bidder requiring any clarification of the Bidding Document shall contact the Centre (the Employer) in writing or raise enquiries during the pre-Bid meeting. The Centre / Employer shall: (i) respond in writing, provided the clarification is requested prior to the deadline for clarification and (ii) forward its response to all potential bidders who acquired the Bidding Document. The Centre / Employer is also required to include in the response a description of the inquiry without identifying its source.

The **additional** queries received to date and Centre’s responses are as follows:

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**Query #41:**

*Please confirm if the project implementation timeline is 30 months.*

**Answer #41:**

Implementation of all four (4) Lots must be completed within thirty (30) months of Contract Effective Date, estimated as early June 2020. However, the Lots will be implemented in a staggered manner. The projected timelines for each site are: **Lot 1 – June 2020 to August 2021; Lot 2 – May 2021 to May 2022; Lot 3 - March 2022 to October 2022; Lot 4 – June 2020 to February 2021.**

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**Query #42:**

*Is the grid voltage 400 VAC or 415 VAC? In paragraph 503 (page 132-133) of the Bidding Documents there is a reference to a 415 VAC voltage, while in paragraph 501 (page 126) there is a reference to a 400 VAC voltage.*

**Answer #42:**

*The grid voltage of 400 VAC or 415 VAC are both within the acceptable limits of a 3 phase, 4 wire supply in Barbados.*

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**Query #43:**

*Please indicate which lots need transformers. In paragraph 2 “Description of Lots” of Section VII – Employer’s Requirements (page 110), there is a mention of the need of transformers only in the lot 2, but in Section II (page 34) it is mentioned for lots 1 and 2.*

**Answer #43:**

*Lots 1 and 2 require transformers. Lots 1 and 2 require transformers.*

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**Query #44:**

*On Page 132: “4) The injection of DC power into the grid must be avoided by using an isolation transformer at the output of the inverter. It is proposed to limit DC injection within one percent (1%) of the rated current of the inverter as per IEC 61727. “. If the inverter assures this limitation (1%) we understand that it would not be necessary to install an isolation transformer, could you confirm that?*

**Answer #44:**

*Bidders are required to provide a system that injects no more than 1% DC power. If the Bidder’s system can guarantee that DC power injection is no more than 1%, then no isolation transformers will be required.*

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**Query #45:**

*The photovoltaic system power (2 MW, 2 MW and 0,5 MW), is it meant to be referred to the solar modules’ peak power or the inverters’ nominal power?*

**Answer #45:**

*The photovoltaic system power refers to the nominal power of the inverter(s).*

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**Query #46:**

*Is there any limit to oversizing of the nominal power (on the AC side) or the peak power (on the DC side)?*

**Answer #46:**

*There is no limitation on the peak power. However, there is limitation on nominal power. Bidders must design accordingly.*

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## Query #47:

In Section VII – Employer’s Requirements on page 132 we can read: “26) The PV system must be provided with adequately rated fuses. Fuses on the inverter input side (DC)”. But in the IEC 62548:2016 we can find the following:

*“6.5.3 Requirement for string overcurrent protection. String overcurrent protection shall be used if:  $((NS - 1) \times ISC\_MOD) > IMOD\_MAX\_OCPR$*

- *NS: number of strings connected in parallel (e.g. to the same MPPT)*
- *ISC\_MOD: module short-circuit intensity*
- *IMOD\_MAX\_OCPR: PV module maximum overcurrent protection rating determined by IEC 61730-2*

*The overcurrent protective devices of the DC side shall be either PV fuses in accordance with the IEC 60269-6 standard or another devices in accordance with IEC 60947 (all parts) or IEC 60898-2, selected such that the cable current carrying capacity, module maximum reverse current rating and the maximum current of other equipment are not exceeded.”*

If we comply with this, we understand that it would not be mandatory using fuses, could you confirm that? Fuse-free design greatly reduces the O&M cost of replacing fuses while improving safety and assures a higher availability of the plant.

## Answer #47:

*Protection in accordance with IEC/NEC standards will be accepted.*

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## Query #48:

*On page 115 of the Bidding Documents it says that the DC Voltage drop is limited to 1%, while in page 132 it says that it is limited to 5%. If the inverters are rather far from the modules (centralized) the compliance of this requirement is practically impossible.*

## Answer #48:

*The DC voltage drop shall be limited to 5% under fully loaded conditions.*

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## Query #49:

*Would it be possible to install the inverters in the exterior adopting a decentralised approach? If it is mandatory to install the inverters inside a building, would it be inside an existing one? If yes, we would need the exact location of the building (coordinates if possible) and the dimensions of the space available. Could the inverters be installed inside a container located in the PV field?*

## Answer #49:

*No, Bidders are not allowed to install the inverters in the exterior adopting a decentralised approach. No, it is not mandatory to install the inverters inside a building; however, overhead protection due to weather conditions is required; not in an existing building. No, containers will not be allowed to house inverters.*

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**Query #50:**

*In the Bidding Documents, on page 111 we can find the following: “These inverters must be capable of operation in “grid-zero” mode (i.e. solar power gets priority to serve the load over the grid), and able to communicate with the grid and switchgear.” Is it mandatory using a “grid-zero” system? It is useful always prioritize the consumption of the loads over the exportation of the energy to the grid. If it is mandatory using a grid-zero system, it would be necessary to know the characteristics of the supply connection: amount and cross-section of the conductors.*

**Answer #50:**

*No, it is not mandatory that the system operate only in “grid-zero” mode.*

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**Query #51:**

*If there is a contradiction between the general conditions “100 Scope of Works” and the rest of the particular parts of the document (e.g. “500 Photovoltaic Systems” or “600 Micro-turbine System), does the particular parts prevail among the general conditions?*

**Answer #51:**

*Section 100 – Scope of Works should be considered as **general** requirements. Sections 500 – Photovoltaic Systems and 600 – Micro-turbine System are **specific** to the respective type of generation capacity. If there is any inconsistency among these sections the specific requirements will prevail.*

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**Query #52:**

*To evaluate the PV production of each bidder, just as the LCOE, it would be important to define a meteorological database with at least the following parameters: horizontal solar radiation, diffuse radiation and ambient temperature; with the aim that all the bidders use the same database and the results could be objectively valued.*

**Answer #52:**

*Bidders will be required to conduct their own research and due diligence. Bidders shall provide references/sample calculations for their derived values.*

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**Query #53:**

*It is required two entrances in the fencing, are both for vehicles or one for vehicles and one for people?*

**Answer #53:**

*Two entrances are required; one for people and the other for vehicles.*

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**Query #54:**

*Is it mandatory using fixed structures for the solar modules or are solar trackers allowed?*

**Answer #54:**

*Bidders are allowed to use solar trackers in their design, at their own discretion as they see fit recognizing this will have cost implications for their bid. Minimum performance standards must be satisfied, irrespective of the option.*

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**Query #55:**

*Which are the exact locations of the grid connection points?*

**Answer #55:**

*The systems will be coupling to the LV switchgears within each station. The specific points for grid interconnection will be highlighted during the site visits.*

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**Query #56:**

*Why there is a reference to a sub-station in the Belle Pumping Station Concept Layout?*

**Answer #56:**

*The Conceptual Layout is not binding on bidders. Bidders are required to develop their designs, including site layout. However, the proposed grid interconnection points issued by the Beneficiary (BWA) will be binding.*

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**Query #57:**

*On page 110 “100 Scope of Works”, it is said that the “inverters shall be housed inside the pumping station”, which is a centralised approach of the installation. But on page 113 “103 Description of Works”, it is said that a “decentralised approach should be adopted for the installation of the PV systems at each pumping station”. Which approach is the correct one?*

**Answer #57:**

*Bidders shall utilize a centralized approach. A centralized approach refers to a single location for the housing for the system’s inverters.*

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**Query #58:**

*To calculate the LCOE it is necessary to determine some considerations like the number of years that should be considered for the calculation and O&M costs for the client after the guarantee period of the execution project. Would it be possible to define them?*

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**Answer #58:**

*Bidder(s) should calculate the LCOE based on a **TWENTY (20) years** project lifetime and a discount rate of 7% as stated on page 57 of the Bidding Documents. Bidders should state their assumptions with regard to O&M cost and system performance.*

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**Query #59:**

How long do the following permit and license processes take: Electricity Generation; Interconnection agreement with BL&P; Certificate of Compliance? Please also indicate which entity will be responsible for each (BWA or bidder).

**Answer #59:**

*Please be guided by Clauses 9 and 10 of Section IX – Particulars Conditions of Contract in the Bidding documents on the issue of responsibilities.*

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**Query #60:**

*All fences are in scope of the bidder? What are the minimum requirements of this fence?*

**Answer #60:**

*The Bidding Document will be amended to include specifications for the fence.*

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**Query #61:**

Please specify what taxes would apply for local JV (from Caricom countries) and/or international JV.

**Answer #61:**

*Please refer to relevant provisions of the Bidding Document:*

- a) Clause 17.5 – Section I – Instructions to Bidders;*
  - b) Clause 14 – Section IX – Particular Conditions of Contract.*
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**Query #62:**

*Please specify what amount of the PO value will be granted to the successful proponents to execute the contract. In addition, please clarify any subsequent milestone payments to that will be applicable.*

**Answer #62:**

*The Terms and Procedure for payment will be negotiated with the selected Bidder(s).*

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**Query #63:**

*Please share the utility interconnection standards/requirements.*

**Answer #63:**

*Bidders may be able to source this information online from their own due diligence and research.*

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**Query #64:**

*Please clarify if any of the solar plant materials/equipment is qualified for duty free concessions.*

**Answer #64:**

*Please note that the Employer (CCCCC) / Beneficiary (BWA) will be responsible for processing customs and tax exemption on the components imported into Barbados for the Power System. Please refer to Section X – Contract Forms, Appendix 6 of the Bidding Documents. In accordance with Clause 35.4 of Section I – Instructions to Bidders, Bid Price will be adjusted to exclude any customs duty and import taxes on any components imported into Barbados. Please note however that the selected Bidder(s) will be responsible for handling the formalities relating to customs clearance.*

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**Query #65:**

*Please clarify any withholding fees/taxes that is applicable to this project.*

**Answer #65:**

*Bidders will be required to comply with any withholding tax obligations in their country and Barbados. Bidders are to conduct their own due diligence on this matter.*

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Kind regards,

A handwritten signature in purple ink that reads "Maxine Alexander Nestor".

Maxine Alexander Nestor, Procurement & Legal Officer