REQUEST FOR PROPOSAL

FOR

Selection of Solar Power Developers for 60 MW Solar PV project in Republic of Cuba

Tender Search Code (TSC):- NTPC-2023-TN000001

Bidding Document No. : CS-0011-005A-2

ISSUED BY:
Unión Eléctrica de Cuba (UNE), Republic of Cuba

Project Management Consultant: NTPC Limited

REQUEST FOR PROPOSAL (RFP)
for
Selection of Solar Power Developers for 60 MW Solar PV project in Republic of Cuba
(International Competitive Bidding)

RFP No./TSC: NTPC-2023-TN000001 **Date: 17.05.2023**

Bidding Document No. : CS-0011-005A-2

1. Unión Eléctrica de Cuba (UNE), Republic of Cuba invites e-bid for selection of solar power Developers for 60 MW Solar PV project in Republic of Cuba as single stage two envelope bid basis (Envelope-I: Techno-Commercial & Envelope-II: Price).

   The Project is being executed under the Program-06 of International Solar Alliance (ISA). NTPC Limited is endorsed by ISA as the Project Management Consultant (PMC) for implementation of the solar PV project in ISA member countries. Cuba, as an ISA member country, has taken services of NTPC Limited as PMC for implementation of the 60 MW solar PV Project.

2. **Brief Scope of Project**

   Bidder shall be required to develop solar power PV project(s) on build, own and operate 'BOO' mode. The brief scope of work for selected Developer shall include design, financing, construction, installation, commissioning, operation for the duration of the PPA period.

   The Projects are divided into a number of blocks as indicated below for which prospective bidders are invited to participate:

S.N.	Locality	Site name	Capacity (MW)	Block No.
1	Placetas	Cumbre	**25**	**BLOCK 1**
2	Cifuentes	La Distancia	**10**	**BLOCK 2**
3	Santa Clara	Minindustria 2	**5**	
4	Santa Clara	Quemado Hilario	**5**	
5	Sagua	Macún en Zona Industrial	**10**	**BLOCK 3**
6	Corralillo	La Paloma	**5**	
		Total	**60**	

   Bidder shall have option to submit single fixed Tariff for one or more block(s). Tariff for each block has to be submitted separately. Block wise evaluation shall be carried out to determine successful bidder.

   The successful bidder shall set up ECTE, hereinafter referred to as 'Generator', for

execution and operation. The Project shall be executed by the Generator on build, own, operate ("BOO") basis.

The Generator shall enter into a Power Purchase and Sale Agreement (PPA) with the UNE for a period of 25 (twenty-five) years from the Date of Commercial Operation of the Project, under which the Generator shall undertake, subject to a set of performance standards defined in the PPA, to sell all electrical energy generated by the Project to the UNE.

3. Detailed Terms & Conditions along with Power Purchase and Sale Agreement (PPA) are mentioned in the Request for Proposal (RFP) documents, which are available at e-tender portal https://www.electronictender.global/ as per the following schedule:

RFP publishing date	17.05.2023
Pre-bid conference	20.06.2023 The pre-bid conference shall be conducted at the office of the Tendering Authority at Havana, Cuba. The online link for the meeting shall also be made available and same shall be uploaded in tender portal. Prospective bidders are encouraged to visit the project site and attend the pre-bid conference at Havana, Cuba. Site visit and pre-bid conference shall be held on after the meeting .
Last Date for receipt of queries from prospective Bidders	30.06.2023
Last Date and Time for receipt of bids comprising both Technical Bid and Price Bid	20.07.2023 , 18:00 Hrs IST
Date & Time of opening of Technical Bid (Envelop-I)	21.07.2023
Date & Time for opening of Price bid (Envelop-II)	Shall be intimated after opening of Technical Bid.

4. No Bid Security is required for submitting the bid**.**

5. **Qualifying Requirements**

   There are no Technical and Financial Qualifying Requirements.

6. A complete set of RFP Documents may be downloaded by any interested Bidder from the website https://www.electronictender.global/ as per aforementioned schedule. At the

e-tender website, click on the link 'Tenders' and after entering the keywords of the tender and captcha, available tenders will be displayed. By selection of 'view NIT details' of the tender, details shall be opened for view and download of the RFP documents. The tender is invited under e-tendering process. The bidders can enroll themselves on the e-tender website and submit the bid at the e-tender website only. Portal charges for registration and bid submission shall be required to be paid by bidder, amount of which shall be mentioned at the e-tender portal. The e-tender website has the user manual for enrollment and bid submission. Bidder may contact at the email support@isn-ets.com for support regarding e-tendering portal.

7. UNE reserves the right to reject any or all bids or cancel / withdraw the RFP without assigning any reason whatsoever and in such case no bidder / intending bidder shall have any claim arising out of such action.

8. **Communication Details of PMC for the purpose of tendering:**

AGM(CS)/ Sr Manager (CS)
NTPC Limited,
CC&M, 6th Floor,
Engineering Office Complex (EOC),
A-8A, Sector-24, NOIDA,
Distt. Gautam Budh Nagar, (UP)
India, PIN – 201301
ravikumar04@ntpc.co.in **/** abhishekjain02@ntpc.co.in

CONTENTS

Section 1

Introduction

INTRODUCTION

1.0 PROJECT OVERVIEW

Government of Cuba has an ambitious target of having 2100 MW solar PV project by 2030. Achieving this target would require implementation of the solar PV project in a phased manner. Being a member country of ISA, Government of Cuba has sought support of ISA Program-6 which aims towards implementation of grid connected solar PV projects in such member countries. Under this Program, ISA, through its consultant NTPC Limited, is implementing solar parks of 1150 MW capacity in Cuba at 175 locations across 15 provinces along with Battery Energy Storage System (BESS) support of 150 MW/ 150 MWh spread equally across three provinces. For the first Phase of implementation in this regard, the Project sites at six locations in province of Villa Clara in central Cuba have been identified. This Project has the objective to substitute imported fossil fuels used for conventional power generation.

The Project with total capacity of 60 MW is being put up for tender spread under three blocks as given below:

S.N.	Locality	Site name	Capacity (MW)	Block No.
1	Placetas	Cumbre	**25**	**BLOCK 1**
2	Cifuentes	La Distancia	**10**	**BLOCK 2**
3	Santa Clara	Minindustria 2	**5**	
4	Santa Clara	Quemado Hilario	**5**	
5	Sagua	Macún en Zona Industrial	**10**	**BLOCK 3**
6	Corralillo	La Paloma	**5**	
		Total	**60**	

Solar resource: Cuba has good solar energy resource which would result in adequate and reliable generation from these solar PV Projects.

Site location and land availability: All selected sites are well located with good approach roads of mostly main highways and city outer ring roads. Detailed locations of the six solar PV based Generation Plants are as per the site details annexed with this RFP. The land is already acquired by the UNE and topographically it is generally flat having minimal vegetation. The right of usage of land shall be given to the Generator through a certificate from the Executive Committee of the Council of Ministers. The right of usage of land shall be co-terminus with the term of the PPA.

Grid connectivity: Interconnection at 13.8 kV and/or 34.5 kV level is envisaged, with most of them being connected to the distribution level line running along boundary of site (about 100 meter), with only one site (Quemado Hilario) needing lines of 2 km to

the nearest sub-station or higher capacity line.

1.1 The Tendering Authority intends to invite developers to participate in the competitive selection process for development of the Project. During the 2nd (second) general assembly of ISA held in October 2019, the solar park program was adopted, and the Republic of Cuba manifested its interest in the program to ISA in June 2021. NTPC Limited has been endorsed as PMC for solar projects in ISA member countries. NTPC, as the PMC, is providing its services to UNE for implementation of solar projects.

The tendering process is organized and managed by the Tendering Authority, with support of its Tendering Consultant, in accordance with Cuban laws. This process will be carried out through electronic tendering.

1.2 The Bidders will be selected by the process of e-bidding (**Single Stage Two Envelope Bidding Process. Envelope-I: Technical Bid and Envelope-II: Financial Bid)**. Electronic tendering portal https://www.electronictender.global/ shall be used for conducting tendering. The portal is also referred to as Electronic Tender System® (ETS).

1.3 The selected bidder shall set-up ECTE, registered in Cuba, hereinafter referred to as 'Generator', for execution and operation. The Project shall be executed by the Generator on build, own, operate ("BOO") basis.

1.4 As part of the Project, the Generator will execute a PPA with UNE which would be valid for a period of 25 (twenty-five) years from Date of Commercial Operation of the plant (s), under which the Generator will undertake, subject to a set of performance standards defined under the PPA, to sell all electrical energy generated by the Project to UNE as indicated in the PPA. UNE and Generator can also extend the PPA term and continue to generate electricity on mutually agreed terms.

The Project shall be dismantled by the Generator and the land be restored to original condition after completion of the PPA period. UNE and Generator may extend the operation of the Project by extension of the PPA on mutual agreement and continue to generate electricity. Further UNE and the Generator may also agree for transfer of the Project to UNE on mutually agreed terms.

1.5 **Scheduled Date of Commercial Operation:** The Generator and UNE shall mutually agree on the Scheduled Date of Commercial Operation which shall be as per the schedule reflected in Annex 2 of the PPA. The Scheduled Date of Commercial Operation may be revised based on mutual agreement of the Parties only on reasons that are not attributable to the Generator or due to Force Majeure Event (as defined under the PPA).

1.6 **Start of commercial operation**: means the date on which the Certificate of Enabling is issued upon successful commissioning of the full capacity of the Project or the last part capacity of the Project as the case may be.

1.7 **Commissioning of part capacity:** In the event only parts of the Project are constructed

and equipped for generation of energy prior to the Scheduled Date of Commercial Operation, UNE shall declare such parts as commissioned ("**Part Commissioning**"). UNE shall pay the Tariff equal to the Tariff fixed for total Contracted Capacity to the Generator against invoice raised.

1.8 **Early commissioning of full capacity:** If the Generator commissions 100% capacity of the Generation Plant before the end of installation deadline as per Annex 2 of PPA, UNE shall be obliged to buy all the energy generated. The payment for this energy shall be at the Tariff fixed for total Contracted Capacity.

1.9 **Penalty for Delay in Commissioning:** Any penalty for delay in commissioning shall be enforced through Article 13 of the PPA.

1.10 Payment security mechanism for this project shall be through a Guarantee with the scope provided in Annex 3 of the PPA that shall be valid until the date on which the Generator has recovered the full value of the investment, in accordance with the Business Plan, as per Annex 2 of PPA.

1.11 Though this RFP document has been prepared in good faith, neither Tendering Authority nor its employees or advisors or Tendering Consultant make any representation or warranty, expressed or implied, or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of this RFP document, even if any loss or damage is caused by any act or omission on their part.

1.12 Responsibility of Prospective Bidders

For the purposes of assessing and responding to this RFP, each Prospective Bidder should at its own cost:

- conduct its own investigation and analysis of the Project and the laws, regulations and policies applicable to this RFP, and the bidding process for the Project;
- check the accuracy, reliability, and completeness of the information provided under this RFP; and
- obtain independent advice from appropriate sources which may include, but shall not be limited to its own.

Section 2

Definitions

Definitions

2.0 Definitions

"**Applicable Law**" with respect to the Project and the bidding process in relation to the Project means (i) all laws promulgated or brought into force and effect by any Governmental authority or any statutory authority in Republic of Cuba, which shall include statutes, rules, regulations, bye-laws, policies, protocols, codes, guidelines, notices, circulars, directions made thereunder; and (ii) judgments, decrees, injunctions, and orders issued by any court;

"Applicable Tariff"/ "Tariff" shall be the quoted single fixed Tariff by the selected Project Developers in US Cents/kWh.

Bid" means a proposal submitted by bidder which contains required Documents and Price bid tariff in accordance with the RFP.

"Bidder" shall mean Bidding Company or a Bidding Consortium submitting the Bid. Any reference to the Bidder includes Bidding Company / Bidding Consortium/ Consortium, Member of a Biding company/ Bidding Consortium including its successors, executors and permitted assigns and Consortium Leader of the Bidding Consortium jointly and severally, as the context may require.

"*Bidding Consortium" or "Consortium*" shall refer to a group of companies that has collectively submitted the response in accordance with the provisions of this RFP.

"**Bid Validity**" has the meaning ascribed to it in Clause 3.19 of Section 3 of the RFP.

"**BOO**" means Built, Own and Operate model for implementation of projects.

"Certificate of Enabling" shall mean the certificate issued to the Generator when the Generator Plant has completed the start-up tests and is available to deliver electrical energy to the UNE after being connected to the UNE Network.

"**Conflict of Interest**" has the meaning ascribed to it in Clause 3.42 of Section 3 of the RFP.

"Consortium" or "Bidding Consortium" shall refer to a group of companies that is collectively submitting the response in accordance with the provisions of this RFP.

"Consortium Agreement" means the contract executed amongst the Consortium members to participate in the bidding process as a Bidding Consortium.

"Consortium Leader" has the meaning ascribed to it in Clause 3.8 of the RFP.

"Connection Node" has the meaning ascribed to it in the PPA.

"Contracted Capacity" shall be the Committed or Authorized Power as per the PPA.

"Corrupt Practice" has the meaning ascribed to it in Clause 3.31 (a) of Section 3 of the RFP.

"Date of Commercial Operation" shall be the date on which the Certificate of Enabling is issued upon successful commissioning of the full capacity of the Project or the last part capacity of the Project as the case may be.

"**Developer**" means the selected bidder which has emerged successful after the completion of RFP process.

"**Due Date**" means the last date and time for submission of RFP notified in the Notice or subsequent amendments or modifications communicated in writing or through web portal.

"**Energy Delivered**" has the meaning ascribed to it in the PPA.

"**Energy Not Delivered**" has the meaning ascribed to it in the PPA.

"**Envelope- I**"/ "**Technical Bid**" has the meaning ascribed to it in Clause 1.2 of Section 1 of the RFP.

"**Envelope- II**"/ "**Finacial Bid**" has the meaning ascribed to it in Clause 1.2 of Section 1 of the RFP.

"**ETS portal**" or "portal" means the electronic tendering portal https://www.electronictender.global/ which shall be also referred to as Electronic Tender System® (ETS). The tender process shall be carried out through this portal including availability of tender documents and submission of bids.

"Financial Closure" shall mean arrangement of necessary funds by the Project Developer/Generator either by way of commitments of funds by the Developer from its internal resources and / or tie up of funds through a bank / financial institution by way of sanction of a loan and fulfilling all requirements mentioned in the RFP.

"Fraudulent Practice" has the meaning ascribed to it in Clause 3.31 (a) of Section 3 of the RFP.

"Generator" or **"ECTE"** or **"Seller**" is the electric power producer that acts as the selling Party under the PPA. The Generator would be the totally foreign capital company "Empresa de Capital Totalmente Extranjero" ("ECTE") constituted in the Republic of Cuba by the successful bidder to develop the solar photovoltaic parks under build, own, operate and maintain (BOO) model for the duration of the PPA.

"Generation Plant" or "**Project**" shall mean the Solar PV power project being put up under this tender document for setting up in Cuba that utilizes solar energy for direct conversion into electricity through solar PV technology.

"**International Solar Alliance (ISA)**" is a treaty based inter-governmental organization working to create a global market system to tap the benefits of solar power and promote clean energy applications.

"Inter-Connection / Delivery/ Metering Point" shall mean the point in the network of UNE where the power from the Generation Plant is injected. Metering shall be done at this interconnection point where the power will be injected into the network of UNE i.e. the Delivery point.

"**Investor**" is a person/ entity/ institution who allocates financial capital with the expectation of a future return or to gain an advantage.

"**Letter of Award**" or "**LOA**" means the official notice issued vide [letter or email] by the Tendering Authority notifying the successful Bidder that his Bid has been awarded.

"**Part Commissioning**" has the meaning ascribed to it in Clause 1.7 of Section 1 of the RFP.

"**Performance Bank Guarantee**" has the meaning ascribed to it in Clause 3.25 of Section 3 of the RFP.

"**Project Management Consultant**" or "**PMC**" or "**Tendering Consultant**" means NTPC Limited or 'NTPC' which has been appointed as a Project Management Consultant for the Project by UNE under ISA Program-06 for solar park and project implementation.

"**PPA**" means Power Purchase and Sale Agreement signed between Generator and UNE. Signing of PPA shall form a contract between UNE and Generator. Execution of the contract shall be governed by the terms and conditions of the PPA.

"**PV**" means photovoltaic.

"**Responsiveness**" has the meaning ascribed to it in Clause 4.1 of Section 4 of the RFP.

"**Request for Proposal**" or "**RFP**" or "**RFP Documents**" means the request for proposal document issued by the UNE for the Project for selection of Developer. RFP document consists of detailed guidelines for submission of the proposal and selection of the developer.

"**Scheduled Date of Commercial Operation**" has the meaning ascribed to it in Clause 1.5 of Section 1 of the RFP.

"Shortlisted Bidder" means a Prospective Bidder (whether in the form of a single entity or a Consortium) who has submitted a proposal and has satisfied all the Requirements of Envelope-I;

"**Successful Bidder**" means the Bidder selected by the Tendering Authority through the RFP process for development of the Project.

"**Tendering Authority**" means the Unión Eléctrica de Cuba ("**UNE**") who has the final authority to select the Developer and award the project.

"**USD**" means the currency of United States of America, that is United States Dollars.

'US Cents' or 'Cents' means the currency of United States of America and 1 USD = 100 US Cents.

Section 3

Instructions to Bidders

3.0 Tendering Portal

RFP document is available for download, free of cost, from the e-tender website at https://www.electronictender.global/ (e-tender portal / website/ ETS portal). A link to the same is also available at https://ntpctender.ntpc.co.in/ .

Bidder shall be required to register at the e-tender portal for submission of their bid. Portal charges shall be required to be paid by bidder for registration, amount of which shall be mentioned at the e-tender portal. Details guideline manual regarding registration and submission procedure at the e-tender portal shall be available at the portal.

For assistance on the ETS portal, bidder may contact at the ETS helpdesk at +91-124-4229071, +91-124-4229072. [Between 9:00 am to 6:00 pm IST on all working days] email ID: support@isn-ets.com

3.1 Total Capacity Offered

Grid-connected solar PV power Projects for aggregate capacity of **60 MW** spread across various locations in the Republic of Cuba as per the following break-up:

S.N.	Locality	Site name	Capacity (MW)	Block No.
1	Placetas	Cumbre	**25**	**BLOCK 1**
2	Cifuentes	La Distancia	**10**	**BLOCK 2**
3	Santa Clara	Minindustria 2	**5**	
4	Santa Clara	Quemado Hilario	**5**	
5	Sagua	Macún en Zona Industrial	**10**	**BLOCK 3**
6	Corralillo	La Paloma	**5**	
		Total	**60**	

The interested bidders are required to participate in the RFP for setting up grid-connected solar Photovoltaic power plants on BOO basis. Selection of the Developers will be carried out through electronic bidding process. The projects will be setup on the land identified by UNE in the Republic of Cuba.

3.2 Block Capacity

Project capacity in MW is the installed capacity of the power Project / maximum power output (AC) from the solar power Project which can be scheduled at the Delivery Point / Inter-Connection Point during any time of the day.

The Bidder can bid for one or multiple blocks and separate bid price (Tariff)

shall have to be submitted for each of the blocks.

3.3 Payment security mechanism for this project shall be through a Guarantee with the scope provided in Annex 3 of the PPA

3.4 Critical Date Sheet and Communication Address:

RFP publishing date	17.05.2023
Pre-bid conference	20.06.2023 The pre-bid conference shall be conducted at the office of the Tendering Authority at Havana, Cuba. The online link for the meeting shall also be made available and same shall be uploaded in tender portal. Prospective bidders are encouraged to visit the project site and attend the pre-bid conference at Havana, Cuba. Site visit and pre-bid conference shall be held after the pre-bid meeting
Last Date for receipt of queries from prospective Bidders	30.06.2023
Last Date and Time for receipt of bids comprising both Technical Bid and Price Bid	20.07.2023 18:00 HRS IST
Date & Time of opening of Technical Bid (Envelop-I)	21.07.2023
Date & Time for opening of Price bid (Envelop-II)	Shall be intimated after opening of Technical Bid.

3.5 Address for Communication (Details of PMC)

AGM(CS)/ Manager (CS)

NTPC Limited,

CC&M, 6th Floor,

Engineering Office Complex (EOC),

A-8A, Sector-24, NOIDA,

Distt. Gautam Budh Nagar, (UP)

India, Pin – 201301

Email: ravikumar04@ntpc.co.in / abhishekjain02@ntpc.co.in

3.6 Location of Solar Project

3.6.1 The locations of the solar PV based Generation Plants are as per the site details report annexed with this RFP. The projects are divided into separate blocks with each block having capacity as indicated in Clause 3.1.

3.7 Number of Response to RFP by a Bidder

Bidder shall submit one single bid in the prescribed format detailing all projects for which the bidder is submitting the proposal. Disclosure for the same is to be submitted as per the Format for Disclosure (**Format – 6.6**). Individual prices for the different blocks shall have to be submitted in the bid and they shall be part of the same single bid.

3.8 GENERAL REQUIREMENTS

A A prospective Bidder or, where the prospective Bidder is a Consortium, each Consortium member shall be required to meet the following General Requirements.

A.1 Prospective Bidder should be either (i) a legal entity, duly incorporated or validly existing and duly registered under the laws of its country of domicile, or (ii) a Consortium where each Consortium Member is a legal entity, duly incorporated or validly existing and duly registered under the laws of its country of domicile. Prospective Bidder and in the case of Consortium, each Consortium member must submit a copy of the valid certificate of incorporation or registration certificate (as the case may be) issued under the laws of the country of domicile.

A.2 Prospective Bidder and in the case of a Consortium, each Consortium member, shall not be entitled to submit another bid either individually or as a Consortium member of any other Consortium and shall not be entitled to participate in more than one Consortium bidding for the Project. Therefore, a prospective Bidder can submit only one bid in response to this RFP. In the event that an entity applying individually or as a Consortium member participates in more than one bid, all the bids with that entity's participation shall be deemed invalid and shall be summarily rejected.

A.3 Prospective Bidder and in the case of a Consortium, each Consortium member should not have been in the process of reorganization, liquidation and/or bankruptcy within the last 5 (five) years as on the Due Date.

A.4 **If the prospective Bidder and in the case of a Consortium, if any Consortium member are from or whose promoters are from any country which has imposed sanctions on the Republic of Cuba and such sanctions are still continuing, then bid submitted by such Bidder shall be rejected.**

A.5 Prospective Bidder and in the case of a Consortium, each Consortium

member should not have been convicted of any fraud, corruption, collusion or money laundering and/or for any criminal act involving dishonesty, physical violence, intentional harm to human life, or for any criminal offence related to their professional conduct.

A.6 Prospective Bidder and in the case of Consortium, each Consortium member must not have been blacklisted from undertaking development activities including designing, constructing and operating in relation to a solar power project in any of the ISA member countries.

A.7 The prospective Bidder should have had no concession or power purchase agreement (or their equivalent) terminated that is attributable to an event of default of the prospective Bidder or Consortium member, in case of a Consortium.

A.8 Prospective Bidder and in the case of Consortium, each Consortium member should not have been excluded from participating in a call for tenders or any other public procurement procedure in the Republic of Cuba.

A.9 Prospective Bidder and in the case of Consortium, each Consortium member shall have no grounds that may lead to a Conflict of Interest as defined in the bidding documents.

A.10 In case of a Consortium, one member has to be designated as the 'Consortium Leader' and has to be duly authorized under a letter of authorization to represent and irrevocably bind any and all Consortium members, and conduct all business for and on behalf of any and all the Consortium members, during the bidding process for the Project. **The Consortium Leader should hold at least 40% stake in the Consortium**. Consortium members will be required to submit the Consortium Agreement as evidence of forming the Consortium.

3.9 Connectivity with the Grid

i. The solar power Project should be designed for inter-connection with the electricity grid system in accordance with the prevailing connection procedure of Cuba as per Annex-I of the PPA. Electricity generated from the projects selected through this RFP shall be evacuated through the interconnection Point. Any losses/charges up to this point shall be borne by the Project developer.

ii. Further, all infrastructure till the interconnection point shall be procured by the Generator as part of the project cost. The entire cost of transmission from the Project up to the interconnection point/Delivery Point/Metering Point including cost of construction of line, wheeling charges, losses (as applicable) will be borne by the 'Generator' and will not be reimbursed by UNE. However, erection and maintenance of interconnection line outside plant boundary till the interconnection point shall be done by UNE.

3.9 A Minimum Functional Specifications of the Project

The Bidders shall have to use the latest technologies and equipment so as to ensure that the equipment and parameters of the Project shall not be inferior to the Minimum Functional Specifications (MFS) provided in Annexure 4 of the RFP.

3.10 Bank Acknowledgement Letter

Bidder shall be required to submit an acknowledgment letter as per the format – 6.3 from a Bank/ financial institute, along with the bid.

This letter shall be confirmation from lenders to provide financing to the Developer in the event the prospective Bidder is selected as the successful Bidder and is awarded the Project by the Tendering Authority.

Further, this shall be confirmation from lenders that, the lenders have reviewed in detail the terms and conditions of the PPA and the lenders require no modifications to the PPA.

3.11 Methodology for Bid Submission

All the bidders will be required to submit bids on the electronic tender portal as the address https://www.electronictender.global/.

3.11.1 Documents to be submitted in physical form

No documents are required to be submitted by bidder in physical form at the time of bid submission. Documents (if any) in original shall be communicated , if required to be submitted, during evaluation and letter stage of tendering process.

3.11.2 First Envelope (Technical Bid)

In the first envelope, the bidders will be required to submit the documents as mentioned at clause 3.14, at the e-tender portal.

The Envelope-I Bid should not contain any price content (tariff price) entry.

In case, the Envelop-I Bid is found to contain any price content (tariff price), such bid shall be liable for rejection.

3.11.3 Second Envelope (Financial Bid)

The bidder shall be required to quote single fixed Tariff in unit US Cents/kWhr for each block depending on their interest in the blocks.

The Bidder shall be required to quote single fixed Tariff for the entire 25 (twenty-five) years of operation for the respective block they would be bidding for.

3.12 Language

3.12.1 RFP Process (Proposal)

All the documents submitted as part of the proposal and all correspondences and documents in relation to this RFP process must be transmitted in English and accompanied by a Spanish language translation, certified by a translator to be a complete and accurate translation of the original.

If the original version of a document transmitted is in a language other than English, the translation into English and Spanish, of the document concerned or, at least the relevant sections of this document, must have been carried out by a certified translator and submitted along with the proposal. For the purpose of evaluating the proposal, the English version shall prevail.

This complete RFP document is being issued in both English and Spanish languages. However, in case of any discrepancy between the two versions, the English version shall prevail.

3.12.2 During PPA (Contract)

The official language of the PPA shall be Spanish and all communication between the Parties for any purpose relating to the PPA/ Contract and throughout the term hereof shall be in writing in Spanish. If any of the contracts, correspondence, communications or documents are prepared in any language other than Spanish, the Spanish translation of such contracts, correspondence, communications or documents shall prevail in matters of interpretation.

3.13 Power Purchase and Sale Agreement (PPA)

Power Purchase and Sale Agreement (PPA) shall be signed between UNE and Generator. A copy of PPA is enclosed as **Annexure - 1**. The PPA shall be executed after issue of Letter of Award and formation of Generator in Cuba by the winning bidder. The PPA shall become effective from the date of signing and remain valid for a period of 25 (twenty-five) years from the Date of Commercial Operation of the Project. Date of signing of PPA shall be the Effective Date of the PPA.

a. Before signing of PPA, UNE will verify the shareholding of the Generator along with a copy of complete documentary evidence. If at this stage it is found that the documents furnished by the Generators are false / misleading or misrepresented in any way, then the provisions of Corrupt or Fraudulent Practices pursuant to Clause 3.31, Ineligibility for Participation in Retenders pursuant to Clause 3.35 and other relevant conditions of the RFP will be applicable.

b. The Generators will be free to reconfigure and repower the project from time to time during the PPA duration so long as the Contracted Capacity is not changed. However, UNE will be obliged to buy power only within the limit that the Generator was able to provide at the time of start of commercial operation.

c. Signing of PPA shall be formation of contract between UNE and Generator. Execution of the contract shall be governed by the terms and conditions of the PPA. The provisions contained in the RFP documents is for the sole purpose of selection of Developer.

d. Any extension of the PPA period beyond 25 (twenty-five) years from Date of Commercial Operation shall be through mutual agreement between the Generator and UNE.

e. The PPA shall be signed after compliance of following conditions:
(i) Payment of development fee to NTPC as specified in Section-5 of the RFP.
(ii) Payment of development fee to ISA as specified in Section-5 of the RFP.
(iii) Formation of Generator in Cuba by the successful Bidder.

f. After issuance of LOA, the successful bidders shall initial the PPA with UNE. This would be done to facilitate both the Generator and the UNE for taking approvals in their respective areas for the Project. After formation of the Generator and compliance of conditions of signing of the PPA, final PPA shall be signed between the Generator and the UNE and the same shall be the contract between the Generator and the UNE.

3.14 Submission of Response to RFP

In addition to the physical documents to be submitted by the bidder as per Clause 3.11 above, the response to RFP shall be submitted electronically on https://www.electronictender.global which should contain the following:

3.14.1 Envelope- I (Technical Bid): - (To be submitted at the e-tender portal)

Bidders shall submit technical bid containing the following documents:

1. Bid form (as per **Format 6.1);**
2. General Particular (**Format-6.1A**);
3. General Compliances (**Format-6.1B**);
4. **Bidder's Credentials (Format-6.1C)**: Bidder shall be required to submit their company profile. They shall also submit their past performance data regarding development/ execution of Solar PV project works along with the salient financial parameters such as net worth and annual turnover for the latest completed financial year with annual financial statements as supporting document.
5. Power of Attorney (as per **Format 6.2)** : A power of attorney, indicating that the person signing and submitting the bid at the e-tender portal has the authority to sign the bid and that the bid is binding upon the Bidder during the full period of its validity.

(The authority of the person issuing the Power of Attorney shall also be submitted).

The Power of Attorney must be in the name of person digitally signing the bids.

In case of a Bidding Consortium, a Power of Attorney in favour of the Consortium Leader issued by all the other members of the Consortium shall be provided.

6. Board resolutions, as per **Format 6.4** duly certified by the Company Secretary or the Director of the relevant Bidder, as applicable to the Bidder and mentioned hereunder:

   a. Board resolution from the Bidding Company or the Consortium Leader of the Consortium, as the case may be, in favour of the person signing the response to RFP;

   b. Board Resolution from the Bidding Company committing one hundred percent (100%) of the equity requirement for the Project / Board Resolutions from each of the Consortium Members together in aggregate committing to one hundred percent (100%) of equity requirement for the Project (in case of Bidding Consortium) and authorizing a person to execute the Consortium Agreement;

   c. Board Resolutions from each of the Consortium members and Consortium Leader contributing such additional amount over and above the percentage limit (specified for the Consortium Leader and other member in the Consortium Agreement) to the extent becoming necessary towards the total equity share in the Project Company, obligatory on the part of the Consortium pursuant to the terms and conditions contained in the Consortium Agreement and

7. In case of a Consortium, the Consortium Agreement between the Members in the Consortium as per **Format 6.5** along with Board resolution from each Member of the Consortium for participating in consortium.

8. A disclosure statement as per **Format 6.6** regarding participation of any related companies in this bidding process;

9. Certificate for compliance for all provision of RFP (**Format-6.7**)

   No deviation, whatsoever, is permitted from any provision of the RFP and the PPA. The Bidders are advised that while making their Bid proposals and quoting tariff prices, all conditions may appropriately be taken into consideration. Bidders shall certify their compliance to the complete provisions of the RFP and PPA by accepting and submitting the Format-6.7.

Acceptance of above format shall be considered as Bidder's confirmation that any deviation to the any Provisions found anywhere in their Bid Proposal, implicit or explicit, shall stand unconditionally withdrawn, without any cost implication whatsoever to the UNE, failing which the bid shall be rejected.

10. Form of bank acknowledgement letter (Format 6.3)

3.14.2 Envelope- II (Financial Bid) (to be submitted on tender Portal)

(a) Bidders shall quote for single fixed Tariff (in US Cents /kWh) on a "single responsibility" basis such that the Tariff covers all the Developer's obligations mentioned in or to be reasonably inferred from the PPA documents in respect of the design, manufacture, including procurement and subcontracting (if any), delivery, construction, installation, commissioning, operation & maintenance for 25 (twenty-five) years of operation and dismantling after completion of the PPA period. This includes all requirements under the Developer's responsibilities, where so required by the PPA, the acquisition of all permits, approvals and licenses, etc., the operation and maintenance and such other items and services in accordance with the requirements of the PPA.

(b) Bidder has the option for submission of Tariff bid for either one or more than one block at the e-tender portal. Separate single fixed Tariffs shall be submitted by bidder for each of the blocks so that their evaluation can be done separately, block wise.
In case Tariff price indicated against any block is 'zero' or 'nil' or 'NA', it shall be considered that Bidder has not submitted Tariff price against that particular block and same shall not be considered for evaluation for that particular block.

(c) Single fixed Tariff bid (in US Cents/kWh) shall be quoted upto two places of decimal only. If Tariff bid is offered with more than two digits after decimal, it shall be rounded off and considered upto two places of decimal (in US Cents/kWh).

If digit at the third decimal place is more than 5, then second decimal place shall increase by one while rounding off the Tariff bid to two digits after decimal. If digit at the third decimal place is equal or less than 5, then second decimal place digit shall remain same while rounding off the Tariff bid to two decimals.

Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the RFP and PPA.

(e) Single fixed Tariff Bid submitted by Bidder shall be exclusive of all taxes, duties, levies & charges payable in Cuba.
Prospective Bidders are advised to carry out their own due diligence regarding rules, regulations and benefit available from Government of Cuba, before submitting their Bids.

3.15 Wherever information has been sought in specified formats, the Bidders shall fill-

in the details as per the prescribed formats and shall refrain from referring to any otherdocument for providing any information required in the prescribed format.

3.15.1 Modification of Bid

The Bidder may modify its Bid prior to the Due Date. The Bidder shall not be allowed to modify its bid after the Due Date. For the purpose of evaluation, the last modified bid uploaded on ETS portal shall be considered as final submission.

3.16 General Instructions:

a. If the Bidder/ member in a Bidding Consortium conceals any material information or makes a wrong/ misleading statement or misrepresents facts in its response to RFP, in any manner whatsoever, UNE reserves the right to reject such response to RFP and/or cancel the Letter of Award, if already issued.

b. If the event specified in point (a) above is discovered after the Effective Date of the PPA, it shall be treated as Generator's default under PPA and consequences as specified under the PPA shall apply.

c. Response submitted by the Bidder shall become the property of UNE and UNE shall have no obligation to return the same to the Bidder.

d. All documents, which are part of the response to RFP submitted through e-tender portal must be digitally signed by the person authorized by their respective boards of directors on behalf of the Bidder as per **Format 6.4.**

e. The response to RFP shall be submitted in accordance with **Clause 3.14** above. No change or supplemental information to a response to RFP will be accepted after the Due Date. However, PMC, on behalf of UNE, may seek additional information or clarifications from the Bidders, if found necessary, during the course of evaluation of the response to RFP.

f. Bidders shall mention the name of the contact person and complete address of the Bidder in the covering letter.

g. Response to RFP that are incomplete or do not substantially meet the requirements prescribed in this RFP, will be liable to be rejected.

h. Non submission and/or submission of incomplete data/ information required under the provisions of RFP shall not be construed as waiver on the part of UNE of the obligation of the Bidder to furnish the said data/information unless the waiver is given in writing.

i. It is the sole responsibility of the Bidder to have informed UNE about any change in status of the declarations (if any) prior to the issuance of the Letter of Award, the same has to be informed promptly to UNE by the Bidder.

j. Courts of Republic of Cuba shall have exclusive jurisdiction in all matters pertaining to the RFP.

3.17 Due Date

Bidders should submit the response to RFP at the ETS Portal or e-tender portal https://www.electronictender.global as per the schedule specified at **Clause 3.4** above or as per the schedule indicated at the e-tender portal. No physical bids or late bids will be allowed.

3.18 Method of Submission at the Tender Portal

Detail instructions to be followed by the bidders for submission of response to RFP at the e-tender portal is as stated at **Annexure - 2**.

3.19 Validity of the Response to RFP

The Bidder shall submit the response to RFP which shall remain valid up to 180 (One Hundred Eighty) days from the Due Date ("**Bid Validity**"). UNE reserves the right to reject any response to RFP which does not meet the aforementioned validity requirement. In exceptional circumstances, UNE may solicit the Bidder's consent to an extension of the initial Bid Validity period. The request and responses thereto shall be made in writing.

3.20 Preparation cost

The Bidder shall be responsible for all the costs associated with preparation and submission of the response to RFP, attending training program and participation in discussions and attending pre-bid meeting(s). UNE shall not be responsible, in any way, for such costs, regardless of the conduct or outcome of the bid process.

3.21 Enquiries/Clarifications

a. Pre-Bid Meeting and Site visit

i. Clarifications/ doubts, if any, in relation to the RFP Document may be addressed to the contact details of PMC mentioned in the **Clause 3.5** above, within the timelines prescribed for seeking clarifications. Bidders may also submit their query at the e-tender portal under clarification tab. Enquiries/ clarifications may be sought by the Bidder in a format clearly mentioning Clauses of RFP, Provisions of RFP and query of the Bidder.

ii. The pre-bid conference shall be held at the office of the UNE at Havana, Cuba. The date of the online meeting shall be as per Clause 3.4 and the link for the online meeting shall be posted at the e-tender portal**.** A compiled list of such questionnaire and its response will be uploaded to the e-tender portal website. Bidders are required to remain updated with the website. No separate

reply/intimation will be given elsewhere. Verbal clarifications & information given by PMC and UNE or their employees(s) or their representative(s) shall not in any way be binding on UNE.

iii. Prospective Bidders are encouraged to visit the Project site and attend the pre-bid conference at Havana, Cuba. Site visit and pre-bid conference shall be held on consecutive days.

3.21.1 Amendment to RFP Documents

At any time prior to the deadline for submission of bids, UNE may, for any reason,whether at its own initiative, or in response to a clarification requested by a prospective Bidder, amend the RFP Documents. The amendment will be uploaded on the website https://www.electronictender.global/. Bidders are required to remain updated with the website. No separate intimation will be given elsewhere. The amendment will be binding on Bidders and it will be assumed that the information contained therein will have been taken into account by the Bidder in its bid.

3.21.2 Clarification on Bids

During bid evaluation, UNE, at its discretion, shall ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the substance of the bid shall be sought, offered or permitted.

3.22 Right to reject a Bid

UNE reserves the right to reject all or any of the response to RFP or cancel the tender or annul the bidding process at any stage without assigning any reasons whatsoever and without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the reasons for UNE's action.

3.23 Bid Evaluation

Methodology for the bid evaluation is stipulated in Section-4 of the RFP Document.

3.24 No Bid Security is required for submission of bid.

3.25 Performance Bank Guarantee (PBG): Successful bidder shall be required to submit Performance Guarantee to UNE for each project (each block) as per the details mentioned in the PPA (Clause 13.0)

3.26 Share holding pattern in ECTE

The structure of the Consortium and roles and responsibilities of each Consortium member shall not be allowed to be changed at any stage of the

bidding process. Any consortium, if selected as successful Bidder, shall incorporate a Project company 'ECTE' in Cuba with equity participation by the members in line with their shareholding in Consortium Agreement before signing of PPA with UNE, i.e. the Project company incorporated shall have the same shareholding pattern as that indicated in the Consortium Agreement given at the time of submission of response to RFP. This shareholding pattern shall not be changed by the Consortium up to the start of commercial operation of the Project, except with the prior approval of UNE.

In case of successful Bidder is a single entity, Bidder shall incorporate a Project company 'ECTE' in Cuba with 100% equity participation before signing of PPA with UNE. This shareholding shall not be changed by the Bidder up to the start of commercial operation of the Project, except with the prior approval of UNE.

Any change in the shareholding after the commencement of commercial operation can be undertaken with intimation to UNE.

In the event the Generator is in default to the lender(s), the lender(s) shall be entitled to undertake substitution of promoter/ Generator (as the case may be) in concurrence with the UNE.

3.27 Financial Closure, Project Financing Arrangements and Land Arrangements:

(i) The Generator shall report Project financing arrangements for the projects within 12 (twelve) months from the Effective Date of the PPA.

(ii) At the stage of Financial Closure, Generator shall furnish the certificate indicating the total cost of Project(s). Generator shall also report 100% tie-up of financing arrangements for the Project(s). In this regard, the Generator shall submit a certificate/ necessary documents from all financing agencies regarding the tie-up of 100% of the funds indicated for the Project, including arrangements of funds in the form of equity.

(iii) In case of delay in Financial Closure, except the delay on account of Force Majeure as per PPA, an extension can however be considered, on the sole request of Generator, with the discretion of UNE. This extension will not have any impact on the Scheduled Date of Commercial Operation.

(iv) The Generator will have to submit the required documents to UNE at least 14 (fourteen) days prior to the scheduled Financial Closure date. In case of delay in submission of documents mentioned above, UNE shall not be liable for delay in verification of documents and subsequent delay in Financial Closure.

(v) Land Arrangements: The land for the project is already in possession of UNE.

The right for use of the land for the project shall be granted to the Generator through a certificate from the Executive Committee of the Council of Ministers. The one-time cost ranging between **USD 0.5 to USD1.2 per m2** for getting the rights of use of land shall be required to be paid by Generator to relevant government authority of Cuba as per Applicable Law. The right of use of land shall be co-terminus with the PPA and shall automatically cease upon expiry or termination of the PPA.

3.28 Commissioning:

(a) Part Commissioning:

Part Commissioning of the Project shall be accepted by UNE at its discretion, without prejudice to the imposition of penalty in terms of PPA, on the part which is not commissioned. The Scheduled Date of Commercial Operation shall not get altered due to Part-Commissioning. Irrespective of dates of Part Commissioning or full commissioning**, the PPA will remain in force for a period of 25 (twenty-five) years from the Date of Commercial Operation.**

(b) Commissioning Schedule:

The commissioning schedule shall be as per Annex 2 of the PPA.

In extraordinary cases of unavoidable delays on the part of UNE in signing the PPA or due to events not in the control of Generator which impacts progress in construction work, the Scheduled Date of Commercial Operation shall then be extended by such period of delay.
In case of delay on the part of Generator in signing the PPA, the Scheduled Dated of Commercial Operation shall not be extended.

3.29 Date of Commercial Operation

Date of Commercial Operation shall be the date on which the Certificate of Enabling is issued upon successful commissioning of the full capacity of the Project or the last part capacity of the Project as the case may be.

3.30 Taxes & Duties

The single fixed Tariff bid submitted by bidder shall be exclusive of all taxes and duties.

The Generator shall charge UNE the taxes and duties at the applicable rate on the energy Tariff as per the Applicable Law at time of billing.

Prospective Bidders are however advised to carry out their own diligence on this area as well as on availability of taxes and duty benefits available for 100% foreign investment company implementing renewable energy projects, if any, as per the Applicable Law during the time of submitting their Bids.

3.31 Corrupt or Fraudulent Practices:

UNE requires that Bidders, solar power developers, Generator shall observe the highest standard of ethics during the development and operation of solar power Project(s). In pursuance of this policy, UNE:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "Corrupt Practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the bidding process or in the development and operation of solar power Project(s); and

(ii) "Fraudulent Practice" means a misrepresentation of facts in order to influence the bidding process or in the development and operation of Generation Plants detrimental to UNE, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive UNE of the benefits of free and open competition;

(b) will reject a Bid if it determines that the Bidder recommended for award of the Project has engaged in Corrupt or Fraudulent Practices in competing for the tender in question;

(c) will declare a Bidder ineligible, either indefinitely or for a stated period of time, to be awarded a contract if at any time, it determines that the Bidder has engaged in Corrupt or Fraudulent practices in competing for or in executing the development and operation of the solar power Project(s).

3.32 Contacting PMC and UNE

a. Except in the case, where PMC/UNE has sought some clarification or additional information in writing from the Bidder, no Bidder or his representative shall contact PMC/UNE on any matter relating to its bid, from the time of the opening of bids to the time the Letter of Award is issued.

b. Any effort by a Bidder to influence the decision of the Tendering Authority during the evaluation process before Letter of Award is issued to the successful Bidder(s), shall result in rejection of the Bidder's bid.

3.33 If the party, who has downloaded the RFP document, intends to transfer the documents to the proposed Consortium who intends to submit its proposal in place of the original recipient, it is permissible provided such party shall be one of the members of proposed Consortium. In such event, the proposed Consortium shall become the new recipient of the document and all terms and conditions of the document shall apply to the proposed Consortium as if the documents were originally downloaded by them. Pursuantly, the Consortium Leader can quote on behalf of the Consortium through the member of that Consortium who has downloaded the RFP document, provided the person who is submitting the Bid on e-tender portal has been given the authorization to submit the Bid against the tender as per Format 6.4 and Format-6.5.

3.34 Parent, affiliate or ultimate parent or any group company with which the Bidding Company/member of Bidding Consortium have direct or indirect relationship cannot bid separately and/ or with any other entity in the same selection process in which the Bidding Company/memberof Bidding Consortium is participating. In case it is found at any stage, that this condition is violated, the response to RFP of all such parties will be rejected and if Letter of Award has been issued or PPA has been signed, the same will be cancelled.

3.35 Ineligibility for Participation in Retenders

Notwithstanding the provisions specified in clause 3.24.10, if a Bidder after having been issued the Letter of Award either does not sign the PPA pursuant to Clause 3.13 or does not submit acceptable Performance Bank Guarantees pursuant to Clause 3.25 then such Bidder shall be treated ineligible for participation in re-tendering process.

3.36 The equipment such as solar PV modules and other equipment to be used in the Generation Plants selected through this RFP shall be ensured to meet or exceed the Minimum Functional Specifications (MFS) outlined in the Annexure - 4 of the RFP.

3.37 **Site Visit**: Prospective Bidders are encouraged to submit their respective Bid after visiting the Project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, availability of power, water and other utilities for construction, access to site, handling and storage of materials, weather data, Applicable Laws, and any other matter considered relevant by them.

3.38 **Currency:** All the bidders shall submit their Financial Bid (single fixed Tariff) in the currency US Cents/kWh. The Generator shall submit the invoice for the energy generation in the currency Euro. Payment against invoice shall be paid by UNE to Generator in the currency Euro. For the purpose of currency conversion, exchange rate published by Banco Central de Cuba (the Central Bank of Cuba), on the date of invoice shall be considered.

3.39 **Joint and Several liability:** Where the prospective Bidder is a Consortium, all Consortium members shall be liable jointly and severally for meeting the obligations under this RFP.

3.40 Wherever there is a conflict, the provisions of the PPA shall prevail over those mentioned elsewhere in the RFP Documents. The contract between Generator and UNE shall be governed by the PPA.

3.41 Clearance and Permits

The Generator shall be required to obtain necessary clearances and permits as

required for setting up the solar power Projects as detailed in Annex 5 of the PPA (indicative list only).

The Generator shall be required to submit the clearances, as applicable for the Project, to UNE prior to commissioning of the project. In case of any of the clearances as indicated above being not applicable for the said Project, the Bidder shall submit an undertaking in this regard, and it shall be deemed that the Bidder has obtained all the necessary clearances for establishing and operating the project. Any consequences contrary to the above shall be the responsibility of the Generator.

3.42 Conflict of Interest

(a) Prospective Bidders shall not have a Conflict of Interest in relation to this Project. Any prospective Bidder found to have a Conflict of Interest shall be disqualified.

(b) For the purposes of this RFP, "**Conflict of Interest**" means, in respect of any prospective Bidder:

(i) such prospective Bidder (or any constituent thereof) and any other prospective Bidder (or any constituent thereof) have either directly or indirectly common controlling shareholders;

(ii) such prospective Bidder receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated loan from any other prospective Bidder, or has provided any such direct or indirect subsidy, grant, concessional loan or subordinated loan to any other prospective Bidder;

(iii) such prospective Bidder has a relationship with another prospective Bidder, either directly or through common third parties, that puts them in a position to have access to each other's information or influence the proposal of the other;

(iv) such prospective Bidder has participated as consultant(s) and/or advisor(s) or has directly assisted the Tendering Authority in the preparation of any documents, design or technical specifications of the Project;

(v) such prospective Bidder employs or has employed an officer or employee of the Tendering Authority in relation to the Project during the RFP stage of the bidding process; or

(vi) such prospective Bidder appoints any legal, financial or technical advisor of the Tendering Authority in relation to the Project for matters related to or incidental to the Project or the RFP.

(c) Prospective Bidders or their agents and/or employees shall not engage in discussions or other communications with any other prospective Bidder or their agents and/or employees regarding the preparation or submission of their Bid. Breach of this provision may result in disqualification of the prospective Bidder from the bidding process.

(d) Notwithstanding anything else to the contrary in this RFP, prospective Bidders may use the same firm or firms to obtain geotechnical, topographical, or

other information about the site and may use the same firm or firms to obtain legal advice in respect of the RFP or Project.

3.43 Confidentiality

Information relating to the examination, clarification, evaluation, and comparison of Bids, and recommendations for the award of the contract, shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence UNE's processing of Bids or award decisions may result in the rejection of the Bidder's Bid and action shall be initiated as per procedure in this regard.

3.44 Interpretations

Words comprising the singular shall include the plural & vice versa.

An Applicable Law shall be construed as reference to such Applicable Law including its amendments or re-enactments from time to time.

Different parts of this RFP are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this RFP, they shall be interpreted in a harmonious manner so as to give effect to each part.

The table of contents and any headings or sub-headings in this RFP has been inserted for case of reference only and shall not affect the interpretation of this RFP.

3.45 Disclaimer:

The purpose of this RFP is to provide the Prospective Bidders with the information required for preparation and submission of their Proposal. It is clarified that this RFP is not an agreement and neither an offer, to any Prospective Bidder or any other entity, by the Tendering Authority or the Tendering Consultant or any of their respective representatives, officers, employees, consultants, agents, associates or advisors.

This RFP provides general information for preparation and submission of Bids by prospective Bidders and may not address the specific needs of each Bidder. Some of the prospective Bidders may have a better knowledge of the proposed Project than others, due to their earlier engagement on similar projects or any other project in the Republic of Cuba.

This RFP Document has been prepared in good faith, and on best endeavor basis. While adequate care has been taken in preparing the RFP Document, the assumptions, assessments, statements and information contained in this RFP may not be complete, accurate or adequate. Each prospective Bidder should, therefore, conduct its own independent investigation and analysis, should check the accuracy, reliability, adequacy and completeness of the information provided

under this RFP and may obtain independent advice from appropriate sources, if required, which may include but shall not be limited to their own independent financial, legal, accounting, engineering, and technical or other experts/consultants.

For the purposes of this RFP Document, the Tendering Authority, Tendering Consultant, or any of their respective representatives, officers, employees, consultants, agents, associates or advisors:

- accept no responsibility for the accuracy or otherwise for any interpretation or opinion of any law expressed in this RFP;
- make no representation or warranty (express or implied) as to the accuracy, adequacy, or completeness of this RFP, the information contained herein, or any responses to requests for clarifications made by the prospective Bidders; and
- shall not be liable to any prospective Bidder, under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss or damages (whether direct or indirect), cost or expense which may arise from or in connection to or be incurred or suffered on account of anything contained in this RFP or otherwise, including without limitation: the accuracy, adequacy, correctness, completeness or reliability of this RFP or any information contained within it; any act, omission, mistake or error on the part of a prospective Bidder; or the Tendering Authority or Tendering Consultant and/or responses from their respective representatives to the queries and/or requests for clarifications made by the prospective Bidders; or any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way from participating in the RFP process.

The prospective Bidder shall bear all costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, downloading fees, expenses associated with any demonstrations or presentations which may be required by the Tendering Authority and/or the Tendering Consultant or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses will be borne by the prospective Bidder and the Tendering Authority and/or the Tendering Consultant shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the bidding process.

Section 4

EVALUATION CRITERIA

4.0 EVALUATION CRITERIA

The evaluation process comprises of the following two steps:

1. Step I — Responsiveness check
2. Step II — Bid evaluation

4.1 Step I - Responsiveness check

The electronic response to RFP submitted by the Bidder shall be scrutinized to establish "**Responsiveness**". Each Bidder's response to RFP shall be checked for compliance with the submission requirements set forth in this RFP.

The determination of a Bid's Responsiveness shall be based on the contents of the Bid itself without recourse to extrinsic evidence. If a Bid is not substantially responsive, it may be liable for rejection, and may not subsequently be made responsive by the Bidder by correction of the non-conformity or rectifying the cause for non-responsiveness. However, UNE may waive any minor informality, non-conformity or irregularity in a Bid that does not constitute a material deviation and that does not prejudice or affect the relative ranking of any Bidder.

4.2 Step II - Bid evaluation

Bid evaluation will be carried out considering the information furnished by Bidders as prescribed under Section 6 - Formats. This step would involve evaluation of the response to RFP of the Bidding Company/ Bidding Consortium as per the provisions specified in Section 3 of this RFP. In the first step, the evaluation of Technical Bid will be carried out. Then the Financial Bid of all the shortlisted Bidders will be opened.

The Bidder shall be required to quote single fixed Tariff for the 25 (twenty-five) years of operation for each block. This single fixed Tariff shall be taken as the number for the evaluation of each block separately.

Following steps shall be followed for evaluation of Financial Bid (Tariff) and consideration for award:

(a) Price (Tariff) of all the shortlisted Bidders shall be opened for all the blocks simultaneously and bidders will be ranked L1, L2 L3 and so on for each block separately. The consideration for award shall be in the sequence- Block 1, Block 2 and Block 3 as per below details:

S.N.	Locality	Site name	Capacity (MW)	Block No.
1	Placetas	Cumbre	**25**	**BLOCK 1**
2	Cifuentes	La Distancia	**10**	**BLOCK 2**

3	Santa Clara	Minindustria 2	**5**	
4	Santa Clara	Quemado Hilario	**5**	
5	Sagua	Macún en Zona Industrial	**10**	**BLOCK 3**
6	Corralillo	La Paloma	**5**	
		Total	**60**	

4.3 In case, two or more bidders are found L1 for any block, supplementary Financial Bids shall be invited from such L1 Bidders, subject to, supplementary price received not being more than the price already received. Lowest price after supplementary Financial Bid shall be considered for award. Same process shall be repeated in case of further Financial Bid of lowest evaluated Bid becomes equal. Detailed process for supplementary Financial Bid will be informed to such L1 Bidders, in case such situation arises.

Section 5

DEVELOPMENT FEES

Section 5

5.0 Development Fees to NTPC and ISA for the project: ISA has endorsed NTPC as Project Management Consultant (PMC) for the implementation of solar Projects for UNE. The successful Bidder shall be required to pay NTPC and ISA a development fee, as per the following details:

(a) NTPC: USD 54,000 per MW of capacity awarded.

(b) ISA: USD 9,000 per MW of capacity awarded.

5.1.1 **Payment terms:** 80% of the above development fee for NTPC and ISA shall be paid by the successful Bidders after issuance of Letter of Award but before signing of final PPA. Balance 20% shall be paid within 30 (thirty) days of the Date of Commercial Operation of the Project. Account details of NTPC and ISA shall be shared with the successful Bidder(s) at the time of issuance of Letter of Award.

5.1.2 The indicated amount of the development fee is inclusive of all taxes and duties levied in India. However, in case of additional tax liability arises on the end of Bidder's country, or in Cuba, same shall be borne by the Bidder.

5.1.3 Payments will be made in the currencies mentioned above unless otherwise agreed between the parties. Exchange rate in case of other currency shall be as per the rate published by International Monetary Fund as on the date of the invoice raised.

Section 6

FORMATS AND ANNEXURES

6.0 List of Formats and Annexures

i. Bid Form / Covering Letter (Format 6.1)
ii. General Particular of Bidder (Format 6.1A)
iii. Format for Compliance of General Requirements (Format-6.1B)
iv. Format for Bidder's credential (Format-6.1 C)
v. Power of Attorney (Format 6.2)
vi. Format for Undertaking from Bank/Lender (Format 6.3)
vii. Format for Board Resolutions (Format 6.4)
viii. Format for Consortium Agreement (Format 6.5)
ix. Format for Disclosure (Format 6.6)
x. Certificate for compliance for All provision of RFP (Format 6.7)
xi. PPA (Annexure-1)
xii. Special Instructions for e-Tendering portal (Annexure-2)
xiii. Location Details of Projects (Annexure-3)
xiv. MFS (Minimum Functional Specifications) (Annexure-4)

Format 6.1 – Bid Form

(The covering letter should be on the Letter Head of the Bidding Company/ Consortium Leader of the Bidding Consortium)

Date: _____
From :_____

Name of the Bidder/ *Consortium Leader of the Bidding Consortium* **:**

Address of the Bidder/ *Consortium Leader of the Bidding Consortium* **:**

Telephone:

E-mail address:

Sub: Response to RFP for Selection of Solar Power Developers for 60 MW Solar PV project in Republic of Cuba

Dear Sir,
We, the undersigned ..... *[insert name of the 'Bidder']* having read, examined and understood in detail the RFP in particular and PPA for supply of solar power for 25 years from Date of Commercial Operation to UNE, hereby submit our response to RFP. We confirm that neither we nor any of our Affiliate has submitted response to RFP other than this response to RFP, directly or indirectly, in response to the aforesaid RFP.

1. We are submitting proposal for the development of solar projects as per following details:

S.N.	Locality	Site name	Capacity (MW)	Block No.
1	Placetas	Cumbre	**25**	**BLOCK 1**
2	Cifuentes	La Distancia	**10**	**BLOCK 2**
3	Santa Clara	Minindustria 2	**5**	
4	Santa Clara	Quemado Hilario	**5**	
5	Sagua	Macún en Zona Industrial	**10**	**BLOCK 3**
6	Corralillo	La Paloma	**5**	
		Total	**60**	

2. We give our unconditional acceptance to the RFP and PPA attached thereto, issued by UNE. In token of our acceptance to the RFP & PPA, the same have been digitally signed by us and submitted with the response to RFP. We confirm and undertake that the PPA shall be executed as per the provisions

of the RFP and provisions of PPA shall be binding on us. Further, we confirm that the Project(s) shall be commissioned within the schedule stipulated in the RFP and the PPA.

3. As per provisions of the Clause 1.10, we declare that the annual Capacity Utilization Factor (CUF) of the Projects at the time of submission of response to RFP is **……(The Bidder shall be required to indicate the value of CUF and the declared annual CUF shall in no case be less than 20%.)**

4. We have submitted our response to RFP strictly as per Section–6 (Formats) of this RFP, without any deviations, conditions and without mentioning any assumptions or notes in the said Formats. We hereby withdraw any deviation, conditions whether mentioned explicitly or not in our response to this RFP without any cost to UNE.

5. Acceptance

We hereby unconditionally and irrevocably agree and accept that the decision made by the UNE in respect of any matter regarding or arising out of the RFP shall be binding on us. We hereby expressly waive any and all claims in respect of this process.

6. Familiarity with Relevant Laws & Regulations

We confirm that we have studied the provisions of the relevant laws and regulations of the Republic of Cuba as required to enable us to submit this response to RFP and execute the PPA and development of Grid Connected Solar PV Project(s) or supply of solar power in the event of our selection as Successful Bidder.

7. We are enclosing herewith our response to the RFP with formats duly digitally signed as desired in the RFP for your consideration.

8. It is confirmed that our response to the RFP is consistent with all the requirements of submission as stated in the RFP and subsequent communications at the e-tender portal.

9. The information submitted in our response to the RFP is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our response to the RFP.

   We confirm that all the terms and conditions of our Bid are valid for a period of upto and including one hundred and eighty (180) days from the last date of submission of bid date unless extended by us on your request and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.

10. We hereby understand and confirm that UNE reserves its right to verify the documents furnished by us at the time of submission of RFP and the shareholding of the bidder along with a copy of complete documentary evidence supported with originals at any stage from evaluation upto the

expiry of PPA.

We understand and confirm that if the aforesaid documents furnished by us are found to be misleading or misrepresenting in any way, UNE shall be free to take appropriate action including blacklisting us for an appropriate period, as decided by UNE.

11. We, hereby, declare that only the persons or firms interested in this bid as named here and that no other persons or firms other than those mentioned herein have any interest in this bid or in the PPA to be entered. We confirm that this bid is made without any connection with any other person, firm or party likewise submitting a bid. We further confirm that this bid is submitted in good faith and without collusion or fraud.

12. We have neither made any statement nor provided any information in this Bid that, to the best of our knowledge, is materially inaccurate or misleading. Further, all the confirmations, declarations and representations made in our Bid are true and accurate. In case this is found to be incorrect after our selection as Successful Bidder, we agree that the same would be treated as a Generator's event of default under PPA, and consequent provisionsof PPA shall apply.

13. If the project company / Generator is formed in Cuba to sign the PPA and execute the Project after we are selected as successful bidder, all terms and conditions of RFP and PPA shall also apply to this Generator company wherever applicable.

14. We are submitting Format -6.1A for General Particulars as per the format. In case of the Consortium, Necessary documents such as Consortium Agreement, Board Resolution are enclosed. Power of Attorney of person submitting the bid is enclosed with the Bid form.

15. Having reviewed and examined the RFP and any Addenda and Corrigenda and having fully understood all the information provided therein and in accordance with the same, we hereby agree and undertake to abide by all the terms and conditions of the RFP;

16. All statements made and all information and documents provided by us in or in connection with this Proposal are true and correct; no such information is misleading; all documents accompanying such Proposal are true copies of their respective originals, where indicated, and the UNE may rely on such statements, information and documents when evaluating Proposals for shortlisting under the RFP;

17. The UNE is authorized to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection to this RFP, and to seek clarification from third party and clients regarding any financial and technical aspects of the Proposal. We [and each Consortium Member] hereby authorize third- parties to supply information required to verify

statements and information submitted in its Proposal. We shall provide any additional information requested by UNE to supplement or verify anything in the Proposal;

18. We acknowledge the right of the UNE to amend the scope and/or structure of the Project, reject any Proposal or terminate the bidding process at any time without assigning any reason whatsoever and without incurring any liability. We waive to the fullest extent of the law, its right to seek and obtain a court injunction or restraining order against the Tendering Authority to prevent or restrain the bidding process, the award of the Project or any proceedings related thereto;

Dated the__________day of__________, 20…

Thanking you,

Yours faithfully,

………………………..

………………………..

(Name, Designation and Signature of Person Authorized by the board)

Contact Person

Details of the contact person are furnished as under:

Name : -

Designation : -

Company : -

Address : -

Phone Nos. :

E-mail address: -

Format-6.1A: General Particulars of Bidder

A – Particulars of the Prospective Bidder or, in the case of a Consortium, each Consortium Member

[*similar separate table may be submitted for each Consortium member*]

Name of Prospective Bidder/ Consortium Member:	
Country of incorporation or registration:	**Certificate of incorporation** or **registration to be enclosed with bid;**
Date of incorporation or registration:	
Registered address:	
Brief description of its business:	
Website (if any):	
Shareholders or owners' details	
Authorized Representative: (as authorized under a power of attorney)	
Contact Person: (include name, telephone, email and postal address)	Name Address Email phone

Supporting Documents in support of above information are enclosed at Annexure……

B – Business Structure in the case of a Consortium (Applicable/ Not Applicable)

	Name of Consortium Member	**Proposed role** (With reference to the financial and technical obligations of the Project as set out in the RFP)	**Equity shareholding (%)**
Consortium Leader			
Consortium Member			
Consortium Member			
Required attachments to this form:	(i) A copy of the Consortium Agreement, joint venture agreement, shareholders agreement, framework agreement, memorandum or equivalent contract; (ii) An organizational chart relating to the Consortium and the role of each Consortium Member		

Format-6.1B: Format for Compliance of General Requirements

(The declaration is to be submitted by bidder and each Consortium member in case of bid submission by consortium)

We hereby certifying our compliance to the General Required as per provisions of the RFP per the following:

A.1 We (Bidder and in the case of a Consortium, each Consortium member) are either (i) a legal entity, duly incorporated or validly existing and duly registered under the laws of its country of domicile, or (ii) a Consortium where each Consortium member is a legal entity, duly incorporated or validly existing and duly registered under the laws of our country of domicile. We are submitting a copy of the valid certificate of incorporation or registration certificate (as the case may be) issued under the laws of the country of domicile.

A.2 We (Bidder and in the case of a Consortium, each Consortium member) are not submitting another bid either individually or as a Consortium member of any other Consortium and shall not be entitled to participate in more than one Consortium bidding for the Project. Therefore, a Prospective Bidder can submit only one bid in response to this RFP. In the event that an entity applying individually or as a Consortium member participates in more than one bid, all the bids with that entity's participation shall be deemed invalid and shall be summarily rejected.

A.3 We (Bidder and in the case of a Consortium, each Consortium member) have not been in the process of reorganization, liquidation and/or bankruptcy within the last five (5) years as on the Due Date.

A.4 We (Bidder and in the case of a Consortium, each Consortium member or affiliates or promoters) are not from any country which has put sanctions on Cuba and such sanctions are still continuing.

A.5 We (Bidder and in the case of a Consortium, each Consortium member) have not been convicted of any fraud, corruption, collusion or money laundering and/or for any criminal act involving dishonesty, physical violence, intentional harm to human life, or for any criminal offence related to their professional conduct.

A.6 We (Bidder and in the case of Consortium, each Consortium member) have not been blacklisted from undertaking development activities including designing, constructing and operating in relation to a solar power project in any of the ISA member countries.

A.7 We (Bidder and in the case of a Consortium, each Consortium members) have not had concession or power purchase agreement (or their equivalent) terminated that is attributable to an event of default of the Prospective Bidder or Consortium Member, in case of a Consortium.

A.8 We (Bidder and in the case of a Consortium, each Consortium member) have not been excluded from participating in a call for tenders or any other public procurement procedure in Cuba.

A.9 We (Bidder and in the case of a Consortium, each Consortium member) have no grounds that may lead to a Conflict of Interest as defined in the bidding documents.

A.10 “In case of a Consortium, one member has to be designated as the ‘Consortium Leader’ and has to be duly authorized under a letter of authorization to represent and irrevocably bind any and all Consortium members and conduct all business for and on behalf of any and all

the Consortium members, during the bidding process for the Project. The Consortium Leader should hold at least 40% stake in the Consortium. Consortium members will be required to submit the Consortium Agreement as evidence of forming the Consortium."

In this regard, we are submitting authorization for designation of Consortium Leader.

Name and signature of the Bidder/ Consortium member(s)

Format-6.1C

Bidder's Credentials

Bidder shall be required to submit their company profile. They shall also submit their past performance data regarding development/ execution of Solar PV project works along with the salient financial parameters such as Net worth and Annual turnover for the last Financial Years with Annual Financial Statements as supporting document.

Format 6.2

Format for Power of Attorney

BIDDER TO ATTACH THE POWER OF ATTORNEY AND COPY OF BOARD RESOLUTION/ OTHER RELEVANT DOCUMENTS TO DEMONSTRATE THE AUTHORITY OF THE PERSON ISSUING THE POWER OF ATTORNEY IN ACCORDANCE WITH THE RFP

TO BE PROVIDED BY BIDDER AND IN CASE OF CONSORTIUM, EACH OF THE OTHER MEMBERS OF THE CONSORTIUM IN FAVOR OF THE CONSORTIUM LEADER.

(NOTE: Bidders may note that no prescribed proforma has been enclosed for Power of Attorney)

Format 6.3

FORM OF BANK ACKNOWLEDGEMENT LETTER

[to be provided on letterhead of the lender]
Date: [PLEASE INSERT DAY, MONTH, YEAR]
Reference No.: [*insert ref number if required*]
To: UNE, CUBA[address]

Dear Sirs,

Bank Acknowledgement Letter in respect of the Proposal submitted by [*insert the name of the Bidder*] (the " Bidder")

Terms defined in the PPA shall have the same meaning when used in this letter unless otherwise stated.

We understand that [insert name of Bidder] is participating in the tender launched by the Procuring Authorities to design, build, finance, own, operate and maintain a solar photovoltaic power plant (the "**Project**").

This letter confirms that [name of the lender] is committed to provide financing to the project company in the event that [insert name of Bidder] is selected as the winning Bidder and is finally awarded the Project by the Tendering Authority as agreed upon by [insert name of Bidder] after such negotiations.

We have reviewed in detail the RFP [… Name of the package ……] dated [DATE] including the PPA. We hereby acknowledge and confirm that, we require no modifications to the PPA, except as clearly marked by [insert name of Bidder] on copies of same as part of [insert name of Bidder]'s Proposal in conformity with the PPA.

We confirm that our credit authorities and senior management has approved the financing to [insert name of Bidder], subject to the terms and conditions set out in this letter and its attachments.

Attached to this Bank Acknowledgement Letter is the Commitment Letter which constitutes a commitment by ourselves to provide funds to the project company, subject to the terms and conditions of that Commitment Letter. Our proposed term sheet for the debt financing of the Project is also attached herewith which contains all material terms that we require to be included in the financing documents.

We confirm the feasibility of the [insert name of Bidder]'s proposed financial plan through which the funding of the Project Cost is to be achieved in accordance with [insert name of Bidder]'s proposed schedule to Financial Closing.

We confirm that the financing assumptions, hedging requirements and cost overrun funding, utilized by the [insert name of Bidder] as part of their Proposal are acceptable to us.

We also provide our acceptance to the yield forecast assumptions used by the [insert name of Bidder] as part of their Proposal.

We confirm that the general insurance program proposed by [insert name of Bidder] is acceptable to us.

Signed by [insert name of authorized representative]
for and on behalf of [issuing lender]

Attachments:
1. Commitment Letter
2. Financing Term Sheet

Format 6.4

Format for Board Resolutions

The Board, after discussion, at the duly convened Meeting on …… *[Insert date]*, with the consent of all the Directors present and in compliance of the provisions of the Companies Act, …….*(Mention name of the act as per which the company was created , as applicable*), passed the following Resolution:

1. **RESOLVED THAT** Mr./Ms. . . . . , be and is hereby authorized to do on our behalf, all such acts, deeds and things necessary in connection with or incidental to our response to RFP for the Project, "**Selection of Solar Power Developers for 60 MW Solar PV project in Republic of Cuba**", including signing and submission of all documents and providing information / response to UNE , representing us in all matters before UNE , and generally dealing with UNE in all matters in connection with our bid for the said Project. (**To be provided by the Bidding Company or the Consortium Leader of theConsortium**)

2. **FURTHER RESOLVED THAT** pursuant to the provisions of the Companies Act, …….(Mention name of the act as per which the company was created , as applicable) and compliance thereof and as permitted under the Memorandum and Articles of Association of the company, approval of the Board be and is hereby accorded to invest total equity in the Project. (**To be provided by the Bidding Company**)

   [Note: In the event the Bidder is a Bidding Consortium, in place of the above resolution at Sl. No. 2, the following resolutions are to be provided by the each Member of the Bidding Consortium including Consortium Leader such that total equitycommitment is 100%]

   FURTHER RESOLVED THAT pursuant to the provisions of the Companies Act, …….(Mention name of the act as per which the company was created , as applicable) and compliance thereof and as permitted under the Memorandum and Articles of Association of the company, approval of the Board be and is hereby accorded to invest (%) equity *[Insert the % equity commitment as specified in Consortium Agreement]* in the Project. (**To be provided by the each Member of the Bidding Consortium including Consortium Leaders such that total equity commitment is 100%**)

   FURTHER RESOLVED THAT approval of the Board be and is hereby accorded to participate in consortium with ----------*[Insert the name of other Members in the Consortium]* and Mr/Ms……, be and is hereby authorized to execute the Consortium Agreement. (**To be provided by the each member of the Bidding Consortium including Consortium Leader)**

And

FURTHER RESOLVED THAT approval of the Board be and is hereby accorded to contribute such additional amount over and above the percentage limit (specified for the Consortium Leader and other member in the Consortium Agreement) to the extent becoming necessary towards the total equity share in the Project Company, obligatory on the part of the Consortium pursuant to the terms and conditions contained in the Consortium Agreement to be executed by the Consortium as per the provisions of the RFP. [**To be passed by the Consortium Leader and other members of the Bidding Consortium**]

3. **FURTHER RESOLVED THAT** approval of the Board be and is hereby accorded to M/s. ..... *[Insert name of Bidding Company/ Consortium member(s)]* to use our financial capability *and confirm that all the equity inves*tment obligations of M/s…….*(Insert Name of Bidding Company/ Consortium member(s)]* for development of selected project(s), shall be deemed to be our equity investment obligations and in the event of any default the same shall be met by us. The Board also confirms and undertake that in case M/s…… *[Insert name of Bidding Company/ Consortium member(s)]* fails to submit the requisite Performance Security(s) in terms of Request for Proposal Document and PPA, the same shall be submitted by us on its behalf. [**To be passed by the entity(s) whose financial credentials have been used i.e., Parent and / or its affiliate.**]

Certified true copy

(Signature, Name and stamp of Company Secretary / Director)

Notes:

1) This certified true copy should be submitted on the letterhead of the Company, signed by the Company Secretary / Director.

2) The contents of the format may be suitably re-worded indicating the identity of the entity passing the resolution.

3) This format may be modified only to the limited extent required to comply with the local regulations and laws applicable to a foreign entity submitting this resolution. For example, reference to Companies Act ……... may be suitably modified to refer to the laws applicable to the entity submitting the resolution. However, in such case, the foreign entity shall submit an unqualified opinion issued by the legal counsel of such foreign entity, stating that the Board resolutions are in compliance with the applicable laws of the respective

jurisdictions of the issuing company and the authorizations granted thereinare true and valid.

4) In case a Sub-Committee/Management Committee has been authorised by the Board of a Company for making the Resolution(s) mentioned here in above, these Resolution(s) can be passed by that Sub Committee and the same may be submitted along with Board Resolution in which the Sub Committee has been authorised By Board to pass such Resolution(s).

5) In case of a Consortium the respective Boards of all Consortium members should pass the aforesaid Resolution before execution of Consortium Agreement.

Format 6.5

Format for Consortium Agreement

(To be on non-judicial stamp paper of appropriate value as per Applicable Law of the place of execution. All local registration requirements are to be fulfilled.)

THIS Consortium Agreement ("Agreement") executed on this_____day of _____ Two thousand_____between M/s [insert name of Lead Member]_____ a Company incorporated under the laws of_____and having its Registered Office at_____(hereinafter called the "**Member-1**", which expression shall include its successors, executors and permitted assigns) and M/s _____a Company incorporated under the laws of _____ and having its Registered Office at _____ (hereinafter called the "**Member-2**", which expression shall include its successors, executors and permitted assigns), M/s _____a Company incorporated under the laws of _____ and having its Registered Office at _____ (hereinafter called the "**Member-n**", which expression shall include its successors, executors and permitted assigns), [*The Bidding Consortium should list the details of all the Consortium members*] for the purpose of submitting response to RFP, and execution of Power Purchase Agreement (in case of award), against RFP for Selection of Solar Power Developers for 60 MW Solar PV project in Republic of Cuba , RFP No._____dated_____issued by UNIÓN ELÉCTRICA, established by Resolution 2079 dated on September 26th, 1988, with legal address at Avenida Salvador Allende No. 666, entre Soledad y Oquendo, Municipio Centro Habana, Province La Habana, Cuba (hereinafter referred to as "**UNE**", which expression shall include its successors, executors and permitted assigns).

WHEREAS, each Member individually shall be referred to as the "**Member"** and all of the Members shall be collectively referred to as the "**Members"** in this Agreement.

WHEREAS, the UNE had invited response to RFP vide its Request for Proposal (RFP)No._____dated _____

WHEREAS the UNE shall purchase power through Power Purchase Agreement;

WHEREAS the RFP stipulates that in case response to RFP is being submitted by a Bidding Consortium, the Members of the Consortium will have to submit a legally enforceable Consortium Agreement in a format specified by UNE wherein the Consortium members have to commit equity investment of a specific percentage for the Project.

NOW THEREFORE, THIS AGREEMENT WITNESSTH AS UNDER:

In consideration of the above premises and agreements all the Members in this Bidding Consortium do hereby mutually agree as follows:

1. We, the Members of the Consortium and Members to the Agreement do hereby unequivocally agree that Member-1 (M/s_____), shall act as the Consortium Leader as defined in the RFP for self and agent for and on behalf of Member-2, ----
-, Member-n.

2. The Consortium Leader is hereby authorised by the Members of the Consortium and Members to the Agreement to bind the Consortium and receive instructions for and on their behalf.

3. Notwithstanding anything contrary contained in this Agreement, the Consortium Leader shall always be liable for the equity (as well as total financing if committed to be met from internal financing) investment obligations of all the Consortium members i.e.,for both its own liability as well as the liability of other Members.

4. Subject to Clause 3 above, the Consortium Leader shall be liable and responsible for ensuring the individual and collective commitment of each of the Members of the Consortium in discharging all of their respective equity as well as other financing if committed to be met internally obligations. Each Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in this Agreement.

5. Subject to the terms of this Agreement, the share of each Member of the Consortium in the issued equity share capital of the Project Company is/shall be in the following proportion: -

Name	Percentage
Member 1	---
Member 2	---
---	---
Member n	---
Total	100%

6. The Consortium Leader, on behalf of the Consortium, shall *inter alia* undertake full responsibility for liaising with Lenders or through internal accruals and mobilizing

debt resources for the Project and ensuring that the Seller achieves Financial Closure in terms of the PPA.

7. In case of any breach of any equity investment as well as other financing requirements commitment by any of the Consortium members, the Consortium Leader shall be liable for the consequences thereof.

8. Except as specified in the Agreement, it is agreed that sharing of responsibilities as aforesaid and equity investment obligations thereto shall not in any way be alimitation of responsibility of the Consortium Leader under these presents.

9. It is further specifically agreed that the financial liability for equity contribution of the Consortium Leader shall not be limited in any way so as to restrict or limit its liabilities. The Consortium Leader shall be liable irrespective of its scope of work or financial commitments.

10. All members of the Consortium shall be liable jointly and severally for meeting the obligations under this RFP.

11. This Agreement shall be construed and interpreted in accordance with the Laws of Cuba alone shall have the exclusive jurisdiction in all matters relating thereto and arising there under.

12. It is hereby further agreed that in case of being selected as the Successful Bidder, the Members do hereby agree that they shall furnish the Performance Guarantee in favour of UNE in terms of the RFP.

13. It is further expressly agreed that the Agreement shall be irrevocable and shall form an integral part of the Power Purchase sale Agreement (PPA) and shall remain validuntil the expiration or early termination of the PPA in terms thereof, unless expressly agreed to the contrary by UNE .

14. The Consortium Leader is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Members respectively from time to time in the response to RFP.

15. It is hereby expressly understood between the Members that no Member at any given point of time, may assign or delegate its rights, duties or obligations under the PPA or this Agreement except with prior written consent of UNE.

16. This Agreement

(a) has been duly executed and delivered on behalf of each Member hereto and constitutes the legal, valid, binding and enforceable obligation of each such

Member;

(b) sets forth the entire understanding of the Members hereto with respect to the subject matter hereof; and

(c) may not be amended or modified except in writing signed by each of theMembers and with prior written consent of UNE .

17. All the terms used in capitals in this Agreement but not defined herein shall have the meaning as per the RFP & PPA.

IN WITNESS WHEREOF, the Members have, through their authorised representatives, executed these present on the Day, Month and Year first mentioned above.

For M/s_____[Member 1]

_ .

(signature, Name & Designation of the person authorized vide Board Resolution Dated [●])

Witnesses:

1) Signature----------
Name:
Address:

2) Signature ----------
Name:
Address:

For M/s_____[Member 2]

_ .

(signature, Name & Designation of the person authorized vide Board Resolution Dated [●])

Witnesses:

1) Signature ----------
Name:
Address:

2) Signature ----------
Name:
Address:

For M/s_____[Member n]

_ .

(signature, Name & Designation of the person authorized vide Board Resolution Dated

Witnesses:

1) Signature ----------
Name:
Address:

(2) Signature ----------
Name:
Address:

Signature and stamp

place of execution

Format 6.6 –Format for Disclosure

[On the letter head of Bidding Company/Each Member in a Bidding Consortium]

Disclosure

We hereby declare that we or our Parent or Affiliate or Ultimate Parent or any Group Company with which we have direct or indirect relationship are not separately participating in this selection process.

We further declare that the above statement is true & correct. We are aware that if at any stage it is found to be incorrect, our response to RFP will be rejected and if LOA has been issued or PPA has been signed, the same will be cancelled and all the securities will be forfeited and recoveries will be effected for the payments done.

(Signature & Name of the person Authorized By the Board)

Date: -

Format- 6.7

CERTIFICATE FOR COMPLIANCE TO ALL PROVISIONS OF RFPDOCUMENT

(Certificate of Compliance to All Provisions of RFP Document / "NIL" Deviation Certificate)
(To be submitted at the e-tender portal by the bidder)

Dear Sirs,

1. With reference to our Bid for "Selection of Solar Power Developers for 60 MW Solar PV project in Republic of Cuba" , we hereby confirm that we have read the provisions of RFP and PPA document along with its subsequent Amendment(s) / Clarification(s) / Addenda/Errata and further confirm that our Bids (i.e. both Technical Bid and Financial Bid) are strictly in conformity with the provisions of the RFP and PPA Document including its Amendments / Clarifications / Errata / Revisions thereof and we have **not taken any deviation** to any of the provisions of the aforesaid RFP and PPA document.
2. Further, we agree that the entire work for development of Solar Power Project(s) shall be performed as per the provisions of PPA document.
3. We confirm that any deviation/ variation / additional conditions to the provisions of RFP and PPA Document read in conjunction with its Amendment(s)/Clarification(s)/ Addenda / Errata found anywhere in our Technical Bid and Financial Bid, implicit or explicit, save those pertaining to rebates offered, stands unconditionally withdrawn, without any cost implication whatsoever to the UNE.
4. We hereby confirm that our Technical Bid does not contain any Financial/Price(tariff) contententry. However, if anything is contained, we shall be solely responsible for any implication.
5. Further, we confirm that our Financial Bid (tariff bid) does not contain any matter in respect of Technical and / or Commercial aspects other than the details specifically sought in the Financial Bid.

Signature of Authorized signatory.....

Date : (Name of Authorized Signatory).....
Place : (Designation).....
(Company Seal) .....

Annexure – 1

PPA ENCLOSED AS SEPARATE FILE

Annexure - 2

Special instructions to Bidders for e-Tendering

Special instructions to Bidders for e-Tendering is Enclosed and uploaded at the tender portal as separate file

Annexure-3

Project and Location Details are enclosed as Annexure-3

Annexure-4

Minimum Functional Specifications are enclosed as Annexure-4

POWER PURCHASE AGREEMENT
FOR A SOLAR PHOTOVOLTAIC GENERATOR

GENERATOR:

DATE: 22 February 2023

BETWEEN:

ON THE ONE PART: the company _____, hereinafter referred to as _____, a trading company duly incorporated under the laws of _____, created by means of _____ granted by the Notary of _____, on ____, _____ of _____, under the number and registered in the Companies Register of _____, in Volume _____, Folio _____, Page _____, represented in this act by the citizen _____, of nationality _____, of legal age, of profession _____, holder of passport no. _____, acting in his capacity as _____, as stated in _____, dated ____, _____ of _____ of _____.

ON THE OTHER PART: The **UNIÓN ELÉCTRICA**, hereinafter referred to as **THE UNE**, constituted by Resolution No. 2079, dated 26th September 1988, with legal domicile at Avenida Salvador Allende, Number 666, between Soledad and Oquendo, Centro Habana municipality, Havana province, with bank account in CUP No. 40321010113200, at Banco Internacional de Comercio S.A (BICSA), represented in this act by Ramón López Ramos, Electrical Engineer by profession, with identity card No. 62121609125, in his capacity as Director of Business and International Relations, accredited by a certified copy of Resolution 19 dated 1st June 2022 issued by the Director General of the Unión Eléctrica, and is empowered to sign foreign investment contracts in the name and on behalf of Unión Eléctrica and Carlos Misael Rodríguez Marqués, Engineer by profession, with identity card 70030601662, in his capacity as Director of Sales, Unión Eléctrica, accredited by a certified copy of Resolution No. 328, dated 1st July 2020, both issued by the General Director of UNE.

Both parties, acknowledging their legal personality and representation with which they concur, agree to initialize this proforma of Power Purchase Agreement, under the following terms and conditions, under the following terms and conditions:

I. DEFINITION OF TERMS AND INTERPRETATION

1.1. TERMS.

AUTHORISATION CERTIFICATE: This is the act by which UNE authorises the physical connection to the GENERATING PLANT to UNE'S NETWORK, referred to in Annex No.1.

GENERATING PLANT: These are the generation parks, destined to produce electrical energy from a photovoltaic solar panel as a primary source, which the GENERATOR associates to this Contract, to make the CONTRACTED ENERGY available to the UNE. The photovoltaic solar electric energy parks will be connected to the UNE's GRID, each one with its own independent CONNECTION NODE.

ELECTRIC POWER PURCHASE AND SALE CONTRACT: This is the present document and hereinafter referred to as the Contract.

NATIONAL LOAD DESPATCH CENTRE (DNC): This is the governing body for the operation and maximum responsibility for coordinated work in the National Electricity System(SEN). It is assisted by the Provincial Load Centres throughout the country.

DELIVERED ENERGY: This is the energy produced by the GENERATING PLANT fed into the UNE GRID measured at the CONNECTION NODE and measured according to the methods set out in paragraph 7.4.1.

ENERGY NOT DELIVERED DUE TO CAUSES ATTRIBUTABLE TO UNE: energy not delivered due to unavailability at the CONNECTION NODE due to defects in the medium voltage grid due to causes clearly attributable to UNE.

GENERATOR: It is the producer of electric energy that officiates as the selling Party of this Contract

CONNECTION NODE: This is the physical place where the electrical installation of the GENERATOR is connected to the UNE GRID.

MEASUREMENT POINT: This is the physical place, at the outlet of the GENERATING PLANT, where the metering equipment is located and where the energy delivered, and the energy consumed from the UNE GRID by THE GENERATOR is measured.

NOTIFICATION OF EXEMPTING CIRCUMSTANCES OF LIABILITY: This is a written communication submitted by one Party and received by the other, stating that a force majeure event has occurred as set out above.

UNE NOTIFICATION OF NON-COMPLIANCE: This is a written notification from the GENERATOR to UNE, indicating that a non-compliance occurred and describing the circumstances of the case.

NOTIFICATION OF NON-COMPLIANCE OF THE GENERATOR: This is a written notification from the UNE to the GENERATOR, indicating that a non-compliance occurred and describing the circumstances of the case.

NOTIFICATION OF TERMINATION FOR NON-COMPLIANCE OF THE GENERATOR: This is a written communication sent by UNE to the GENERATOR, with reference to a previous NOTIFICATION OF NON-COMPLIANCE OF THE GENERATOR and indicating that, having expired the corresponding period for remedy without the GENERATOR having corrected the non-compliance that gave rise to the issue of such NOTIFICATION OF NON-COMPLIANCE OF THE GENERATOR, UNE proceeds to terminate the present Contract due to causes attributable to the GENERATOR.

SUPPLY PERIOD: This is the period of time during which the purchase and sale of electrical energy will take place, within the framework of this Contract, from the evacuation and supply to UNE by the generator of the first kWh produced.

BILLING PERIOD: Every calendar month.

DEADLINE FOR INSTALLATION: This is the maximum period committed to obtain the AUTHORIZATION CERTIFICATE .This deadline is calculated from the start of construction work on the photovoltaic solar parks.

COMMITTED OR AUTHORISED POWER: This is the active power that the GENERATOR undertakes to install in the GENERATING PLANT, which corresponds to the sum of the nominal active powers of the electricity generating units that make up the GENERATING PLANT. The nominal power of each generating unit is the nominal power of each photovoltaic panel.

AUTHORISED INSTALLED POWER: This is the sum of the nominal active powers of the electric power generating units of the installed GENERATING PLANT whose physical connection to the UNE GRID is certified in an AUTHORISATION CERTIFICATE. The nominal power of each generating unit is the nominal power of each photovoltaic solar park.

CONNECTION PROCEDURE: This is the document that establishes the modalities and necessary terms for the connection of the GENERATING PLANT to the national electricity grid, according to Annex No. 1.

UNE GRID: This is the connection network belonging to UNE.

NATIONAL ELECTRICITY SYSTEM (SEN): This is the existing Electricity System in Cuba that interconnects all the generating plants, transmission and distribution power lines and is operated by the DNC of the Republic of Cuba.

LAND: This is the set of areas on which the GENERATING PLANT will be located and includes all the secondary areas necessary for its execution, operation and maintenance of the GENERATING PLANT and the access and use of the areas and the necessary infrastructure to make way for the connection works, such as transmission lines.

DATE OF COMMENCEMENT OF WORK: This signifies the date after the financial closure and the obtaining of the permits on which the construction works of the GENERATING PLANT are officially started, by means of the instruction given by the GENERATOR to the CONTRACTOR.

DATE OF COMMERCIAL OPERATION: This signifies the date after obtaining the AUTHORISATION CERTIFICATE on which the GENERATING PLANT is connected to the UNE GRID at the CONNECTION NODE, has completed the commissioning tests, and is available to deliver electricity to the national grid.

1.2. **INTERPRETATION:**

1.2.1. Words in singular may take the plural and vice versa, where the text or interpretation of the Contract so requires.

1.2.2. Provisions in which the terms "agree", "agreed" or "agreement" appear require that the agreement be recorded in writing, and where "written" or "in writing" appears, it means written by hand, typewritten, or by means of a permanently recorded print or electronic medium.

1.2.3. The words in the margin of the page and other headings shall not be considered for the interpretation of this Contract.

1.2.4. Any reference to day(s), month(s) or year(s) shall be understood to refer to day(s), month(s) or year(s) of the Gregorian calendar. Where a certain number of days is stated in the Contract, they shall be counted excluding the first and including the last day, unless it falls on a non-business day, in which case the last day shall be the next business day.

II. BACKGROUND

2.1. In order to promote the insertion of solar photovoltaic electricity generation in the national territory, by agreement of the CECM (Executive Committee of the Council of Ministers), the GENERATOR was authorised to produce and sell electricity from the solar photovoltaic park, for a total power of _____ megawatt (____ MW) to be installed in the provinces of Cuba.

III. OBJECT

3.1. This Contract establishes the technical and commercial conditions under which the GENERATOR undertakes to develop, build and operate the GENERATING PLANT in order to sell, on an exclusive basis, the electrical energy it generates, except for the energy necessary to be consumed for the operation of the main and auxiliary equipment of the GENERATING PLANT. UNE is obliged to receive all the electrical energy produced by the GENERATING PLANT, as established in Annex No. 1 of this Contract.

3.2. This Contract also establishes the requirements to be fulfilled by both Parties and the conditions under which UNE shall pay for this supply.

3.3 The GENERATOR shall be solely responsible for the operation and maintenance of the GENERATING PLANT and shall have the capacity to deliver to UNE at the CONNECTION

NODE, under normal operating conditions, the power indicated below:

COMMITTED power: _____ megawatt (_____ MW)

IV. DOCUMENTS MAKING UP THIS CONTRACT

4.1. The documents comprising this Contract are as follows:

a) Annex No. 1: Connection procedure (Grid Code), prepared and delivered by UNE;

b) Annex No. 2: Schedule Management, to be prepared and submitted by the Generator;

c) Annex No. 3: UNE's first demand guarantee in favour of THE GENERATOR for the payment of electricity, delivered by UNE;

d) Annex No. 4: FAITHFUL COMPLIANCE GUARANTEE, to be delivered by the Generator; and

e) Annex No. 5: List of permits, licences and authorisations, prepared and submitted by UNE.

V. VALIDITY

5.1. This Agreement shall enter into force on the date of signature and shall remain in force for a period of twenty-seven (27) years.

5.1.1. The term for the execution of this Contract is twenty-seven (27) years, broken down into two (2) years for the Implementation and construction, plus twenty-five (25) years for the commercial operation of the photovoltaic parks, counted from the date of signature of the AUTHORISATION AGREEMENT.

5.1.2. The modification of the term of the Contract may be agreed by the Parties, by means of Amendment to the Contract, after approval by the competent authority of the extension of the term of the ECTE, in the same magnitude as the term established in clause 5.1.1.

5.2. Upon expiry of the TERM, the Generator shall have the option of either fully dismantling the GENERATING PLANT at its own cost, leaving the site free from all types of equipment and installations, or reaching an agreement to:

a) the extension of the present Contract, subject to renegotiation between the Parties of the sale price per kWh, in order to reduce it.
b) the transfer of the GENERATING PLANT, subject to agreement between the Parties and in good operational condition on the transfer to UNE.

VI. DEADLINES

6.1. The GENERATOR shall execute the PROJECT under BOO (Build, Own and Operate) conditions, i.e. development, construction, occupation, operation and maintenance of the GENERATING PLANT until the end of the TERM of the present Contract.

6.2. THE GENERATOR shall execute the GENERATING PLANT, according to the schedule shown in Annex No. 2 of this Contract.

6.3. The deadline for obtaining all the necessary permits for the construction of the GENERATING PLANT is six (6) months from the entry into force of this Agreement and its Annexes. UNE shall cooperate with THE GENERATOR in obtaining all the relative authorisations necessary for the construction. This term shall be extended for another six (6) months if the authorisations were not obtained for reasons not attributable to THE GENERATOR.

6.4. The deadline for the start of the works is six (6) months from the date of obtaining all the permits, which is considered necessary to obtain the financing.

6.5. The deadline for carrying out the work on the GENERATING PLANT is established in Annex No. 2 Schedule Management, counted from the start of the work. The deadline for the connection of the GENERATING PLANT to the UNE Grid is thirty (30) days from the date of completion of the configuration and commissioning tests.

6.6. In case of occurrence of an event that may be considered as a circumstance exempting liability, as provided in Clause XVII or when THE GENERATOR is unable to supply the electrical energy produced by the GENERATING PLANT due to the unavailability of the UNE Grid or as a consequence of an event or circumstance attributable to UNE, the delivery or supply period shall be extended for the duration of said event or circumstance. The timelines established in this Contract shall continue to be valid. When the event that may be considered as a circumstance exempting from liability occurs during the construction stage of the GENERATING PLANT, the schedule management shall be extended for the duration of said event or circumstance, as previously agreed between the Parties.

VII. GENERATING PLANT

7.1. The generating plant uses photovoltaic solar energy as its primary source.

7.2. The COMMITTED and AUTHORISED POWER is _____ megawatt (__ MW).

7.3. The APPARENT NOMINAL INJECTED POWER is _____ megavoltampere (____ MVA).

7.4. The DEMANDED POWER (Input) is _____ megawatt (_____ MW).

7.5. The GENERATOR shall be responsible for the operation of the GENERATING PLANT, in accordance with the provisions of the "Grid Code for photovoltaic solar parks", which constitutes Annex No. 1 to this Contract.

7.7 ENERGY AND POWER MEASUREMENT

7.7.1. **VARIABLES TO BE MEASURED.** Two energy measurement devices shall be installed in the CONNECTION Node of the GENERATING PLANT, one device operated by THE GENERATOR and the other device operated by UNE, both connected in series and telemetered, whose data may be monitored by both the GENERATOR and UNE; both energy measurement devices involved in the commercial transaction must be verified by an Electric Energy Meter Laboratory (EEC) authorised by the National Standardisation Office, the state body empowered to carry out state verification of such instruments.

a) For billing purposes, the data from the meter operated by UNE will be valid. Only in the event of breakage or maintenance or calibration of the meter, the device operated by the GENERATOR will be used. The devices for measuring DELIVERED ENERGY shall be in kilowatt-hours (kWh). The ENERGY DELIVERED to determine the amount to be paid by UNE in any period of time shall be the difference between the first reading and the subsequent reading in that period of time.

b) The metering devices at the CONNECTION NODE shall be capable of measuring and recording at intervals of at least fifteen (15) minutes instantaneously:

i. Active energy delivered, in kilowatt-hour (kWh)

ii. Active energy consumed, in kilowatt-hours (kWh)

iii. The delivered active power, in kilowatt kW)

iv. Delivered reactive power, in kilovars (kVAR)

v. Reactive power consumed, in kilovars (KVAR)

vi. Voltage, per phase (V)

vii. Current per phase (A)

c) Measurement records shall be stored in a format that allows their use in an electronic spreadsheet.

d) The power measurement devices shall continuously measure the power at which the GENERATING PLANT is operating and shall have a data acquisition system that records this power with a periodicity of sixty (60) seconds, expressed in kilowatts (kW).

e) UNE will provide the technical characteristics of the metering equipment (electricity meters).

f) ENERGY NOT DELIVERED will be measured considering the number of hours of non-supply to UNE's Grid for causes attributable to the latter, multiplied by the average hourly production of the plant during the same average hourly period.

ACCURACY CLASS. The accuracy class of the metering equipment for the electrical energy delivered to the SEN must be the one required according to Cuban standards. If additional metering equipment is installed for this type of measurement, it must also comply with the established Cuban standards.

7.7.2. **VERIFICATION OF METERING EQUIPMENT.**

a) The verification of the installed metering devices will be officially carried out by an Electrical Energy Metering Laboratory authorised by the National Standardisation Office (ONN). After the verification the equipment will be officially sealed. The costs of such tests shall be borne by the party requesting the verification.

b) In all verifications of such equipment, the Parties shall be represented by competent technical personnel as observers.

c) If the deviation detected in the accuracy tests exceeds the parameters set out in IEC 62053-21, by mutual agreement between the Parties, the quantity of electrical energy delivered shall be corrected as from the date the test was carried out.

7.7.3. **BREAKAGE OF METERING EQUIPMENT.** In the event of breakage of the meter operated by UNE, the meter operated by the GENERATOR will be used for billing.

VIII. PRICES, TAXES AND TOLLS

8.1. **PRICE of the ENERGY DELIVERED.** The price of the electricity awarded *(p_{ad})* is USD/kWh (____ cents per kilowatt-hour).

8.1.1. The tariff established for the sale of energy by UNE to the GENERATOR, if the Plant is under maintenance or repair and the GENERATOR is obliged to take energy from the national grid, shall be the tariff in force in the country for this type of service, according to the legislation in force as established by the Ministry of Finance and Prices.

8.2. **TAXES.** All taxes and other duties contemplated in the Tax Law of the Republic of Cuba, which are levied on the GENERATOR in the activities necessary for the fulfilment of this Contract, shall be at its expense and in accordance with the provisions of Law No. 113 of the Tax System, with the exemptions approved by the competent authorities. If there are modifications to the tax system affecting the either party, the UNE and the GENERATOR may not resort to the revocation or revision of the contractual conditions.

IX. INVOICING AND PAYMENT

9.1. The GENERATOR shall invoice UNE monthly for all ENERGY DELIVERED and ENERGY NOT DELIVERED DUE TO CAUSES ATTRIBUTABLE TO UNE at the price agreed in this Contract and not including the energy coming from the GENERATOR for auxiliary services for its own electrical inputs.

9.2. Invoicing shall be for the production of each calendar month and shall be made in Euros, within the first five (5) working days of the following month. UNE shall issue its acceptance or refusal within seven (7) working days. In the absence of any opposition by UNE, such invoice shall be paid by UNE within thirty (30) working days following its acceptance, by means of a Bank Transfer to the account of the Generator.

9.2. In the event of non-acceptance of the invoice by UNE, it shall notify the GENERATOR in writing within ten (10) working days of receipt of the invoice, of its opposition to the invoice, substantiating it with documents, by means of formal communication. Said opposition may only refer to deviations of the energy invoiced with respect to that recorded by the meter and errors of preparation.

9.3. The GENERATOR has ten (10) working days to accept the observations of the UNE or to present the specific elements attesting to the accuracy of the invoice. Invoices issued by the GENERATOR must meet all the formal requirements of the regulations in force. Any discrepancies must be previously pointed out by UNE. In the absence of objections to the clarifications issued by the GENERATOR, the invoice shall be paid by UNE by bank transfer to the account of the GENERATOR within 30 working days after acceptance of the invoice. Formal deficiencies shall not be cause for late payment.

9.4. In the event that UNE does not pay within the established time after accepting the monthly invoice, the GENERATOR shall be granted a Guarantee to the extent provided in Annex No. 3 of this Contract. This guarantee shall be valid until the date on which the GENERATOR has recovered the full value of the investment, in accordance with the business plan.

9.5. The currency of payment will be in Euros (€).

X. GENERATOR OBLIGATIONS

10.1. The obligations assumed by the GENERATOR in this Contract are those set out below:

a) Apply to the competent bodies for all the necessary permits for the construction and operation of the GENERATING PLANT and the connection works, in accordance with the indications received by UNE.

b) Supply to UNE, on an exclusive basis, at the CONNECTION NODE, all of the electrical energy produced by the GENERATING PLANT, except only for the needs of the GENERATING PLANT and its auxiliary equipment, with the quality parameters established in Annex No.1 of this Contract.

c) To provide Cuban companies with the right of first option for the realisation of productions and the acquisition of supplies and services destined to the production and maintenance process.

d) To develop, construct, exploit (operate) and maintain the GENERATING PLANT in accordance with the environmental requirements and regulations of the Republic of Cuba, the technical standards and the quality parameters established in Annex No. 1 of this Contract.

e) Install and commission the GENERATING PLANT with the COMMITTED POWER WITHIN the INSTALLATION DEADLINE.

f) Execute at its own cost the purchase, import and supply of the necessary accessories, equipment and electrical materials, in accordance with the list and specifications

provided by UNE, for the execution of the interconnection works of the GENERATING PLANT with the CONNECTION NODE, before the expiry of the DEADLINE FOR INSTALLATION. Including the equipment for the installation of a secure communication between the GENERATING PLANT'S operation panel with the National Load Dispatch (DNC) and the corresponding Provincial Load Dispatch (DPC), in accordance with UNE standards.

g) To contract and sign a service or supply contract with the provincial electricity company, for the execution of the works necessary to connect the GENERATING PLANT to the UNE Grid and the works of possible adaptation of the same, as indicated in Annex No. 1 of the present Contract. The works shall be paid for by UNE and it shall be responsible for their operation and maintenance; in addition, the provincial electricity company shall deliver to the GENERATOR the Schedule for the execution of the interconnection works.

h) Line failures by equipment supplied by the GENERATOR, before the guarantee period has expired, do not imply a penalty for UNE and the GENERATOR must compensate for the damage and replace the aforementioned equipment.

i) Not to carry out additional works on the UNE GRID tan those required by the CONNECTION BLUEPRINT and the EXECUTIVE PROJECT (BILL OF QUANTITIES).

j) Operate the GENERATING PLANT connected to the UNE GRID.

k) Deposit in favour of the UNE a bank guarantee, corresponding to 10 % of the investment amount.

l) To operate and maintain the GENERATING PLANT, maintaining its availability and efficiency, in compliance with the regulations set out in Annex No. 1.

m) Comply by itself and its employees and contracted personnel with the conditions set out in this Contract, as well as with the regulations relating to such conditions.

n) Comply with the environmental regulations of the Republic of Cuba or, failing that, of the country of the GENERATOR when there is no applicable Cuban legislation, in relation to the construction, management and total dismantling of works of the GENERATING PLANT, on the basis of the indications provided in this regard by UNE, if this option is adopted in relation to the provisions of Clause V.

o) Not to transfer, under any circumstances, the energy from the GENERATING PLANT to third parties.

p) Deliver to the corresponding Provincial Load Dispatcher, with a copy to the DNC, ten (10) days prior to the beginning of each month, the energy in kWh planned to be

generated in the following calendar month, which will serve as the basis for the analysis of the corresponding month's billing.

q) Daily by 10 a.m., hour-by-hour daily generation forecasts for the subsequent day shall be reported and on Friday hour-by-hour daily generation forecasts for Saturday, Sunday and Monday shall be reported.

r) The GENERATOR may not exceed the value of the AUTHORISED POWER by more than 10%, in which case the energy generated under this condition will not be invoiced by the GENERATOR and therefore will not be paid by UNE.

s) Allow UNE personnel to access the generating plant with prior notification.

XI. OBLIGATIONS OF THE UNE

11.1. The obligations assumed by UNE in this Contract are as set out below:

a) To assist the GENERATOR in obtaining the necessary permits for construction, management of supplies and storage of the GENERATING PLANT and other permits required for its operation.

b) To respect the supply provisions set out in this Contract and to respect the rules on the operation of the GENERATING PLANT, in relation to the DNC set out in Annex No.1.

c) Certify monthly the amount of electricity received, in accordance with the invoicing corresponding to each period.

d) The Provincial Electricity Companies must sign a SERVICE CONTRACT with the GENERATOR, to execute by itself or through third parties, the necessary works to connect the GENERATING PLANT to the UNE GRID, as well as the works of possible adaptation of the same, as indicated in Annex No.1.

e) Operate and maintain the CONNECTION NODE and the associated UNE NETWORK in a manner that allows for the proper execution of this CONTRACT.

f) Obtain and renew at its own expense all authorisations, approvals or permissions, national or provincial, necessary for the construction, operation and maintenance of the Transmission lines of the GENERATING PLANT with the UNE GRID.

g) Allow the GENERATOR, within 90 days of the signing of the Contract, the use of the necessary LAND for the construction, operation and management of the GENERATING PLANT.

h) Purchase from the GENERATOR the ENERGY DELIVERED and the ENERGY NOT DELIVERED because of the UNE, according to the conditions set out in Annex No. 1.

i) Comply through its employees and contracted personnel with the conditions established in this Contract, as well as with the regulations relating to these conditions.

j) To grant the GENERATOR a Guarantee with the scope set out in Annex No. 4 of the present Contract. This guarantee shall be valid until the date on which the GENERATOR has recovered the full value of the investment, in accordance with the feasibility study.

k) To pay the invoices presented by the GENERATOR in accordance with the terms agreed in Clause IX and Annex 4.

XII. REVIEW OF CONDITIONS

12.1 Taking into account the amount of investment that the GENERATOR has to assume to fulfil the present Contract, for the period of validity of the same, UNE and the GENERATOR recognise and accept that UNE and the GENERATOR may not resort to the revocation or revision of the contractual conditions due to excessive supervening hardship.

XIII. GUARANTEE OF FAITHFUL COMPLIANCE AND PENALTIES

13.1. The GENERATOR guarantees the faithful fulfilment of all obligations assumed in this Contract, by means of a faithful compliance bank guarantee, corresponding to ten percent (10%) of the investment amount, made available to the UNE, through the processing established in Annex No. 5, issued by the GENERATOR in favour of the UNE on the date of commencement of the works.

13.1.1. If on the established date of expiry of the INSTALLATION DEADLINE, the GENERATOR has not installed a NOMINAL POWER equal to one hundred percent (100%) of the COMMITTED POWER, the UNE may execute the entire guarantee granted by the GENERATOR, described in the paragraph 13.1.

13.1.2. Eighty percent (80%) of this guarantee may be released at the time of connection of the GENERATING PLANT to the general grid under the conditions detailed in paragraph 13.3.2. and the remaining twenty percent (20%) shall remain until the Term of this Contract.

13.2. Subject to the provisions of the preceding paragraph 13.1, it shall be understood that the GENERATOR does not comply with the maximum installation term established in Annex No. 3, referring to the executive schedule, if on the date established for completion of the works, the GENERATING PLANT does not have the NOMINAL INSTALLED POWER equal to or greater than ninety-five percent (95%) of the COMMITTED POWER.

13.3. If the GENERATOR on the date established for the maximum term of installation has installed a power equal to or greater than ninety-five (95%) of the COMMITTED POWER, but has not reached one hundred percent (100%) of the same, UNE will not execute the Guarantee described in paragraph 13.1. and within five (5) working days

following the date of completion of the works, the GENERATOR may choose between the following two (2) options:

13.3.1. To have an additional period of time, of up to six (6) months, calculated from the expiration of the maximum term of installation to reach one hundred percent (100%) of the COMMITTED POWER, with a penalty payment established as indicated below.

13.3.2. That the INSTALLED AUTHORISED POWER be considered as that verified in the AUTHORIZATION CERTIFICATE, in which case the UNE may execute eighty per cent (80%) of the amount of the guarantee foreseen in Paragraph 13.1.2.

13.4. If the GENERATOR selected the option reflected in paragraph 13.3.1, a daily penalty will be applied until it reaches 100% of the COMMITTED POWER, provided that it does not exceed one hundred and eighty (180) days. The daily penalty shall be calculated using the following formula:

13.4.1. kW x 125$/180. Where kW means the difference between 100% of the kW of POWER COMMITTED and the kW of power actually installed at the date established for the completion of the works.

13.5. At the end of the six (6) month extension, if the GENERATOR has not managed to install an amount equal to one hundred percent (100%) of the COMMITTED POWER, UNE may execute the guarantee granted by the GENERATOR for the amount under the conditions established in paragraph 13.1.2.

13.6. The UNE shall only release twenty percent (20%) of the original amount of the Performance Bond when the GENERATOR has completed the closeout phase of the project, once the term of validity set forth in Clause V of this Contract has expired.

13.7. During the term of this Contract, the GENERATOR undertakes to maintain, preserve and renew the Guarantee of Faithful Fulfilment of the Contract constituted in compliance with the provisions of this Clause.

13.8. **PENALTY FOR IRREGULARITIES IN THE REGISTRATION OF DELIVERED ENERGY.** In the event that UNE finds, by means of meter verification, irregularities in the measurement of DELIVERED ENERGY attributable on the part of the GENERATOR and to the detriment of UNE, the GENERATOR shall be fined. Said fine shall be equivalent to the difference detected, valued at double the price of the ENERGY DELIVERED when the GENERATOR, after having received notification of the irregularity, does not proceed to clarify its position or adhere to the same within the fifteen (15) successive days established in this Contract, notwithstanding that once the fine has been applied, UNE may exercise its right to terminate the Contract except as provided in Clause XVII.

13.9. **PENALTY FOR INJECTING A HIGHER POWER THAN THE AUTHORISED POWER**

If, during the calendar month, it is found that the GENERATOR has injected into the UNE GRID more power than the AUTHORISED POWER, UNE will proceed to apply a fine.

The amount of such fine shall be applied for values higher than 110% (one hundred and ten percent) of the AUTHORISED POWER:

Being: $\$M = (P_{\max\_iny} - P_{aut}) \times 1000 \times C$

$\$M$: This is the monetary value of the fine to be paid by the GENERATOR.

$P_{\max\_iny}$: Maximum power injected into the UNE GRID, through the CONNECTION NODE in the calendar month (MW).

P_{aut} : AUTHORISED POWER (MW).

C : Charge for maximum metered power when it exceeds the AUTHORISED POWER ($/kW).

NOTE: The energy generated when exceeding 110% of the AUTHORISED POWER will not be invoiced by the GENERATOR and therefore will not be paid by UNE.

13.10**. POWER FACTOR NON-COMPLIANCE PENALTY**.

In the event that the GENERATING PLANT is consuming electrical energy from the UNE Grid, it must comply with the power factor requirements established in the legislation in force. Failure to comply with the requirement will be penalised in accordance with the current legislation.

XIV. COMPENSATION TO THE GENERATOR

14.1. Compensation for MV Grid faults

For the purpose of determining the compensation for MV Grid faults, the indicator of total time of unavailability in the CONNECTION NODE due to faults in the MV Grid in the month (Tc_{MT}) will be used. Unavailability at the CONNECTION NODE is understood to mean the absence of voltage at that node due to faults in the MV Grid.

The indicator is calculated using the following formula:

$$Tc_{MT} = \sum_{k=1}^{n} t_k$$

Where:

Tc_{MT} : Total downtime of the UNE GRID at the CONNECTION NODE due to MV GRID faults (expressed in hours) in the month.

n: This is the number of outages in the CONNECTION NODE in the month caused by defects in the MV GRID.

t_k :The duration of unavailability k at the CONNECTION NODE caused by faults in the MV GRID.

For the calculation of the indicators, all unavailability in the UNE GRID caused by faults in the MV GRID, lasting 3 (three) minutes or more, will be taken into account. Unavailability to be considered will be counted from the moment that UNE becomes aware of them, either by computerised means (remote supervision systems) or by other means, for example, first telephone call.

Scheduled and unscheduled interruptions will be considered, except those falling under the category of Force Majeure.

During the term of this CONTRACT, the unavailability indicator Tc_{MT} will be calculated on a monthly basis. If the calculated value is higher than the Continuity Limit established for said voltage level, UNE will compensate the GENERATOR.

The Continuity Limits established (in hours) for the unavailability indicator according to the voltage level of the CONNECTION NODE are:

Indicator	CONNECTION NODE in 34.5 Kv	13,8 kV CONNECTION NODE
$\overline{Tc_{MT}}$	5	4.16

If the calculated value of the unavailability indicator (Tc_{MT}) is higher than the value of the corresponding Continuity Limit ($\overline{Tc_{MT}}$), UNE will compensate the GENERATOR according to the following expression:

$$CT_{MT} = (Tc_{MT} - \overline{T}c_{MT}) \times P_g \times T_A$$

Where:

CT_{MT} : Compensation to the GENERATOR for unavailability at the CONNECTION NODE caused by defects in the MV GRID.

Pg: Authorised power.

T_A : Energy purchase tariff referred to in the energy purchase contract.

14.2. General considerations

Interruptions caused by works in the interest of the GENERATOR, interruptions caused by the GENERATOR, interruptions related to supply cuts ordered by the UNE as a result of the GENERATOR's default or others included in all the cases of disturbance that cause an Abnormal State of Operation of an Electrical Distribution System (MV) will be excluded from the calculation of the indicators.

UNE will keep the unavailability records in accordance with the established criteria, calculating the unavailability indicator and communicating the results to the GENERATOR. The compensation, which will be determined in accordance with the above procedure, will be included in the monthly billing.

XV. TRANSFER

15.1. **Transfer of Contract.** The rights and obligations established in this Contract may not be transferred to third parties without the express consent of UNE. Any refusal must be justified.

15.2. **Assignment of receivables.** The GENERATOR may assign and pledge the payment receivable corresponding to the energy generated prior notification to UNE and acceptance by the latter of the new creditor. When the GENERATOR makes a partial or global assignment of its payments, it shall reimburse UNE for the administrative expenses generated for this reason.

15.3. For the total or partial assignment of receivables to be issued by the GENERATOR, THE PARTIES agree that the notification to the UNE must be made by notarial protocol, submitting the following documents:

15.3.1. Notarised deed of of assignment of receivables.

15.3.2. Notarised certificate of legal capacity and representation of the assignor and

asignee.

15.3.3. Letter issued by the asignee with certified signatures indicating the bank account number where payments are to be made.

XVI. TERMINATION OF THE CONTRACT

16.1. Subject to the provisions of Clause XIII, this Contract may be terminated at any time for the following reasons:

a) By mutual agreement between the parties.

b) The term of the Contract has expired.

c) For failure to comply with the obligations set out in Clause VI.

d) For repeated breach of the obligations of either party, which has not been remedied within sixty (60) days, or

e) By termination of either Party, provided that there is no successor in place and grade acceptable to the other Party.

16.1.1. In the event of the termination of any of the Parties, the legal successor shall be subrogated in place and to the extent of the terminated Party, for the purpose of the performance of the obligations contained in this Contract.

16.2. In the event that all authorisations and licences have been obtained and the LAND has been made available for the construction of the Installation, the GENERATOR does not obtain the financing within the period established in Paragraph 6.4 or, in the event that it has obtained the financing, does not begin work within twelve (12) successive months from the date on which the conditions described above were obtained, the present Contract shall be automatically terminated. In this case, UNE shall be granted, by way of indemnification, the appropriation of all the rights of the GENERATOR over the Project that is the object of the present Contract.

16.3. UNE may unilaterally terminate this Contract as of right if any of the following situations occur:

16.3.1. The assessment of a second violation in the measurement of the energy delivered to the grid, due to an intentional act of the GENERATOR, after having applied the penalties in accordance with sub-clause 13.2.

16.3.2. Once it has been demonstrated that the GENERATOR has supplied electricity from other non-renewable sources to the UNE Grid.

16.4. If the UNE or the GENERATOR agree to promote the termination of this Contract for the reasons set out in this Clause, the defaulting Party, before exercising the right of

termination, shall send the defaulting Party a notice of default. Upon receipt of the aforesaid notice, the defaulting Party may remedy such default within a period not exceeding thirty (30) days from receipt of the notice of default. If, after the provision period, the non-performance persists, the non-performing Party shall have the right to terminate this Contract.

16.5. The right to unilaterally terminate this Contract by either Party does not imply the waiver of the penalties and warranties set forth herein or the right to claim compensation for damages suffered by the aggrieved Party.

16.6. In case of termination of this contract before the expiry date due to breach by one of the Parties, the actions to be taken shall be agreed between both Parties by means of a supplementary contract.

XVII. CLAIMS

17.1. The Parties may file claims against each other for breach or improper fulfillment of the obligations, terms and conditions agreed in this Contract. Claims shall be notified in writing, duly substantiated, at the address of the Party complained of within thirty (30) calendar days after the date of the breach or the date on which the damage or prejudice caused to one of the Parties became public, otherwise the claim shall not proceed.

17.2. The respondent shall satisfy or answer the claim within thirty (30) calendar days from the date of receipt of the complaint. If the Respondent fails to answer the claim within the agreed time limit, the complaint shall be deemed to have been accepted, and the respondent shall comply with the specific claim set out by the claimant.

17.3. The complaining Party shall be obliged to submit to the other Party such evidence as may be necessary to prove the breach of the obligation between them.

17.4. In the event that the claim does not comply with the essential requirements or with the necessary documents that evidence the basis of the fact stated therein, which prevents such claim from being exercised, it will be returned to the claimant for the correction of the omissions, within seventy-two (72) hours of receipt of the claim, which will interrupt the time limit of the response by the respondent.

17.5. If the Parties fail to reach an agreement in the claim process, the dispute resolution procedures set out in Clause XVIII of this Contract shall be applicable.

XVIII. EXONERATING CIRCUMSTANCES OF LIABILITY

18.1. **Force Majeure Events**. None of the Parties shall be liable for breaches of contract arising from fortuitous events or force majeure, being considered as such those that arise

after the Contract has been signed and prevent or delay its performance as a result of events of an extraordinary, unforeseeable nature OR WHICH, being foreseeable, are unavoidable by the Parties, and which make it totally or partially impossible to fulfil the contractual obligations, always endeavouring to take timely measures to minimise the consequences of any event of Force Majeure. The Party that alleges the impossibility of fulfilling its commitments contracted due to these causes, must prove absolutely and reliably the cause and effect relationship of the non-fulfilment.

18.2. **Communications regarding Force Majeure Events**. When a Party considers that an event or circumstance of Force Majeure has occurred, which may condition the execution of its obligations, in order to be released from its responsibility, it shall warn the other Party of the manifestation of the cause of Force Majeure within a term not greater than twenty (20) days following the event, with a written communication to the other Party, in which all the elements related to such event are indicated and accredit its occurrence within a term of ten (10) days counted from the certification by the competent authority of the country. If it fails to do so, the Party that is unable to fulfil its obligations shall be liable for the damages caused.

18.3. The period during which a Party is prevented from fulfilling its obligations under this Contract shall be automatically extended for an equal period, counted from the date of occurrence of the cause of Force Majeure.

18.4. Performance of obligations may be interrupted during the entire period of the Force Majeure event. Neither Party may invoke Force Majeure as justification for any failure to comply with the payment obligations set out in this Contract.

18.5. If an event of Force Majeure occurs which may last for more than three hundred and sixty-five (365) consecutive days, either Party may terminate this Contract.

18.6. Any provisions, regulations, proclamations, orders or actions of any authority of either Party, including the denial of licences of foreign governments to the Parties, which prevent or attempt to prevent, in whole or in part, the performance of the obligations of the Parties, shall not constitute a circumstance exempting from liability or a circumstance modifying the obligations under this Contract.

XIX. APPLICABLE LAW AND DISPUTE SETTLEMENT

19.1. This Contract shall be governed by the laws in force in the Republic of Cuba. Should any of its provisions be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not be affected or impaired in any way, and the invalid, illegal or unenforceable Part shall, to the extent possible, be interpreted in such a way as to reflect the intention of the Parties.

19.2. Any controversies or disputes arising between the Parties relating to the interpretation, execution or performance of the obligations under this Contract or any other aspect related thereto shall be settled by amicable negotiations, and in any event, in order for any discrepancies arising from the interpretation and performance of this Contract to be submitted to the arbitration procedure contemplated in this Clause, the possibilities of amicable settlement must have been previously exhausted.

19.3**. ARBITRATION.** If the above mechanisms fail, disputes between the parties that cannot be resolved by mutual agreement shall be submitted to International Arbitration under the terms set out below:

19.3.1. The Parties shall submit to International Arbitration within sixty (60) calendar days from the first meeting held by the Parties in order to settle the differences. The Rules of Procedure of the Cuban Court of International Commercial Arbitration shall apply. The Arbitral Tribunal shall be composed of three (3) arbitrators, two of whom shall be chosen, one by each of the Parties and the third by mutual agreement between the two chosen arbitrators, who shall be the chair.

19.3.2. The applicable law shall be the law of the Republic of Cuba, the language of the arbitration shall be Spanish, and the arbitration shall be held in Havana, Republic of Cuba. The Parties expressly undertake to comply with the award rendered by the Tribunal of the Cuban Court of International Commercial Arbitration, which shall be binding and final for the Parties. The arbitration costs shall be in accordance with what is established in the award. The Parties expressly waive the right to resort to the Ordinary Jurisdiction to resolve the controversies arising from the interpretation and execution of the present Contract.

If a Party to a dispute fails to comply with its award, the award may be enforced in accordance with the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards. The request to intervene in international arbitration shall not be grounds for breach of the other obligations entered into by the Parties under this Contract.

19.4. **PRECAUTIONARY MEASURES.** Nothing in this Clause shall be construed to preclude the right of either Party to obtain urgent or provisional measures which may be taken only by the Tribunal of the Cuban Court of International Commercial Arbitration for the duration of the proceedings.

XX. COMMUNICATIONS

20.1. All communications or documents to which this Contract gives rise shall be in writing and shall be deemed to have been received by the Party on the date of delivery by hand where registered post or recorded delivery telegram with return receipt requested has

been used as the means of delivery. In the event that the means used are fax or e-mail, the date to be considered as the date of delivery shall be the date of the addressee's notice of receipt.

Any notice given by UNE to the GENERATOR relating to any breach by the latter, the termination of this Contract, including any NOTICE OF BREACH BY THE GENERATOR, NOTICE OF CIRCUMSTANCES EXEMPTING LIABILITY and NOTICE OF TERMINATION FOR BREACH BY THE GENERATOR or relating to changes in the conditions of this Contract under Clause XII, shall only be deemed valid to the extent that UNE has sent such notice to the address communicated to UNE. Likewise, the communications made by the GENERATOR to UNE shall be deemed valid when the notice is sent to the address communicated by UNE.

Communications to UNE should be addressed to:

Ramón López Ramos
By the following means,
In person (09:30 to 15:30), or by post to the following address:
Unión Eléctrica.
Avenida Salvador Allende No 666
Between Oquendo and Soledad, Havana, Cuba.
E-MAIL: ramonlr@oc.une.cu

Carlos Misael Rodríguez Marqués
By the following means,
In person (09:30 to 15:30), or by post to the following address:
Unión Eléctrica.
Avenida Salvador Allende No 666
Between Oquendo and Soledad, Havana, Cuba.
E-MAIL: carlosmr@oc.une.cu

Communications should be addressed to:

To the GENERATOR: _____

Attention:

Position: _____

Address: [_____] Telephone: _____

E-mail: _____

In the absence of earlier proof of receipt, any communication shall be deemed to have been made: (i) if sent by registered mail, counted from receipt by the addressee; (ii) if sent by hand, with confirmation of delivery; and, (iii) if sent by email, by electronic confirmation receipt or other reliable means.

The Parties expressly agree that any notice or communication given to the aforementioned persons and in accordance with the above rules shall be deemed to have been validly given to the Party to whom it is addressed. Either Party may modify the address or e-mail address indicated for notifications related to this Contract, by informing of such situation in accordance with this clause, at least 5 days in advance.

XXI. GENERAL PROVISIONS

21.1. For a better interpretation of the present contract, the UNE, represented by the Director of Business, will be the counterpart of the GENERATOR from the date of entry into force of the present Contract and its annexes until the signing of the Authorisation Certificate of the GENERATING PLANT and the Director of Sales will be the counterpart of the GENERATOR, during the SUPPLY PERIOD, until the termination of this Contract.

21.2 Any provision of this Contract which is or may become illegal, ineffective or unenforceable in any jurisdiction affected by the Contract shall, in respect of that jurisdiction, be ineffective to the extent of such prohibition or unenforceability and shall be treated as unexpressed and excluded from the contents of the Contract, without invalidating the remaining provisions of the Contract and without affecting the validity or enforceability of such provision in any other jurisdiction.

21.3. No modification to this Contract, or any provision or term thereof, shall be binding unless embodied in an amendment signed by both Parties. Any such modifications, amendments or cancellations shall be construed as strictly related to the subject matter in respect of which they were made or delivered.

21.4. In the event that the funding institutions find conditions in this Contract that are not acceptable to them, the Parties shall cooperate with each other to negotiate, in good faith, a supplement to this Contract, in accordance with the observations made by the funding institutions.

21.5. No extension, waiver or waiver of any of the provisions of the Contract shall preclude the exercise by either Party of its rights under the Contract, nor shall it preclude such

Party from exercising thereafter-such rights under the Contract strictly in accordance with the Contract.

21.6. This Contract constitutes the entire agreement of the Parties with respect to the matters dealt with in this Contract and shall prevail over any prior agreement or understanding with respect to the same matters, except for the confidentiality contract entered into between the Parties, which shall remain in effect independently of this Contract.

21.7. Termination of this Contract shall not affect the effectiveness of any provision of this Contract which expressly provides that it shall survive such termination.

21.8. The official language of this Contract shall be Spanish and all communications between the Parties for any purpose relating to this Contract and throughout the term of this Contract shall be in writing in Spanish.

The Parties, in accordance with the obligations assumed, sign the present Contract, in two (2) copies in Spanish language with equal value and legal effect, in Havana on the ____ days of the month of _____ of the year _____.

For the GENERATOR:

For UNE:

Carlos Misael Rodríguez Marqués

Ramón López Ramos

TRANSITIONAL PROVISION

Both parties acknowledge and declare that their respective negotiators proceed to initial this proforma power purchase agreement, with the sole purpose of confirming that, on the basis of the content of the aforementioned proforma, the negotiation process will begin and, consequently, its content will be subject to the modifications that both Parties

agree upon, for its subsequent submission to the competent authorities of the Republic of Cuba together with the business file.

Therefore, no obligation shall arise for any of the Parties, derived from the content of this proforma power purchase agreement, until the final contract is signed by the specific authorised representatives of each Party and after the Authorisation of the Executive Committee of the Council of Ministers of the Republic of Cuba has been obtained and the totally foreign investment company, which will be the signing party together with Unión Eléctrica, has been constituted.

UNE
UNIÓN ELÉCTRICA
OFICINA CENTRAL

Grid Code

Solar Photovoltaic Parks

UNE-MINEM

CUBA

October 2022

Index

15. Manoeuvres at the connection node due to the GENERATOR.

16. Connection works to be carried out by the GENERATOR

16.1Scope .
16.2 General considerations.
16.3 Preliminary Connection Project.
16.4 Executive Project
16.5 Materials provided by the GENERATOR.
16.6 Supply of external electricity service.
16.7 Maintenance work.
16.7.1 Annual report of operation and maintenance work
16.7.2 Archiving of technical documentation.

17. Access of UNE personnel to the GENERATING PLANT

18. Legislation

1. INTRODUCTION

The intermittency of solar radiation has an effect on the quality of the electrical energy produced by solar-photovoltaic technology and is mainly reflected in the frequency and voltage.

The penetration of variable renewable energy sources (VERs), namely solar photovoltaic and wind, presents a risk to the security and stability of the operation of the National Electricity System (SEN) if the necessary measures are not taken for their integration. This Grid Code aims to define the necessary technical-organisational measures to ensure the safe and stable operation of the SEN in the event of an expansion of electricity generation from renewable sources.

2. SCOPE

This document develops the techno-organisational terms and requirements that regulate the CONNECTION BLUE PRINT to the UNE Grid in MEDIUM VOLTAGE and the safe and reliable operation of the Photovoltaic Solar Parks or GENERATING PLANT.

3. DEFINITIONS

Solar-Photovoltaic Park: GENERATING PLANT that contains the panels that receive sunlight and the output transformer of the GENERATING PLANT, passing through the DC-AC conversion unit. They convert solar energy into direct current (DC) electrical energy and then transform it into alternating current (AC) and deliver it to the SEN. It is referred to interchangeably as a GENERATING PLANT in this document.

PROPOSED CONNECTION DRAFT - This is the document that indicates the feasibility of connecting the GENERATING PLANT to the UNE NETWORK. It describes the general elements for connecting the GENERATING PLANT to the UNE GRID, the CONNECTION AND MEASUREMENT NODE works, and may specify the operating conditions of the GENERATING PLANT.

DELIVERED ENERGY - This is the electrical energy generated by the GENERATING PLANT that is received by the UNE GRID at the CONNECTION NODE.

ENERGY DELIVERED - This is the electrical energy generated by the GENERATING PLANT that is received by the UNE Grid at the CONNECTION NODE.

MEDIUM VOLTAGE - Corresponds to maximum service voltages greater than 1000 V (one thousand volts) and less than or equal to 34500 V (thirty-four thousand five hundred volts).

AUTHORISED POWER - This is the maximum active power that the GENERATOR is authorised to inject into the UNE GRID through the CONNECTION NODE.

APPARENT NOMINAL INJECTED POWER - This is the maximum apparent power that can be injected by the Generator at the CONNECTION NODE.

DEMANDED POWER - This is the maximum active power that the GENERATOR can demand from the UNE GRID through the CONNECTION NODE.

4. ABBREVIATIONS

SPVP:	Solar-Photovoltaic Park or GENERATING STATION
UNE:	Unión Eléctrica
SEN:	Sistema Eléctrico Nacional or UNE Grid
VRES:	Variable Renewable Energy Source
NLD:	National Load Dispatch Centre
PLD:	Provincial Load Dispatch Centre
COFRE:	Renewable Energy Generation Operation Centre
HV:	High Voltage.
NC:	Connection Node
MV:	Medium Voltage
AC:	Alternating Current
DC:	Direct Current

5. GENERAL CONSIDERATIONS

5.1 General

The SPVP shall be designed and constructed in such a way that it meets the dynamic and static support requirements of the SEN, both under normal and abnormal conditions (disturbances or faults).

The operational requirements for the SPVPs to be connected to the MV grids shall include all those elements requested in this GRID CODE, thus guaranteeing the safe and stable operation of the SEN. This approach to integration of the SPVPs into the SEN will allow greater penetration of the varied renewable energy sources.

In normal or steady state conditions SEN support shall be provided by contributing to Voltage Control by injecting or absorbing Reactive Power, and in disturbed or transient conditions SEN support shall be provided by remaining connected, manifesting its Fault-Ride Through capability during faults.

Likewise, the SPVPs must have the capacity to reduce their injection of Active Power (kW) to the SEN by means of a setpoint received in real time from the generation control centre.

The necessary technical requirements are detailed in section 6 of this GRID CODE.

5.2 General operating conditions

The Operator designated by the GENERATOR is the one who coordinates with UNE's Renewable Energy Generation Operation Centre the manoeuvres that may be required in real time.

In the event that the GENERATOR requires an opening of the cut-off element of the Connection Node, the Technical Manager of the GENERATOR shall request it to the Provincial Load Dispatcher of the UNE at least 5 calendar days in advance, and the UNE shall respond within the following 3 days.

In exceptional situations involving the safety of persons or property, the Technical Manager of the GENERATOR may request the Provincial Load Dispatcher of the UNE to immediately open the cut-off element of the Connection Node.

The connection and operation of the GENERATING PLANT must be safe and reliable, both for the GENERATOR and for the users and operators of the UNE, complying with the regulations in force.

The GENERATOR must not cause a reduction in the quality of service to the users of the UNE, in particular deviations from normal voltage and frequency values, nor affect the

wave quality outside the limits established in the power quality standard in force in Cuba NC 61000.

The SPVP must be equipped with protections designed to stop energising the UNE Grid in the event of faults in the grid. The operation of the GENERATING PLANT shall be with connection to the UNE GRID and not as part of an isolated grid. However, under exceptional conditions, and with the prior agreement of the parties, the national load dispatch may request the GENERATOR to connect the GENERATING PLANT isolated from the UNE GRID operating under island conditions.

The GENERATING PLANT must have control systems to adjust the ramp-up and ramp-down of the active power generation. The settings of these control systems are defined by the national load dispatch centre.

The GENERATOR is responsible for sending the active power delivery forecast for the following day to the generation control centre before 08:00 hours of the current day.

The GENERATOR is responsible for protecting its generating plant and the equipment agreed with UNE in the Connection Node.

6. TECHNICAL REQUIREMENTS

The power transformer(s), which electrically connect the SPVP to the SEN, must be such as to isolate the zero-sequence component. The GENERATOR must not earth the neutral of its installation on the side corresponding to the SEN connection.

Generating units must be designed for a nominal system frequency of 60 Hz, and remain connected to the SEN, in the occurrence of frequency events as indicated in Figure 1, where the minimum dwell times are established. For the frequency range between 58.5 and 61 Hz the generating plant must be permanently connected.

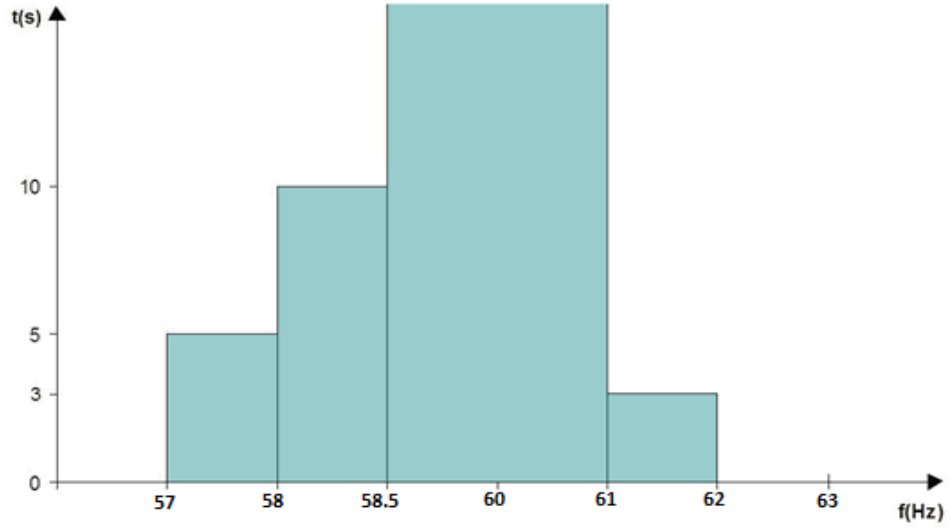

Figure 1

The accuracy of the meter for the SEN frequency shall be at least +/- 10 MHz.

The active power controls of generating units shall comply with the following requirements:

a) droop with values between 0 and 10 % for frequencies between 57 and 62 Hz, changeable under load.

(b) The response speed must be adjustable between 1 % and 10 % of the rated power of the generating unit per second.

c) The maximum power in regulation shall be adjustable.

The active power - frequency control setting is applied for the range between 60 and 62 Hz, as shown in Figure 2, and is defined by the NLD.

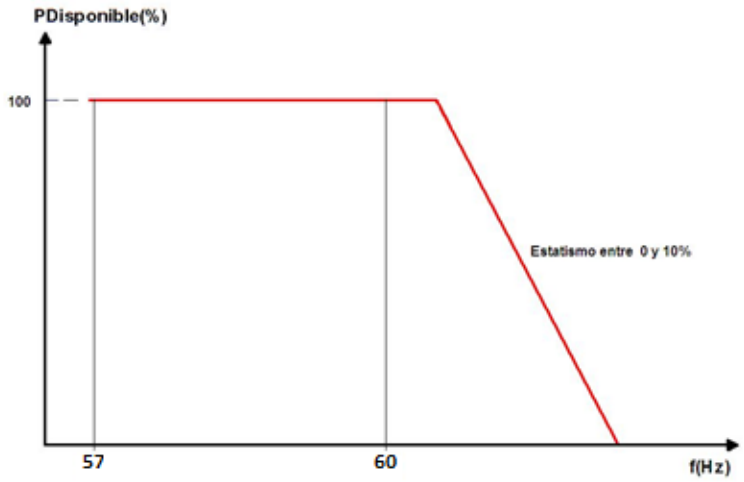

Figure 2

The SPVP must be designed to operate under normal conditions in the voltage range established for the nominal voltage of the UNE GRID to which it is connected and which is indicated in the CONNECTION BLUE PRINT.

It must also be designed to operate in a permanent state under simple contingency conditions at a voltage level between 0.9 and 1.1 p.u. of the rated voltage, and withstand undervoltages of up to 0.85 p.u. (for any rated voltage) during transients of 60 seconds duration during which it will remain without disconnecting from the UNE GRID.

The generating units shall automatically regulate the voltage according to the setpoint assigned by the NLD and at least be able to absorb or inject reactive power according to the active power generated according to the P, Q curve in Figure 3.

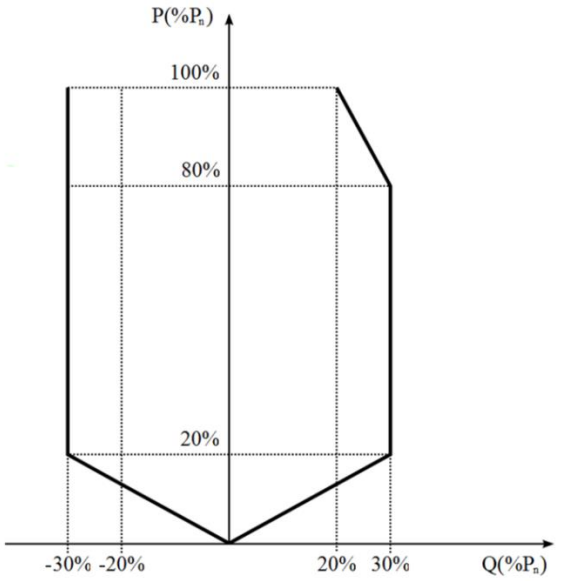

Figure 3

Depending on the particular characteristics of the GENERATING PLANT or UNE GRID at the connection node, additional reactive power compensation equipment with its associated control system may be required.

If additional reactive power compensation equipment is required, the reactive power corresponding to this equipment must also be available during operation, even when the SPVP's power generating units are out of service.

6.1 Control functions

In order for the SPVP to contribute to the Reactive Power and Voltage Regulation balance at the connection node, they shall be designed with the capability to operate in the following control modes:

1. Voltage Control
2. Power Factor Control
3. Reactive Power Control (Q or MVAR)

The mode of operation of the current control (one of the three) as well as the operating point shall be set by the NLDC.

Voltage Control.

Voltage control is a function that controls the voltage at the connection node.

If the voltage set point requires to be changed by the NLDC, this change shall be initiated within 3 seconds and completed within 30 seconds after the set point change command is received.

The voltage set point accuracy shall be within +/- 1.0% of the nominal voltage, and the accuracy of the control performed shall not deviate by more than +/- 2.5% of the required Reactive Power injection or absorption according to the droop characteristics defined in Figure 4. The NLDC may accept droop characteristics that are similar or equivalent to those defined by Figure 4.

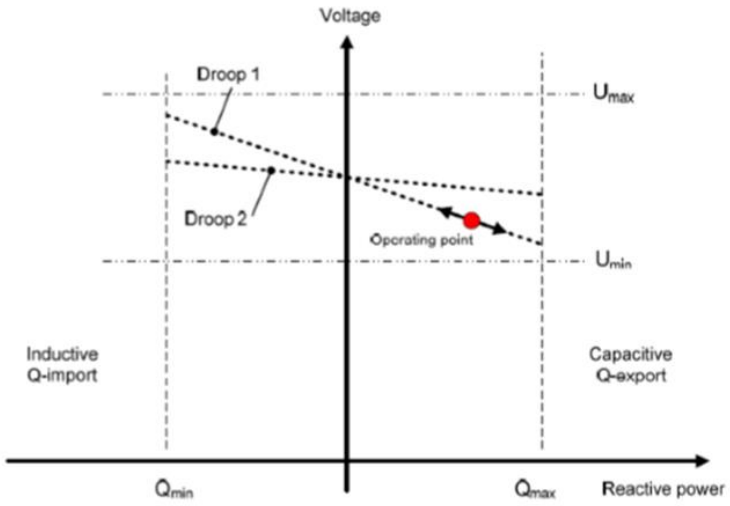

Figure 4

The generating plant shall be able to control within its dynamic range and voltage limit, with the droop set as shown in Figure 4. In this context, droop is the change in voltage (p.u.) caused by a change in Reactive Power (p.u.).

The complete voltage coordination shall be carried out by each GENERATING PLANT with the NLDC and approved by whom it may concern.

Power Factor Control.

Power Factor control is a function that shall control the Reactive Power proportionally to the Active Power at the connection node. This control function is illustrated in Figure 5 as a line with a constant gradient.

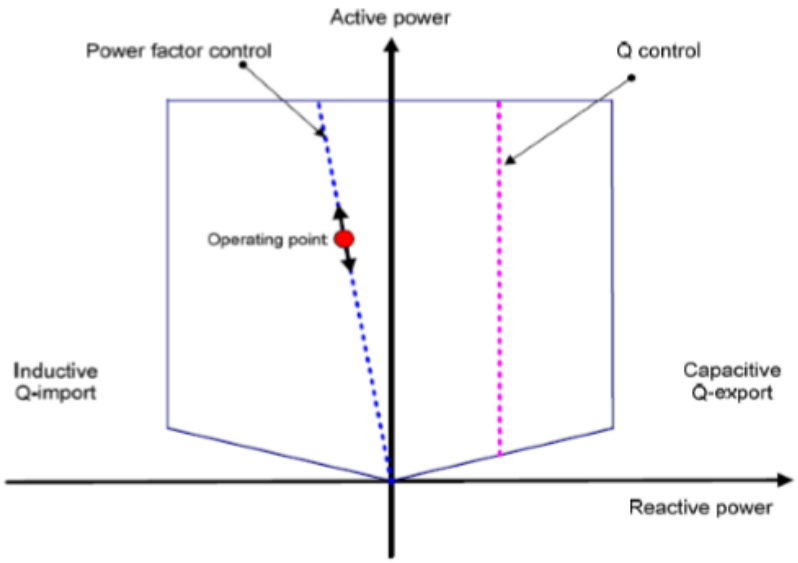

Figure 5

If the Power Factor setpoint requires modification by the NLD, the generating plant shall update the setpoint value within 3 seconds. The generating plant shall respond to the new setpoint within 30 seconds after receiving the setpoint change command.

Reactive Power Control (Q)

The "Q" control is a function that shall control the injection and absorption of Reactive Power at the Connection Node, independent of the Active Power and voltage. This control function is illustrated in Figure 5 as a vertical line

If the "Q" control setpoint requires modification by the NLDC, the generating plant shall update the setpoint value within 3 seconds. The generating plant shall respond to the new setpoint within 30 seconds after receiving the setpoint change command.

Inertia emulation (H)

The Generating units shall be designed to emulate inertia from an active power reserve.

As part of the acceptance testing of the power plant, the operation of the frequency regulation, voltage regulation and inertia emulation will be checked.

6.2 Waveform Quality

In order to preserve the Waveform Quality at the connection node, the GENERATOR must comply with the following premises:

a) The harmonic current emissions at the connection node shall not exceed the values set out in the following table:

Maximum current harmonic distortion in percentage of current (IEEE519-1992)						
Order of the individual harmonic h (odd)	h<11	11≤h<17	17≤h<23	23≤h<35	h≥ 35	TDD
I_h max (% of I)	4.0	2.0	1.5	0.6	0.3	5.0

For even harmonics the limit is 25 % (twenty-five percent) of the odd harmonics, as laid down in **IEEE 519-1992.**

The Rate of Demand Distortion (TDD) is defined as:

$$TDD = \sqrt{\sum_{i=2}^{40} \left(\frac{I_i}{I} \right)^2}$$

The current value, (expressed in A), arises from the following calculation:

$$I = \frac{P_A}{\sqrt{3} \times Un}$$

Being:
PA: AUTHORISED POWER, expressed in kW.
Un: Nominal connection voltage is expressed in kV.

b) Flicker emission (rapid voltage fluctuations) of short duration Pst and long duration Plt may not exceed the maximum levels calculated according to IEC 61000-3-7, both for switching operations and for continuous operation. The recommendations contained in IEC 61000-4-30 are adopted for the corresponding measurements.

c) Rapid voltage changes at the connection node due to normal operation of the SPVP shall be limited to the values indicated in the table below.

Number of changes (n)	$\frac{\Delta U_{dyn}}{U_N}$ (%)	
	6.4kV, 15kV, 22kV and 31.5kV	63kV
n ≤ 4 per day	5	5
n ≤ 2 per hour and n > 4 per day	4	3
2 < n ≤ 10 per hour	3	2.5

These rapid voltage changes are expressed as a percentage of the previous voltage. The rapid voltage change values shown in the table are the established emission limits, which depend on the number of changes in the analysis period considered.

Note: The above table is taken from Table 6 of **IEC/TR 61000-3-7**, edition 2.0 2008-02.

d) The inverter of each generating unit must comply with the harmoic current emissions' limits indicated in the international electromagnetic compatibility standards contained in the **61000-3** series of **IEC** standards.

7. OPERATING PROCEDURES

Each SPVP must have a system for monitoring connectivity status, active power, reactive power and voltage.

The SPVP must not energise the UNE Grid when it is de-energised, unless the exceptional situation foreseen in the following paragraph occurs.

In the event of openings of the circuit breaker of the connection node, the GENERATOR must stop energising the UNE Grid by means of a cut-off device. In the event that the SPVP is islanded with part of the UNE Grid, the interconnection system of the SPVP must be able to detect the islanding and stop energising that part of the UNE Grid.

The SPVP when connected in parallel must not cause voltage fluctuations at the conncetion node greater than +/- 5 % of the previous voltage level at the connection node.

For the paralleling of the SPVP it is essential that there is stabilised voltage at the connection node. The Voltage is considered to be stabilised when, after distortion, the system returns to the regulatory voltage and frequency ranges for a continuous period of more than 5 (five) minutes, or a shorter period previously agreed between the UNE and the GENERATOR.

7.1 Electrical Energy Measurement at the CONNECTION NODE.

The GENERATOR must be connected through a single connection node to the UNE Grid, which is used exclusively for this purpose. This is where the ENERGY DELIVERED is measured, as well as the ENERGY DEMANDED by the GENERATOR from the UNE Grid, for its own consumption.

The GENERATOR must contract with the Electricity Company of the territory where it is located, so that in the event of consuming energy from the SEN, it will be billed at the price of the tariff used to charge for electricity, in accordance with the voltage level to which it is connected, as approved in the current regulations.

Two multifunction meters with four-quadrant recording, one for main metering and one for backup metering, will be used for electricity metering, with the following reading protocol:

2.8.0. Export of active energy
4.8.0. Export of reactive energy
1.8.0. Import of active energy
3.8.0. Import of reactive energy

The measurement components must be duly sealed by UNE, and no modifications may be made to them.

7.2 Information to be provided by the GENERATOR in real time

Data from the electricity Generating Plant:

- Active Power
- Reactive power
- Currents
- Energy delivered at the connection node
- Voltage at the connection node of the GENERATOR
- State of the switch at the connection node (It is allowed that the information is sent per event, i.e. when a change occurs)

This data must be provided every 30 seconds or less.

Data from the weather station:

- Ambient temperature
- Wind speed and direction
- Incident radiation in the horizontal plane and in the plane of the photovoltaic modules, (W/m2) obtained by pyranometer
- Cell temperature of the photovoltaic modules, obtained using a panel of the same technology

Data from the weather station must be provided every 30 seconds or less. In case the AGREED POWER is less than or equal to 1 MW (five megawatts), it shall be allowed to be supplied once a day.

7.2 Disconnection and Reconnection of the GENERATOR.

The NLDC may order the electrical disconnection of the GENERATOR from the UNE Grid in the following cases:

a) When the conditions stipulated in the Connection Procedure are violated.

b) When the GENERATOR injects more power into the UNE Grid than the AUTHORISED POWER.

c) When the technical requirements specified in this procedure are not met.

d) When the GENERATOR causes disturbances in the UNE Grid that threaten the quality of service provided, as stipulated in this procedure.

e) In any situation in which the GENERATING PLANT may be left operating in islanding mode without the corresponding authorisation.

f) To carry out the necessary repairs in the UNE Grid during unscheduled outages or contingency situations.

g) Routine maintenance, modifications or repairs. UNE will reconnect the GENERATOR as soon as possible.

In the case of b), e), f) and g) the cut-off may be immediate. In these cases UNE will provide the GENERATOR with reasonable information and will reconnect it as soon as possible.

8. PROTECTION AGAINST ABNORMAL NETWORK CONDITIONS AND DISTORTION OPERATING CONDITIONS

The GENERATOR is responsible for protecting its GENERATING PLANT in such a way that outages in the UNE GRID, short circuits or other disturbances including zero and reverse sequence currents and overvoltages do not damage the GENERATOR's equipment. UNE is exempt from all responsibility for any damage suffered by the GENERATOR for this reason.

The generating plant protection system must have the necessary settings in order to prevent unnecessary opening of the cut-off element of the connection node.

The equipment providing the synchronisation functionality shall be installed and adjusted according to the recommendations and specifications given by the manufacturer and in accordance with the requirements of IEEE 1547.

The GENERATING PLANT shall be equipped with effective detection of "islanding" in all system configurations and with the ability to discontinue power generation in that condition in less than 3 seconds. “Islanding" with a part of the SEN shall not be allowed, unless required by the NLDC.

The GENERATING PLANT shall be designed to withstand sudden phase jumps of up to 40° at the Cconnection Node, without disconnecting or reducing its available active power.

Based on load flow studies and stability studies, the required operating voltage range has been identified for disturbance or fault and emergency conditions.

During post-fault states of the system, the voltage may remain within the range of +/- 10% for a prolonged period of time.

Fault Ride Through (FRT) capability. To ensure that the Generating Plants do not trip or disconnect during and immediately after a high or low voltage SEN fault, Low Voltage Ride-Through (LVRT) and High Voltage Ride-Through (HVRT) characteristics must be specified. The characteristic limits have been derived from various fault simulations ensuring that the actual system voltage remains within the LVRT (Low Voltage Ride-Through) and HVRT (High Voltage Ride-Through) limits according to Figure 6 for all critical fault types and contingencies.

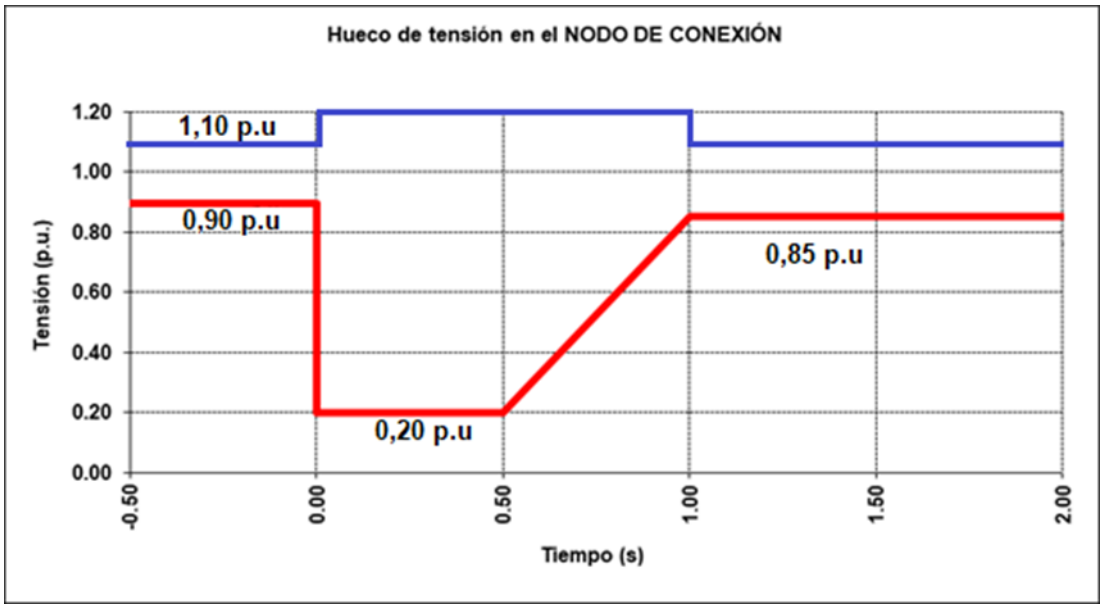

Fig. 6

During faults in the UNE Grid, it is allowed to reduce the production of active power. The GENERATING PLANT must be able to supply 100% of the Active Available Power to the grid after clearing a fault, with a maximum ramp of 1 second (from 0 to nominal power).

A minimum time of 500 ms has been considered to specify the LVRT (Low Voltage Ride-Through) characteristic, according to Figure 6. This value is sufficient to guarantee that the Power Plant will not trip upon the occurrence of SEN faults, while at the same time it is above the design fault clearing time of 120 ms.

Both the fault clearing times and voltage recovery time of the Low Voltage LVRT characteristic (Figure 6) are based on the permissible fault clearing and recovery times specified for SEN.

In the event of phase-to-earth short-circuits in the transmission network, the GENERATING PLANT shall withstand the reverse sequence currents produced during

single-phase reclosures close to the plant, from the origin of the fault to the operation of the last backup protection, lasting up to 1 second.

The GENERATOR must coordinate with UNE regarding the protection relays and control systems, for the implementation of the Supplementary Control Schemes, in order to preserve the security of the SEN (in particular, in relation to the adjustments associated with the frequency).

Reactive Current Backup during SEN Failures

The GENERATING PLANT shall have the capacity to provide a high reactive current during SEN faults, while supporting the voltage at the connection node.

The reactive fault current is calculated (according to European standards) as a function of the voltage deviation (Figure 7). The current indicated in Figure 7 represents an incremental current that has to be added to the pre-fault current. The value of -ΔUmin is set to 0.9 and the -ΔUmax to 1.1. K=2

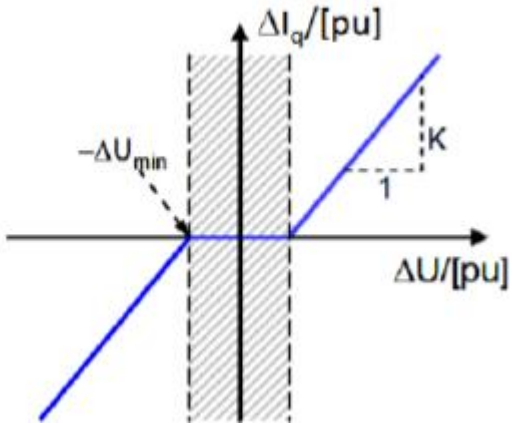

Figure 7

9. INDOOR INSTALLATIONS OF THE PROJECT

The Indoor Installations of the Project will include:

a) Name of the Installation Firm.

b) Floor plan with physical location of the GENERATOR equipment.

c) Single line diagram of MV and LV with indication of power and type of equipment of the internal installation of the GENERATING PLANT.

d) Single-line diagram and documentation of the protections, and functional diagram of the protections with the adjustments made.

e) Reactive Power availability curve as a function of the Active Power delivered at the CONNECTION NODE.

f) For each electricity generating unit:

INVERTER:

Brand		
Model		
Serial number		
Rated power	kW	
Rated AC voltage	V	
Rated DC voltage	V	
Nominal power factor		
Power Factor Regulation Range (min. - max.)		
THD at AC current	%	
Maximum current harmonic distortion per order	%	
Minimum DC operating voltage	V	
Maximum DC operating voltage	V	
Minimum DC MPPT operating voltage	V	
MPPT maximum operating DC voltage	V	
Maximum DC current	A	
Efficiency	%	
Night-time consumption	W	

SET OF MODULES ASSOCIATED WITH THE INVERTER:

Number of modules per array, (connected in series)		
Number of arrays (connected in parallel)		
Angle of inclination w.r.t. to horizontal plane	(°)	
Fixed Solar panes/tracker with or without tracking. Double axes? Single or Double axes?		

DATA OF EACH PV MODULE:

Brand		
Model		
Technology (monocrystalline, polycrystalline, amorphous, other)		
Maximum power STC	Wp	
Open circuit voltage STC	V	
Short-circuit current STC	A	
Voltage at maximum power STC	V	
Current at maximum power STC	A	
STC Efficiency	%	
Dimensions (length x width x thickness)	mm	
Cell temperature in normal operation	°C	
Coefficient of variation of power with cell temperature	W/°C	
Coefficient of variation Voc with temperature	V/°C	
Coefficient of variation Isc with temperature	A/°C	

Attachment:

GENERATING UNIT:

i- Capacity curve (P-Q) or performance curve. Indicate minimum and maximum technical power.
ii- Voltage - time tolerance curve, which establishes the permanence in the event of voltage dips. In the event that this curve has adjustable parameters, a report with the adjustments must be submitted.
iii- Ranges of the ramps up and down of the active and reactive power generation and values of their settings.
iv- Graph with the operating area V-f, if available.

v- Inverter efficiency curve as a function of power.

MODULE

i- Photovoltaic module I-V characteristic curve for different irradiation values.
ii- Photovoltaic module I-V characteristic curve for different cell temperature values.
iii- Power curve as a function of parametric irradiance at the cell temperature.
iv- Inverter and PV module datasheets.

GENERATING PLANT

i- Table of monthly PR (Performance Ratio) of the GENERATING PLANT.
ii- Aggregate models of the GENERATING PLANT to carry out the following studies:

1. Load flow
2. Dynamic (electromechanical) studies:
   a. Laplace block diagram of the aggregated model of the GENERATING PLANT including all the control actions foreseen in this operating agreement, detailing the adjusted values in them.

g) For the power transformers of the GENERATING PLANT it is requested:

Brand		
Model		
Serial number		
Connection group		
Type (three-phase/group)		
No. of windings		
Nominal phase-to-phase voltage (primary) P	kV	
Nominal phase-to-phase voltage (secondary) S	kV	
Nominal phase-to-phase voltage (tertiary) T	kV	
Nominal three-phase power (primary) P	MVA	
Nominal three-phase power (secondary) S	MVA	
Nominal three-phase power (tertiary) T	MVA	
Ground resistance (primary) P	Ω	
Ground resistance (secondary) S	Ω	

Ground resistance (tertiary) T	Ω	
R, X: direct impedance P-S	%	
R, X: direct impedance P-T	%	
R, X: direct impedance S-T	%	
Ro, Xo: zero sequence impedance P-S	%	
Ro, Xo: zero sequence impedance P-T	%	
Ro, Xo: zero sequence impedance S-T	%	
Regulation (1:under load 2:empty 3:none)		
Location of the regulation stops		
No. of buffers P		
No. of buffers S		
Step voltage P	kV	
Step voltage S	kV	
Maximum voltage P	kV	
Maximum voltage S	kV	
Minimum voltage P	kV	
Minimum voltage S	kV	
Vacuum losses (three-phase)	kW	
Vacuum conductance Go	µMho	
Vacuum susceptibility Bo	µMho	
DC resistance P	Ω	
DC resistance S	Ω	
DC resistance T	Ω	
Vacuum test: current for voltage at 110%.	%	
Vacuum test: current to 100% voltage	%	
Vacuum test: current for voltage at 90%.	%	
Vacuum test base stress	kVphase-phase	
Vacuum test base current	Afase	
Maximum overload, damage curve		

10. MV LINK INSTALLATION FOR GENERATORS

10.1 SCOPE

It establishes the technical requirements to be met by the connection node for GENERATORS whose connection and metering are carried out at Medium Voltage.

10.2 GENERAL CONSIDERATIONS

The electrical installations, from the GENERATING PLANT up to the connection node, must be operated and maintained by the GENERATOR.

The operation, maintenance and access to the connection node is exclusive to UNE.

10.3 ACCESSIBILITY CONDITIONS

The connection node must have access for UNE personnel and for the entry or exit of equipment from the road. Personnel access must be independent and direct from the road.

The GENERATOR must respect the easements imposed by the overhead and underground access conductors at the connection node, which must be indicated on the layouts supplied by UNE.

10.4 AUTOMATIC SYSTEM REQUIREMENTS AND COMMUNICATION BETWEEN THE UNE AND THE GENERATOR

The requirements are general and are intended to provide technical guidance on how the data exchange should be between the specific Control Systems of each installation on the part of the GENERATOR and the Control Systems of the Provincial and National Load Dispatch Centres, as the case may be, on the part of the UNE. Once the Joint Venture or Totally Foreign Capital Company has been set up and the project has been defined, depending on the type of installation and its geographical location, the specific requirements for each case will be defined.

Telecontrol Requirements

1. For communication with the relevant Load Dispatch Centre (PLDC or NLDC) the following protocols must be ensured: Modbus TCP/IP, IEC-60870-5-104 and IEC-60870-5-101. It must be possible to transmit simultaneously at least two protocols via two different ports of the above-mentioned standards in a bidirectional way.

   In general, the main communication for the direct operation of the GENERATOR installation will be with the corresponding PLDC. In this case, it must communicate with the SCADA ION Entreprise installed in these offices over Modbus TCP/IP protocol. In the event of needing to execute commands in the GENERATOR

installation from the SCADA ION Entreprise, in order to be able to execute them, the GENERATOR installation's Control System must be able to receive the Modbus Code 15 Function from ION Enterprise correctly.

If the GENERATOR installation, due to its characteristics, must also exchange data with the NLDC Control System with SCADA OASyS from Schneider Electric, it will do so with IEC-60870-5-104 and IEC-60870-5-101 protocols.

2. A GPS clock of up to 1ms accuracy and judgement shall be installed to ensure synchronisation in time with the LOAD DISPATCH CENTRE with the corresponding connection node of the GENERATOR installation in the case of IEC-60870-5-104 or IEC-60870-5-101 protocols.

3. The level of electrical protection and isolation required for the location of equipment and devices shall be complied with.

4. Electromagnetic compatibility regulations shall be complied with.

5. The automation and communications equipment shall be for industrial use and shall be guaranteed to operate in conditions of temperature up to 55 °C and relative humidity 95 %.

6. The Control System in the GENERATOR installation must be secured with a battery backup to guarantee communications in the event of tripping or temporary loss of grid service.

Communication Requirements

Establish a physical and logical communication channel between the GENERATOR installation and the UNE Load Dispatch Centres dedicated to the exchange of information. Responsibilities of the parties must be defined that take into account security and the border for the maintenance of the same. A prior coordination between UNE and the GENERATOR must be carried out to establish the criteria for the private networks to be configured at both ends to guarantee the secure exchange of information.

The GENERATOR shall provide the communications link for the purpose of proper information exchange with an availability of 99.9%. The boundary point shall be a 100Mbit/s Ethernet network with 100Base-Tx interface.

Depending on the type of installation and its location, two redundant Communication Supports must be defined between the GENERATOR installation and the corresponding Load Dispatch Centre.

In any case, the UNE will provide the GENERATOR with the type and technical characteristics of the defined communications media, in accordance with the Approved and authorised Systems in the country.

5. The GENERATOR must supply all equipment, accessories and interfaces necessary to connect to the UNE data network as defined in the previous point.

11. MESH GROUNDING

The mesh grounding of the connection node may be independent of the mesh grounding of the GENERATOR or may be integrated with it.

The mesh grounding must comply with IEEE 80 for the purpose of grid sizing. The value of the earthing resistance of the mesh must be less than 5 Ω. In the event of difficulty in achieving this, each particular case will be studied in accordance with the UNE. The design of the mesh shall consider the connection points of the equipment to the mesh.

The connections shall be of the exothermic welding type or failing this, the one approved by UNE.

The date of execution of the earth mesh shall be communicated to UNE for inspection and approval prior to capping.

12. GUARANTEE OF GOOD WORKMANSHIP AND QUALITY OF MATERIALS

The GENERATOR shall guarantee the proper execution of the works that were not executed by the UNE and the good quality of the materials, for a minimum period of one year from the Provisional Reception of the Works. The guarantee shall imply that the GENERATOR shall be responsible for the repair of the installations and the replacement of all materials, in the event, for example, of faults, hidden defects or poor execution of the works.

13. PROTECTION SETTING CRITERIA

The protection of the connection node has the sole purpose of protecting the UNE installations, therefore the GENERATOR is responsible for guaranteeing the correct protection of all its equipment.

A coordination instance between the UNE and the GENERATOR will be necessary to establish the adjustments of the immediate GENERATOR protections to the connection node.

For which UNE will provide:

- Curve fitting t(I) of the UNE phase overcurrent protections.
- Curve fitting t(I) of the UNE residual overcurrent protections.
    - Three-phase short-circuit current at the connection node.
    - Phase-to-earth short-circuit current at the connection node.

In cases where the GENERATOR, for its own convenience, does not adjust to the time margin that guarantees adequate selectivity between the GENERATOR's protection and that of the UNE, it is also responsible for maintaining its equipment protected.

14. POWER CONTROL

The control of AUTHORISED POWER and DEMANDED POWER of the GENERATOR is carried out by means of current limitation in the MV protection installed at the connection node.

The current setting of the protective equipment result from the following calculations:

a. When the GENERATOR delivers electrical energy to the UNE GRID (AUTHORISED POWER control):

$$I_X = \frac{S_{IN} \times k}{\sqrt{3} \times Un}$$

Where:

IX: Current corresponding to the power control setting expressed in A.
SIN: APPARENT NOMINAL INJECTED POWER expressed in kVA.
Un: Nominal connection voltage expressed in kV.
k: Adjustment factor = 1.10 (one and ten hundredths).

b. When the GENERATOR consumes electrical energy from the UNE GRID (DEMANDED POWER control):

$$I_X = \frac{P_R \times k}{\sqrt{3} \times Un}$$

Where:

IX: Current corresponding to the power control setting expressed in A.
PR: DEMANDED POWER expressed in kW.
Un: Nominal connection voltage expressed in kV.
k: Adjustment factor = 1.20 (one and twenty hundredths).

15. MANOEUVRES AT THE CONNECTION NODE DUE TO THE GENERATOR

In the event that the GENERATOR installation has an earthing element at the input of the UNE, it will be blocked by the UNE and its operation will be coordinated in advance.

16. CONNECTION WORKS TO BE CARRIED OUT BY THE GENERATOR.

16.1 SCOPE

This document regulates the extension, enlargement or modification works that are necessary to connect the GENERATING PLANT to the UNE GRID.

16.2 GENERAL CONSIDERATIONS

The works to be carried out by the GENERATOR are described in the EXECUTIVE PROJECT based on the PROPOSED CONNECTION PROJECT.

All electrical installations of the GENERATING PLANT must be totally independent and physically separated from the installations of any other user of the UNE.

The GENERATOR shall carry out the works in accordance with the provisions of this document and with the standards, specifications and work control of the UNE.

The execution includes the supply of all the necessary materials, labour, the corresponding social charges, taxes, fees and other charges.

The works to be executed shall respect the standardised construction designs or those approved by the UNE.

All indemnities arising as a direct or indirect consequence of the execution of the works covered by this Grid Code shall be for the account of the GENERATOR. In the event that

they are paid by UNE, it is the GENERATOR's obligation to reimburse the amounts in an updated form.

The GENERATOR shall be responsible for the purchase, at its own cost, of the equipment, accessories and payment for the construction and assembly of the Medium Voltage Connection line between 13.8 and 34.5 kV, from the site of the GENERATING PLANT to the substation, where the CONNECTION NODE to the UNE Grid is located, in accordance with the procedure established in the current UNE standards, all of the aforementioned being the property of the GENERATOR.

The UNE shall be responsible for obtaining all authorisations, permits and possible easement rights relating to the connection works of the GENERATING PLANT.

16.3 CONNECTION BLUE PRINT

General Elements:

In the first stage, the SPVPs will be interconnected to the DISTRIBUTION GRID (13.8-34.5 kV).

The SPVPs up to 15 MW shall be approved taking into account the results reflected in the CONNECTION BLUE PRINT.

The minimum distance between SPVPs should be 8 km.

They shall be interconnected to existing circuits in the UNE Grid and the power to be installed in the SPVP shall not exceed the average demand of the circuit to which the SPVP is planned to be interconnected.

The SPVPs between 15 MW and 20 MW will be interconnected to the busbar of the 110/34.5 kV and 110/13.8 kV substations through dedicated circuits.

The 34,5 kV express circuits should have a maximum length of approximately 10 km.

The 13,8 kV express circuits must not exceed 8 km in length.

The Projects with wind farms larger than 20 MW will not be accepted.

The CONNECTION BLUE PRINT contains the following information:

1. **Brief description and interconnection of the SPVP**

- Physical location of the park with coordinates
- Satellite image showing the trace of the line to be built and its length.

2. **Interconnection of the SPVP**

- Name of the circuit to be connected, voltage level and type of conductor.
- Type of Substation and voltage level
- Installed capacity in the Substation.
- Chargeability of the Substation and the associated SPVP circuit.

3. **Analysis for interconnection**

- Peak circuit demand during midday peak
- Minimum circuit demand during midday peak
- Substation of the SEN to which the circuit and the nearby distribution Substation belong.
- Description of the load flow for both scenarios (min and max demand at the peak of the average with max generation of the park*).
- Power parameters of the circuit and of the associated Substation once the wind farm is connected.

	Substation associated with the SPVP		**Voltage**	
	Transfers (MVA)	**Loadability (%)**	**kV**	**p.u**
Minimum demand with maximum generation				
Maximum demand with maximum generation				

	single-phase dc		**three-phase dc**	
	Scc (MVA)	**Isc (kA)**	**Scc (MVA)**	**Isc (kA)**
SPVP output				

- Images of the load flow with the above conditions of the circuit where the SPVP will be connected.
- In the case of power plants with a capacity of 15 MW, provide a solution for connection to 2 nearby distribution circuits. If possible, connect directly to the output switch of the respective substation.

4. **The SLD of the circuit to which the SPVP is to be connected**

5. **Automatic disconnection solution: installation of circuit breakers and/or line disconnectors as required.**

6. **Assessment of interconnection costs.**

16.4 EXECUTIVE PROJECT

The EXECUTIVE PROJECT is elaborated on the basis of the CONNECTION BLUE PRINT delivered by UNE.

This is the set of definitive plans necessary to carry out the work and includes all the indications of supplies and assembly, where applicable, the list of materials and the necessary adaptations of work elements defined in the project that specify the total definition of the work to be carried out.

16.5 MATERIALS PROVIDED BY THE GENERATOR

All materials and equipment to be supplied by the GENERATOR must be accepted by UNE prior to their incorporation into the work.

The materials corresponding to Distribution Installations must comply with the technical regulations of the UNE and be homologated according to the established procedure in force within UNE.

In the event that materials are required for installation in transmission stations, they must comply with the specifications and reception process corresponding to the UNE transmission grid.

16.6 EXTERNAL POWER SUPPLY

The UNE shall provide the external electrical energy service, which may only be used for certain conditions or manoeuvres that strictly require external electrical energy. The GENERATOR may also supply its own auxiliary electrical service if this is more convenient to its interests.

The external electrical energy, supplied to the GENERATOR by the UNE, for the above purposes, shall be reported separately. The metering devices to be installed shall be capable of measuring and reporting the flow of energy in both directions.

The amount of energy coming from the GENERATOR for ancillary services will not be remunerated by UNE, but will be deducted from the energy delivered to the UNE GRID payable by UNE.

16.7 MAINTENANCE WORK

Annual maintenance programme

a) The dates on which the outages for the maintenance of the Generating Plant shall be carried out each year shall be agreed between the Parties, in order to draw up an annual maintenance programme before the start of each calendar year. The time dedicated to the attention of faults shall also be coordinated with UNE at the time the faults occur.

b) THE GENERATOR may request the Provincial Load Dispatch Centre or the Generation Control Centre to change the dates of the scheduled maintenance outages by giving written notice at least **fifteen (7) days** in advance of the scheduled date of the outage. Any rescheduling of a shutdown date shall be subject to the mutual agreement of the parties.

Compliance with the annual maintenance programme

a) THE GENERATOR shall carry out the scheduled maintenance for the GENERATING PLANT during the periods indicated in the agreed annual maintenance programme.

b) In the event that a scheduled maintenance period of the GENERATING PLANT coincides with an energy emergency of the UNE, the GENERATOR shall do everything reasonably possible to modify the scheduled maintenance and be able to deliver energy to the SEN.

c) In the event of a forced outage, the GENERATOR shall coordinate with UNE at the time it occurs, the work plan to re-establish the supply of electrical energy by the GENERATING PLANT.

Responsibility of maintenance

THE GENERATOR shall provide the necessary maintenance to the GENERATING PLANT in accordance with internationally recognised standards and practices accepted by both parties, in order to operate the GENERATING PLANT.

16.7.1 ANNUAL REPORT ON OPERATION AND MAINTENANCE WORK

THE GENERATOR shall submit annually its annual Operation and Maintenance Report, which shall contain at least the following aspects:

OPERATION REPORT:

a) Relevant events occurring during the annual period
b) Annual energy production broken down monthly in kWh
c) Generating plant factor per year and broken down monthly
d) Annual load factor and broken down monthly

MAINTENANCE REPORT:

a) Duration of Maintenance
b) Relevant events during the maintenance

16.7.2 ARCHIVING OF TECHNICAL DOCUMENTATION

THE GENERATOR shall keep records applicable to the GENERATING PLANT, including records of preventive maintenance and major maintenance, an inventory of the spare parts required for each intervention, the electrical characteristics of the generator and settings of the generator control equipment and protection devices as well as drawings with the modifications that have been made during the operation of the GENERATING PLANT.

17. ACCESS OF UNE PERSONNEL AT THE GENERATING PLANT

In any case in which authorised personnel of UNE access the GENERATING PLANT, it shall be prior notification and as long as it does not interfere with the normal operation of the same, the GENERATOR shall warn these authorised personnel of UNE if conditions exist at the time that could endanger the safety of the personnel and of the equipment. Such personnel shall respect the safety standards established by the GENERATOR.

18. LEGISLATION

This Grid Code is governed by the laws and regulations in force in the Republic of Cuba, especially those relating to the electricity sector.

- Cuban standard 365:2011 "standard voltages".
- Cuban Standard 800-1: 2011. Low Voltage.
- Ministerial Resolution No. 373/2010. "General Procedure for the Operation of the System".
- NC 61000 "Energy Quality".
- IEEE 519-1992
- IEC 61400

ANNEXURE No. 3 of PPA

LOGO OF THE ISSUING BANK

BANK GUARANTEE ON FIRST DEMAND No._____

BENEFICIARY:
Name _____
ADDRESS _____

GUARANTOR:
Name _____
ADDRESS _____

Sir/Ma'am,

At the request, on behalf of and on behalf of our client, UNIÓN ELÉCTRICA, hereinafter the GUARANTOR and in accordance with the Power Purchase Agreement (PPA) in force [indicate the name according to each project], signed with [General Statements of the Generator] on the date [insert the date of signature of the agreement], which in its clause XI, paragraph h, requires the presentation of the Guarantee.

We hereby irrevocably and unconditionally guarantee the payment on first demand in favour of the BENEFICIARY, up to a maximum amount [Enter amount and currency], equivalent to the annual amount of the monthly invoicing.

In the event that the GUARANTOR does not comply with the payment obligations established in the CONTRACT and its ANNEXURES, the BENEFICIARY will exercise its right to receive the value equivalent to the cost of the unfulfilled obligations up to the total amount of the guarantee.

Any request from the BENEFICIARY under this Guarantee must be received in writing by means of an authenticated message via SWIFT, received from a first class Bank, transmitting in full the text of the claim, which must be worded as follows: "We [name of the Beneficiary], Certify that [name of the Guarantor], has defaulted on its payment obligations established in the Power Purchase Agreement [enter the name according to each project], and its ANNEXURES" for the amount of [Enter amount

and currency of the partial default].It must be accompanied by the documents showing the outstanding amount of the unfulfilled obligation.

We [name of guarantor] will pay according to the bank instructions received five (5) banking days after receiving the SWIFT message request, provided that you comply with the terms of the guarantee.

Payment of this Guarantee shall be made in USD (US dollars) by bank transfer to the account designated by the Beneficiary, according to the exchange rate between both currencies published by the official website [indicate the reference website to be established], corresponding to the date of submission of the aforementioned Claim.

The purpose of this guarantee is to support the payment of the monthly billing of the electrical energy produced by the generator for a period of one year. The amount shall be automatically reduced by the value of each and every claim submitted and paid by us or against written evidence provided by the GUARANTOR of having fulfilled the payment obligations.

The Guarantee shall be subject to the ICC Uniform Rules for Demand Guarantees. Publication No. 758.

The Guarantee shall be in accordance with the Laws of the Republic of Cuba. All discrepancies arising from this guarantee shall be referred to the Cuban Court of International Commercial Arbitration of the Republic of Cuba. The language to be used shall be Spanish.

The Guarantee will be effective from the date of issue and will be valid for 365 days, which may be renewed annually until the date and amount on which the BENEFICIARY has recovered the full value of the investment.

Accordingly, it shall be null and void and shall be returned to us in original unless you have made a claim under this guarantee five banking days before the due date and it has not yet been paid.

The Banking days are those on which our offices are open. This guarantee will not be valid if any of its terms and conditions are changed without our prior consent.

ANNEX No. 5 of PPA

LIST OF PERMITS, LICENSES AND AUTHORIZATONS.

FOR PUTTING IN OPERATION THE TOTALLY FOREIGN CAPITAL COMPANY (Acronym in Spanish ECTE)

1- Agreement by the Executive Committee of the Council of Ministers, which authorizes the setting up of the totally foreign-owned enterprise.
2- Decision on the legal headquarters of the totally foreign capital company(ECTE)
3- Opening of the provisional bank account where the payment for the shares of the equity will be deposited.
4- Notarized public deed which incorporates the totally foreign capital company (ECTE) at the Special Notary Public's Office of the Ministry of Justice (Acronym in Spanish MINJUS).
5- Entry in the Central Merchant Registry of the Republic of Cuba.
6- Signing of the Power Purchase Agreement (PPA)
7- Approval of the Basic Engineering by the Provincial Agency of Territorial Ordering and Development.
8- Certification of the Basic Engineering by the Cuban Fire-fighting Agency (Agencia de Protección Contra Incendios (APCI).
9- Signature of the agreement in connection with the payment for the value of the right to the land surface with the Ministry of Finances and Price.
10- Submission to and approval of the Feasibility Study by the Commission of Evaluation of the Businesses with Foreign Investment (Acronym in Spanish CENIE) of the Ministry of Foreign Trade and Investment (Acronym in Spanish MINCEX).
11- Entry at the National Office of Statistics and Information (Acronym in Spanish ONEI)
12- Entry at the Registry of Taxpayers of the National Office of Tax Administration (Acronym in Spanish ONAT).
13- License issued by the Central Bank of Cuba (Banco Central de Cuba (BCC)) for opening and operating bank accounts.

14- Authorization given by the Ministry of Foreign Trade and Investment (MINCEX) for the import and export activities as well as for the array of goods to be imported and the Code of Providers by MINCEX.

15- Entry in the National Registry of Exporters and Importers of the Chamber of Commerce of the Republic of Cuba.

16- Entry in the Central Registry of the General Customs of the Republic (Acronym in Spanish AGR).

17- Entry in the Registry of the Property to the Right of Land Surface granted by an Agreement reached by the Executive Committee of the Council of Ministers (Acronym in Spanish CECM) in connection with the land where the project will be executed.

18- Replacement of the titleholders of the micrositings at the Provincial Agency of Territorial Ordering and Development following the entry at the Registry of the Property to the Right of Land Surface granted.

FOR CONSTRUCTION:

19- Entry in the National registry of Constructors, Designers and Consultants of the Republic of Cuba.

20- Environmental Impact Assessment or Study and Environmental License at the Ministry of Sciences, Technology and Environment (Acronym in Spanish CITMA).

21- Certification of the detail engineeering by the Cuban Fire-fighting Agency (Agencia de Protección Contra Incendios (APCI).

22- Technological license at the Ministry of Sciences, Technology and Environment (Acronym in Spanish CITMA).

23- Certification of the validity of the detail engineering by the Ministry of Construction (MICONS) or the engineering enterprise appointed by the said body.

24- Entering into an Insurance Contract for the construction and installation with the Cuban International Insurance Enterprise Empresa de Seguros Internacionales de Cuba S.A. (Acronym in Spanish ESICUBA S.A.).

25- Securing the Work License for each solar farm at the Provincial Agency of Territorial Ordering and Development.

26- Submission of the performance bond.

27- License for the operation of the transport from the Ministry of Transportation (Ministerio del Trasporte (MITRANS).

FOR OPERATION:

28- Certificate of the Central Commercial Registry from the Ministry of Domestic Trade (Ministerio de Comercio Interior (MINCIN).

Signature of the Empowering Deed in order to start the commercial operation of the solar farm.

On behalf of the GENERATOR: **On behalf of UNE:**

Note for Buyer Organization/ Auctioneer:

1. This document is a general document. Hence, the Buyer Organization should insert its own name wherever *Buyer Organization Name* is mentioned in this document

2. Text highlighted in Yellow to be suitably selected as per the requirements of the tender by the concerned Buyer organization/ Auctioneer

3. Text highlighted in Grey to be suitably modified as per the requirements of the tender/ e-ReverseAuction by the concerned Buyer organization/ Auctioneer

Special instructions to Bidders for e-Tendering [ie Electronic Bidding Instructions (EBI)]

General

The Special Instructions (for e-Tendering) supplement 'Instruction to Bidders', as given in these Tender Documents. Submission of Online Bids is mandatory for this Tender.

E-Tendering is a new methodology for conducting Public Procurement in a transparent and secured manner. Now, the Government of India has made e-tendering mandatory. Suppliers/ Vendors will be the biggest beneficiaries of this new system of procurement. For conducting electronic tendering, *Buyer Organization Name* has decided to use the portal **https://www.electronictender.global** through ISN ElectronicTender Services Private Limited (referred as ISN-ETS). This portal is based on the world's most 'secure' and 'user friendly' software from ElectronicTender®. A portal built using ElectronicTender's software is also referred to as ElectronicTender System® (ETS).

Benefits to Suppliers are outlined on the Home-page of the portal.

Instructions

Tender Bidding Methodology:

Sealed Bid System

- Prequalification Only
- Single Stage Single Envelope
- Single Stage Two Envelope
- Two Stage Two Envelope
- Two Stage
- Prequalification followed by Single Stage Single Envelope
- Prequalification followed by Single Stage Two Envelope
- Prequalification followed by Two Stage Two Envelope
- Prequalification followed by Two Stage

Auction

The sealed bid system would be followed by an 'e-ReverseAuction'

Broad Outline of Activities from Bidder's Perspective:

1. Procure a Class-III Digital Signing Certificate (DSC) from any CA under CCA India, or DigiCert Premium S/MIME Certificate from DigiCert Global CA, or any other DSC Issuer *[To be edited by the Buyer, depending upon the contract signed with the Application Service Provider (ASP) of ETS]*
2. Register on ElectronicTender System® (ETS)
3. Create Marketing Authorities (MAs), Users and assign roles on ETS. It is mandatory to create at least one MA.
4. View Notice Inviting Tender (NIT) on ETS
5. For this tender -- Assign Tender Search Code (TSC) to an MA

6. Download Official Copy of Tender Documents from ETS. Note: Official copy of Tender Documents is distinct from downloading 'Free Copy of Tender Documents'. To participate in a tender, it is mandatory to procure official copy of Tender Documents for that tender.
7. Clarification to Tender Documents on ETS
   - Query to *Buyer Organization Name* (Optional)
   - View response to queries posted by *Buyer Organization Name*
8. Bid-Submission on ETS
9. Attend Public Online Tender Opening Event (TOE) on ETS
   – Opening of relevant Bid-Part
10. Post-TOE Clarification on ETS (Optional)
    – Respond to *Buyer Organization Name* Post-TOE queries
11. Attend Public Online Tender Opening Event (TOE) on ETS
    - Opening of relevant part (ie Financial-Part) (Only for Technical Responsive Bidders)
12. Participate in e-ReverseAuction on ETS

For participating in this tender online, the following instructions are to be read carefully. These instructions are **supplemented with more detailed guidelines on the relevant screens of the ETS**.

Digital Certificates

For integrity of data and authenticity/ non-repudiation of electronic records, and to be compliant with IT Act 2000, it is necessary for each user to have a Digital Certificate (DC). also referred to as Digital Signature Certificate (DSC), of Class-III, issued by a Certifying Authority (CA) licensed by Controller of Certifying Authorities (CCA) [refer http://www.cca.gov.in].

Note: In specific tenders, typically floated by a Buyer Organization/ Auctioneer registered outside India, DCs other than those under the jurisdiction of CCA of India may also be allowed. The Bidder is advised to check from the RFP and/ or the concerned Buyer Organization/ Auctioneer.

Registration

To use the ElectronicTender® portal **https://www.electronictender.global**, vendors need to register on the portal. Registration of each organization is to be done by one of its senior persons who will be the main person coordinating for the e-tendering activities. In ETS terminology, this person will be referred to as the Super User (SU) of that organization. For further details, please visit the website/portal, and click on the 'Supplier Organization' link under 'Registration' (on the Home Page), and follow further instructions as given on the site, and special instruction given in the RFP in this regard. Pay Annual Registration Fee as applicable.

After successful submission of Registration details and Annual Registration Fee, please contact ISN-ETS/ ETS Helpdesk (as given below), to get your registration accepted/activated

Important Note: To minimize teething problems during the use of ETS (including the Registration process), it is recommended that the user should peruse the instructions given under 'ETS User-

Guidance Center' located on ETS Home Page, including instructions for timely registration on ETS. The instructions relating to 'Essential Computer Security Settings for Use of ETS' and 'Important Functionality Checks' should be especially taken into cognizance.

Please note that even after acceptance of your registration by the Service Provider, to respond to a tender you will also require time to complete activities related to your organization, such as creation of users, assigning roles to them, etc.

ISN-ETS/ ETS Helpdesk	
Telephone/ Mobile	*Customer Support: +91-124 - 4229071, 4229072* [Between 9:00 am to 6:00 pm IST on all working days] **Note**: Special Customer Support in a language other than English (if any), will be intimated separately.
E-mail ID	***support@isn-ets.com*** *[Please mark CC: support@electronictender.com]*

Buyer Organization Name Contact	
Buyer Organization Name Contact Person	*Contact Persons Name (Designation)*
Telephone/ Mobile	Telephone/ Mobile *[between 9:30 hrs to 18:00 hrs on working days]*
E-mail ID	*E-mail Id*

Some Bidding related Information for this Tender (Sealed Bid)

The entire bid-submission would be online on ETS (unless specified for Offline Submissions). Broad outline of submissions are as follows:

- Online Payment of Applicable ETS Bidding-Fee (if applicable)
  Note: Failure to pay this amount will result in rejection of the bid.
- Submission of Bid-Parts/ Envelopes
  - Prequalification Application
  - *Technical-Part*
  - *Financial-Part*
  - Composite (Both Technical and Financial in a common envelope)
- Submission of information pertaining Bid Security/ Earnest Money Deposit (EMD)
- Submission of digitally signed copy of Tender Documents/ Addendum
- Submission of General Terms and Conditions (with/ without deviations)
- Submission of Special Terms and Conditions (with/ without deviations)

Multilingual e-Tendering

The option of multilingual facility will be provided only for certain functionalities as indicated on the screens of the e-Tendering Portal. English shall be the default language ('Default Language') on the Multilingual e-Tendering Portal. In this context, English has also been sometimes referred to as the 'common business language' on the portal. From the languages available on the ETS portal (also referred to as 'Licensed Languages'), a Buyer End User will have the opportunity to select additional languages ('Additional Languages' for the Organization) for various tenders of its organization. From this set of Additional-Languages for the Organization, the additional-languages selected for each e-tender of that organization would be referred to as 'Allowed-Languages for the Tender'). The Buyer End User may float each e-tender in such 'Allowed Languages' (which would also include the Default Language), and also provide relevant instructions to the Supplier organizations in its tender-documents

Supplier End User participating in an e-tender shall select any one (1) language from the Allowed Languages (which would also include the Default Language). For that Supplier organization, this one language will be referred to as the 'Selected Bidding Language' for bidding and performing other specified activities relating to such an e-tender.

The Supplier End User shall be consistent with their use of the Selected Bidding Language in the manner and to the extent provided for on the ETS. For consistency, certain ETS screens may require that content be entered only in the Default Language. For example, the figures (prices, dates etc.) shall be in the format as provided on the ETS screens and only Default Language numerals shall be used. The Supplier End-User shall be responsible for any consequences arising out of the inconsistent use of the Selected Bidding Language, or not following ETS instructions in respect of the Default Language (where required).

If any conflict arises between the Default Language version and any other language version of content made available on the ETS portal, the Default Language version of such content shall prevail.

End Users (Buyer, as well as Supplier) shall solely be responsible for creating and/or submitting their respective multilingual content in relation to an e-tender and shall deploy their own resources for the same.

Allowed-Language(s) for this tender from Bidding perspective: English and …. *(To be filled by the Buyer, depending upon the requirement of the tender. Buyer to choose languages from the list of Additional- Language(s) available on the ETS portal)*

Offline Submissions:

The bidder is requested to submit the following documents offline to the under mentioned address before the start of Public Online Tender Opening Event in a Sealed Envelope.

Contact Persons Name
Address

The envelope shall bear (the project name), the tender number and the words 'DO NOT OPEN BEFORE' (due date & time).

1. *Original copy of the Bid Security in the form of a Bank Guarantee.*
2. *Original copy of the letter of authorization shall be indicated by written power-of-attorney.*
3. *DD/ Bankers cheque of Rs …… drawn in favour of ……., Buyer organization Name, New Delhi, payable at New Delhi against payment of tender fee/ Cost of Tender Documents*

Note: The Bidder should also upload the scanned copies of all the above mentioned original documents as Bid-Annexures during Online Bid-Submission.

Special Note on Security and Transparency of Bids

Security related functionality has been rigorously implemented in ETS in a multi-dimensional manner. Starting with 'Acceptance of Registration by the Service Provider', provision for security has been made at various stages in ElectronicTender's software. Specifically, for Bid Submission some security related aspects are outlined below:

As part of the ElectronicEncrypter® functionality, the contents of both the 'ElectronicForms®' and the 'Main-Bid' are securely encrypted using a Pass-Phrase created by the Bidder himself. Unlike a 'password', a Pass-Phrase can be a multi-word sentence with spaces between words (eg I love this World). A Pass-Phrase is easier to remember, and more difficult to break. It is mandatory that a separate Pass-Phrase be created for each Bid-Part. This method of bid-encryption does not have the security and data-integrity related vulnerabilities which are inherent in e-tendering systems which use Public-Key of the specified officer of a Buyer organization for bid-encryption. Bid-encryption in ETS is such that the Bids cannot be decrypted before the Public Online Tender Opening Event (TOE), even if there is connivance between the concerned tender-opening officers of the Buyer organization and the personnel of e-tendering service provider. This is an additional reason why a Bidder using ETS need not take the risk of trying to submit his bid near the 'Last Date and Time o Receipt of Bids', and can comfortably do so well in advance.

CAUTION: All bidders must fill ElectronicForms® for each bid-part sincerely and carefully, and avoid any discrepancy between information given in the ElectronicForms® and the corresponding Main-Bid. For transparency, the information submitted by a bidder in the ElectronicForms® is made available to other bidders during the Online Public TOE. If it is found during the Online Public TOE that a bidder has not filled in the complete information in the ElectronicForms®, the TOE officer may make available for downloading the corresponding Main-Bid of that bidder at the risk of the bidder. **If variation is noted between the information contained in the ElectronicForms® and the 'Main-Bid', the contents of the ElectronicForms® shall prevail**. Alternatively, the Buyer organization reserves the right to consider the higher of the two pieces of information (eg the higher price) for the purpose of short-listing, and the lower of the two pieces of information (eg the lower price) for the purpose of payment in case that bidder is an awardee in that tender.

Typically, 'Pass-Phrase' of the Bid-Part to be opened during a particular Public Online Tender Opening Event (TOE) is furnished online by each bidder during the TOE itself, when demanded by the concerned Tender Opening Officer.

(Optional Text depending upon the decision of the Buyer organization):

Additionally, the bidder shall make sure that the Pass-Phrase to decrypt the relevant Bid-Part is submitted to Buyer Organization Name in a sealed envelope before the start date and time of the Tender Opening Event (TOE).

OR

Additionally, the bidder shall make sure that the Pass-Phrase to decrypt the relevant Bid-Part is submitted into the 'Time Locked Electronic Key Box (EKB)' after the corresponding deadline of Bid Submission, and before the commencement of the Online TOE. The process of submission of this Pass-Phrase in the 'Time Locked Electronic Key Box' is done in a secure manner by first encrypting this Pass-Phrase with the designated keys provided by the Buyer organization.

There is an additional protection with SSL Encryption during transit from the client-end computer of a Supplier organization to the e-tendering server/ portal.

Public Online Tender Opening Event (TOE)

ETS offers a unique facility for 'Public Online Tender Opening Event (TOE)'. Tender Opening Officers, as well as, authorized representatives of bidders can simultaneously attend the Public Online Tender Opening Event (TOE) from the comfort of their offices. Alternatively, one/ two duly authorized representative(s) of bidders (i.e. Supplier organization) are requested to carry a Laptop with Wireless Internet Connectivity, if they wish to come to Buyer Organization Name office for the Public Online TOE.

Every legal requirement for a transparent and secure 'Public Online Tender Opening Event (TOE)', including digital counter-signing of each opened bid by the authorized TOE-officer(s) in the simultaneous online presence of the participating bidders' representatives, has been implemented on ETS.

As soon as a Bid is decrypted with the corresponding 'Pass-Phrase' as submitted by the bidder himself during the TOE itself, or as per alternative methods prescribed in the Tender Documents, salient points of the Bids (as identified by the Buyer organization) are simultaneously made available for downloading by all participating bidders. The tedium of taking notes during a manual 'Tender Opening Event' is therefore replaced with this superior and convenient form of 'Public Online Tender Opening Event (TOE)'.

ETS has a unique facility of 'Online Comparison Chart' which is dynamically updated as each online bid is opened. The format of the chart is based on inputs provided by the Buyer for each Bid-Part of a tender. The information in the Comparison Chart is based on the data submitted by the Bidders. A detailed Technical and/ or Financial Comparison Chart enhances Transparency. Detailed instructions are given on relevant screens.

ETS has a unique facility of a detailed report titled 'Minutes of Online Tender Opening Event (TOE)' covering all important activities of the 'Online Tender Opening Event (TOE)'. This is available to all participating bidders for 'Viewing/ Downloading'.

There are many more facilities and features on ETS. For a particular tender, the screens viewed by a Supplier will depend upon the options selected by the concerned Buyer.

Some Bidding related Information for this Tender (e-ReverseAuction)

e-ReverseAuction would be conducted after the opening of the Prequalification/ Financial-Part.

The following would be parameters for e-ReverseAuction:

S#	Parameter	Value
1	Date and Time of Reverse-Auction Bidding Event	Tentative gap of hours/ day after opening of Sealed Bids./ Will be intimated to the responsive bidders later.
2	Duration of Reverse-Auction Bidding Event	Duration in Hours *(eg 4 Hours)*
3	Automatic extension of the 'Reverse-Auction Closing Time', if last bid received is within a 'Pre-defined Time-Duration' before the 'Reverse-Auction Closing Time'	Yes/ No
3.1	Pre-defined Time-Duration	*nn* Minutes *(eg 10 Minutes)*
3.2	Automatic extension Time-Duration	*nn* Minutes *(eg 5 Minutes)*
3.2	Maximum number of Auto-Extension	*nn* Automatic Extension *(5 Automatic Extension)*
4	Criteria of Bid-Acceptance	Criteria of Bid-Acceptance
5	Entity – Start-Price	L1 of the respective Item of Financial-Part/ Specified by Buyer organization
6	Minimum Bid-Decrement	Value in Currency (eg 10 Indian Rupee)

Any special instructions to be inserted by the Buyer Organization Name for that particular Auction:
(Example-1): Only 'n-1' lowest bidders from the Financial-Bid opening round will be invited for e-ReverseAuction …; Reserve Price for the auction will be the lowest price obtained in the financial-bid round, …any 'Special Processes incorporated in this **e-ReverseAuction'.**
(Example-2): Similarly, Buyer organization to outline here 'specific rules and criteria' relevant to this particular e-ReverseAuction. If the e-ReverseAuction involves special processes (such as Categorization of bidders, Loading related to Price Preference, VGF, etc), it is recommended that the Buyer organization gives in Tender Documents here an example of the use of rules and criteria.
….etc

Other Instructions

For further instructions, the vendor should visit the home-page of the portal **https://www.electronictender.global**, and go to the **User-Guidance Center**

The help information provided through 'ETS User-Guidance Center' is available in three categories – Users intending to Register / First-Time Users, Logged-in users of Buyer organizations, and Logged-in users of Supplier organizations. Various links (including links for User Manuals) are provided under each of the three categories.

Important Note: It is strongly recommended that all authorized users of Supplier organizations should thoroughly peruse the information provided under the relevant links, and take appropriate action. This will prevent hiccups, and minimize teething problems during the use of ETS.

SEVEN CRITICAL DO'S AND DON'TS FOR BIDDERS

Specifically, for Supplier organizations, the following **'SEVEN KEY INSTRUCTIONS for BIDDERS**' must be assiduously adhered to:

1. Obtain individual Digital Signing Certificate (DSC or DC), well in advance of your first tender submission deadline on ETS

2. Register your organization on ETS well in advance of the important deadlines for your first tender on ETS viz 'Date and Time of Closure of Procurement of Tender Documents' and 'Last Date and Time of Receipt of Bids'. Please note that even after acceptance of your registration by the Service Provider, to respond to a tender you will also require time to complete activities related to your organization, such as creation of -- Marketing Authority (MA) [ie a department within the Supplier/ Bidder Organization responsible for responding to tenders], users for one or more such MAs, assigning roles to them, etc. It is mandatory to create at least one MA. This unique feature of creating an MA enhances security and accountability within the Supplier/ Bidder Organization.

3. Get your organization's concerned executives trained on ETS well in advance of your first tender submission deadline on ETS

4. For responding to any particular tender, the tender (ie its Tender Search Code or TSC) has to be assigned to an MA. Further, an 'Official Copy of Tender Documents' should be procured/ downloaded before the expiry of Date and Time of Closure of Procurement of Tender Documents. Note: Official copy of Tender Documents is distinct from downloading 'Free Copy of Tender Documents'. Official copy of Tender Documents is the equivalent of procuring physical copy of Tender Documents with official receipt in the paper-based manual tendering system.

5. Submit your bids well in advance of tender submission deadline on ETS (There could be last minute problems due to internet timeout, breakdown, et al)

   Note: Bid-submission in ETS can consist of submission of multiple bid-components, which vary depending upon the situation and requirements of the Buyer. Successful receipt of a bid in an e-tendering scenario takes place if all the required bid-components are successfully 'received and validated' in the system (ETS) within the scheduled date and time of closure of

bidding (On some ETS screens, this is also referred to as 'Last Date and Time of Receipt of Bids'). ETS/ Service Provider is not responsible for what happens at an end-user's end, or while a submission made by an end-user is in transit, until the submission is successfully 'received and validated' in ETS. When a bid-component receipt and validation is successful, it is recorded in the ETS Audit Trail Report, which is generated by ETS. In case of any uncertainty, the application audit trail generated by ETS (ETS Audit Trail Report) shall be the final record/evidence for reference regarding the 'successful bid receipt'.

6. It is the responsibility of each bidder to remember and securely store the Pass-Phrase for each Bid-Part submitted by that bidder. In the event of a bidder forgetting the Pass-Phrase before the expiry of deadline for Bid-Submission, facility is provided to the bidder to 'Annul Previous Submission' from the Bid-Submission Overview page and start afresh with new Pass-Phrase(s)

7. ETS will make your bid available for opening during the Online Public Tender Opening Event (TOE) 'ONLY IF' your 'Status pertaining Overall Bid-Submission' is 'Complete'. For your record, you can generate and save a copy of 'Final Submission Receipt'. This receipt can be generated from 'Bid-Submission Overview Page' only if the 'Status pertaining overall Bid-Submission' is 'Complete'.

NOTE:
While the first three instructions mentioned above are especially relevant to first-time users of ETS, the fourth, fifth, sixth and seventh instructions are relevant at all times.

Additional DO'S AND DON'TS FOR BIDDERS Participating in e-ReverseAuction

1. Get your organization's concerned executives trained for e-ReverseAuction related processes on ETS well in advance of the start of e-ReverseAuction.

2. For responding to any particular e-ReverseAuction, the e-ReverseAuction (ie its Reverse Auction Search Code or RASC) has to be assigned to an MA.

3. It is important for each bidder to thoroughly read the 'rules and related criterion' for the e-ReverseAuction as defined by the Buyer organization.

4. Pay your EMD for e-ReverseAuction on ETS well in advance of the start of e-ReverseAuction Bidding Event.

5. Pay the ETS Bidding-Fee for e-ReverseAuction well in advance of the start of e-ReverseAuction Bidding Event.

Note: To participate in e-ReverseAuction, the ETS Bidding-Fee for e-ReverseAuction should be paid before the 'Date and Time of Start of Reverse-Auction'. In case ETS Bidding-Fee for e-ReverseAuction is sent offline to the Auctioneer or ETS Service Provider, it is important for the bidder to ensure that the Auctioneer/ ETS Service Provider has received the ETS Bidding-Fee for e-ReverseAuction and also entered the related details in ETS. When the Auctioneer/ ETS Service Provider enters the details, the bidder should receive an e-mail acknowledgement. If ETS

Bidding-Fee for e-ReverseAuction status of the bidder is not updated as outlined above, the bidder would not be able to participate in the Auction.

6. During an e-auction, it is recommended that a bidder submits a bid well before the scheduled time of 'Date and Time of Closure of Reverse-Auction'. Submission of a bid near the closing time of an auction may result in failure due to any of the various factors at that instant, such as – slow internet speed at the bidder's end, slow running of computer at bidder's end, nervousness of the bidder in the last few seconds, etc. This could lead to delay in submission of data from the bidder's computer to the server. Even if the delay is of a fraction of second after the scheduled closing time, it will result in failure of bid submission. Further, please note that a bid can be submitted even if the bidding-page has not been refreshed manually, or otherwise depending on the conditions of the e-auction.

   Note: Successful receipt of Bid in an e-auction scenario takes place if the bid is successfully 'received and validated' in the system (ETS) within the scheduled date and time of closure of bidding (On some ETS screens, this is also referred to as 'Date and Time of Closure of Reverse-Auction', or Forward-Auction, as the case may be). End Users shall be solely responsible for ensuring timely submission of their respective bids such that the bids are successfully received in ETS as stated above. ETS/ Service Provider is not responsible for what happens at an end-user's end, or while a submission made by an end-user is in transit, until the submission is successfully 'received and validated' in ETS. When a bid is successfully 'received and validated', it is recorded in the ETS Audit Trail Report, which is generated by ETS. In case of any uncertainty, the application audit trail generated by ETS (ETS Audit Trail Report) shall be the final record/evidence for reference regarding the 'successful bid receipt'.

7. It is important to digitally-sign your 'Final bid' after the end of e-ReverseAuction bidding event.

Minimum Requirements at Bidder's End

Computer System having configuration with minimum Windows 7 or above, and Broadband connectivity
Microsoft Internet Explorer 7.0 or above, or Edge with Internet Explorer mode
Digital Certificate(s)

Vendors Training Program

One day online training (10:00 to 17:00) is provided by ISN-ETS. Training is optional.
In case, any bidder is interested, he may send a request to support@isn-ets.com
Vendors are requested to arrange their own Laptop, Digital Certificate and Wireless Connectivity to Internet.

Vendors Training Charges (Per Participant)	*To be filled by the Buyer, depending upon the contract signed with the Application Service*

	Provider (ASP) of ETS

Annexure-1 Project Site details

Category	Project Site	Site Images	Latitude	Longitude	Interconnection
Block-1 **25 MW**	Villa Clara/Cumbre Area: **40 Ha** Potential: **25 MW**		22°17'34.827" 22°17'9.894" 22°17'5.882" 22°17'22.412"	-79°39'58.307" -79°39'33.417" -79°39'42.337" -79°40'7.236"	Voltage Level: **34.5 kV** Substation distance: 2 km LILO: Yes Interconnection distance : 0.07 km
Block-2 **20 MW**	Villa Clara/La Distancia Area: **16.6 Ha** Potential: **10 MW**		22°39'50.906" 22°39'53.78" 22°39'39.304" 22°39'38.893" 22°39'35.938" 22°39'32.977"	-80°3'22.942" -80°3'13.649" -80°3'13.737" -80°3'13.739" -80°3'13.757" -80°3'15.699"	Voltage Level: **34.5 kV** Substation distance: 25 km LILO: Yes Interconnection distance : 0.1 km
	Villa Clara/Quemado Hilario Area: **7.5 Ha** Potential: **5 MW**		22°24'3.993" 22°24'5.574" 22°24'8.209" 22°24'8.614" 22°23'57.713" 22°23'56.353" 22°24'0.115"	-80°1'6.424" -80°1'2.422" -80°0'55.749" -80°0'54.723" -80°0'53.875" -80°1'2.738" -80°1'4.553"	Voltage Level: **13.8 kV** Substation distance: 3.5 km LILO: Yes Interconnection distance : 2 km

Annexure-1 Project Site details

Category	Project Site	Site Images	Latitude	Longitude	Interconnection
	Villa Clara/Minindustria 2 Area: **7.4 Ha** Potential: **5 MW**		22°27’15.969” 22°27’0.19” 22°27’8.413” 22°27’8.165” 22°27’8.474” 22°27’12.473” 22°27’11.722” 22°27’15.946”	-80°0’47.04” -80°0’47.309” -80°0’49.698” -80°0’55.783” -80°0’59.195” -80°0’58.849” -79°59’10.613” -80°0’55.625”	Voltage Level: **13.8 kV** Substation distance: 1.5 km LILO: Yes Interconnection distance : 0.01 km
Block-3 **15 MW**	Villa Clara/ Macun en Zona Industrial Area: **16.5 Ha** Potential: **10 MW**		22°48'20.017" 22°48'20.426" 22°48'14.249" 22°48'14.003"	-80°5'52.339" -80°5'38.134" -80°5'38.174" -80°5'52.377"	Voltage Level: **34.5 kV** Substation distance: 1 km LILO: Yes Interconnection distance: 0.05 km
	Villa Clara/La Paloma Area: **7.5 Ha** Potential: **5 MW**		22°58'34.926" 22°58'36.793"	-80°36'51.179" -80°36'43.274"	Voltage Level: **34.5 kV** Substation distance: 18 km LILO: Yes Interconnection distance: 0.1 km

Annexure-1 Project Site details

Category	Project Site	Site Images	Latitude	Longitude	Interconnection
			22°58'29.424"	-80°36'44.334"	
			22°58'23.871"	-80°36'49.85"	
			22°58'23.653"	-80°36'58.094"	
			22°58'29.5"	-80°36'52.932"	

Annexure-4

Minimum Functional Specification

Table of Contents

Acronyms

AC	Alternating Current
AVR	Automatic Voltage Regulator
CCTV	Closed-circuit television
CMMS	Computerized Maintenance/Asset Management System
CT	Current Transformer
DC	Direct Current
ESIA	Environmental and social impact assessment
HV	High Voltage
HVAC	Heating, Ventilation, and Air Conditioning
Hz	Hertz
I/O	Input/Output
IEC	International Electrotechnical Commission
ISO	International Standards Organization
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MCR	Maximum Continuous Rating
MSL	Mean Sea Level
MV	Medium Voltage
PVC	Poly Vinyl Chloride
QA	Quality Assurance
QC	Quality Control
RMS	Root Mean Square
SCADA	Supervisory Control and Data Acquisition
UL	Underwriters Laboratories
UNE	Electricity Union of Cuba
UPS	Uninterrupted Power Supply
VT	Voltage Transformer

Minimum Functional Specification for Solar Park Facility

1. Introduction

The Solar Park Facility shall comply with the requirements more specifically described belowand the Solar Park Facility must be fit for the purpose and enable the Project developer to comply with its obligations under the Project Agreements. The Project developer shall design, construct, complete and operate the Solar Park Facility in accordance with the Project Agreements, applicable Codes and Standards (internationally and locally acceptable for power plant), Prudent Utilities Practices, Good Design Engineering and Construction Practices, the Laws of Cuba, the Grid Code, Permits, consents and licenses detailed in the Permits Matrix.

All design work, calculations, drawings and detailing shall use the SI system of measurement. Plant and equipment shall be coded and the same coding shall be used for the design, construction, distributed control system and manuals. All the drawings, manuals, etc. shall beboth in English language and Spanish language.

The solar project developer shall use designs, methods, technologies and techniques that are modern, reliable, well-proven, safe and in accordance with latest industry practices. The completed Solar Park Facility shall, amongst others:

(i) be capable of reliable operation under designed climatic and seismic conditions;

(ii) be automated to optimum possible levels, involving minimum operator interventionfor normal operation;

(iii) be operated and maintained inaccordance with Prudent Utility Practices and it shall be durable along with structures and plant, equipment and systems designed, procured and constructed to perform their intended functions for a minimum of 25 years:

(iv) be designed and completed to minimize the risk of fire through use of non-combustible fire-retardant materials, wherever applicable and provision of adequate and appropriate fire detection and protection systems.

(v) make provision for:

- (a) the health and safety of the public, employees and visitors.
- (b) the security of the Solar Park Facility assets;

(vi) all work for or in connection with the Solar Park Facility shall be undertaken inaccordance with:

- (a) Applicable Codes and Standards as set out in this **Annexure-1**
- (b) quality assurance programs using the International System of Units (SI)

2. General Requirements

2.1. Normal Site Ambient Conditions

The Solar Park Facility shall be designed for operation at all reasonably foreseeable climatic and atmospheric conditions occurring at the Site.The average annual daytime temperature value is 30 ºC, with an average maximum of 35 ºC in the months of July and August, and an average minimum of 15 ºC, with the minimums recorded in the month of January. The thermal amplitude of the monthly averages is approximately 6 ºC. The absolute maximums and minimums are of the order of 37 and 4 ºC.

Climate variables	**Historical values**	
Temperature (^{0}C)	Average	30.0
	Average Maximum	35.0
	Average Minimum	15
Relative humidity (%)	Average	80
	Average 7:00 h	95
	Average 13:00 h	62

The average relative humidity is high which is characteristic in the humid tropical climate of Cuba, with averages of the order of 80%. Daily highs oscillate around 95% and occur at dawn, or early in the morning, when fog, fog or dew may occur due to air saturation, a time coinciding with minimum temperature records.

The humidity of the air drops after noon to an average value of 62%. The amplitude of the average maximum and minimum values is of the order of 30%; The oscillation of the maximum and minimum averages of relative humidity is also of the order of 30%.
The required performance of plant and equipment, and the required performance of the Solar Park Facility as a whole, shall refer to performance under the conditions prevailing at the Site.

2.2 Design Life and Performance

All components comprised in the Solar Park Facility shall be new when installed and shall be purchased from manufacturers with a proven track record and high level of reliability. The Solar Park Facility shall be designed for an operating life on a Solar PV system of a minimum of 25 years from the Commercial Operation Date.

The design CUF of the Solar Park Facility shall not be lesser than 20%.

2.3 Documents to be provided to UNE

Further to the requirements of the Agreement regarding delivery of documents to the UNE, the Project developer shall provide the UNE with English and Spanish copies of all investigations & studies undertaken, manuals, test

certificates and operation and maintenance manuals.

2.4 Health and Safety

The Solar Park Facility shall be constructed, installed, commissioned, operated and maintainedin full compliance with Prudent Utilities Practice, Good Design Engineering and Construction Practices and the Laws of Cuba concerning workplace safety standards and the protection of persons' health. The Solar Park Facility shall be designed and operated to meet the Environmental Laws of Cuba, Health and Safety Guidelines in effect at the date of this Agreement.

2.5 Environmental standards

Solar Park Facility shall comply with the requirement of the Environmental approval and shall otherwise not exceed the standards for ambient noise criteria or limits provided under the Laws of Cuba.

2.6 Hazardous Substances

The Project developer shall be responsible for the removal and disposal of toxic, hazardous and dangerous waste produced by solar park facility, if any, throughout the Operational Period, and shall be responsible for the implementation of any special procedures or requirements for the safe and proper storage, handling and disposal of any such substances generated during the operation of the Solar Park Facility.

3.General Technical Requirements - Solar Park Facility

3.1 PV Modules

3.1.1 The PV modules shall be one of the module types Poly-Crystalline or -Mono-Crystalline. The capacity of each of the solar modules shall not be less than 440 Wp power rating, which is in production for at least six (6) months prior to the supply of modules for the project.

3.1.2 The PV modules shall be a commercial, off-the-shelf product, meeting IEC standards of IEC 61215, IEC 61730, IEC 61701, IEC 61853, IEC 62804 or higher shall be properly installed according to manufacturer's instructions. Annexure-1

3.1.3 The PV Module efficiency must be greater than 20%.

3.1.4 The following minimum guarantees shall be applicable:

3.1.4.1 Product warranty of ten years; and

3.1.4.2 Linear degradation warranty as follows:

(i) For any technology, a constant degradation of up to 0.8% per year from year 1 to year 25, or up to 3% in year 1 and up to 0.7% from year 2 to year 25.

(ii) For monocrystalline modules, up to 6.3% by year 5 and up to 0.7% per year from year 6 to year 25, and with, in either case, a guaranteed power output after 25 years no less than 80% of the initial nominal power.

3.2 Inverters

3.2.1 The PV inverter shall be one of the types of String or Central inverter. The Power capacity of the inverter should be as per system requirement.

3.2.2 The PV inverter shall be a commercial, off-the-shelf product, meeting IEC standards or higher shall be properly installed according to the manufacturer's instructions.

3.2.3 The inverters must have a product warranty of at least 10 years and a guarantee against manufacturing defects of at least 5 years.

3.2.4 The inverters shall be designed and constructed for continuous operation under the climatic and environmental conditions prevailing on Site. According to the PV module manufacturer's requirements, the grounding of negative/positive pole shall be provided.

3.2.5 The protection system shall be selected and coordinated in line with the requirements of the UNE of Cuba. Each inverter shall be connected to

the earthing protection system by an appropriate arrangement.

3.2.6 The inverters shall be capable of automatic synchronization with the grid. A proven communication protocol compatible with the plant control system.

3.2.7 The inverter shall be either indoor type and located inside an inverter room or a proven outdoor type with a minimum protection rating of IP65. If outdoor type, the inverters are to be provided within an inverter station designed to withstand at least 45°C of external ambient temperature. The air flow and cooling design of the inverter station should be calculated to avoid overheating of the inverters. The inverters shall be mounted to prevent water or dust ingress, and shaded against direct sunlight. Temperature and moisture content control should be provided.

3.2.8 The inverter station shall be elevated at least 50 cm above the maximum historical flood level. The height of the inverter shall be designed not to provide shading on the PV modules

3.2.9 The Inverter Shall be more than 98% European efficiency and 97.4% California efficiency.

3.2.10 The maximum harmonic distortion (THD) shall not exceed 3%

3.2.11 The power factor of the generated power must move between ±0.8 (both inductive and capacitive), between 25% and 100% of the nominal power, being able to regulate voltage and reactive power during day and night hours.

3.3 PV Module Mounting Structure

3.3.1 The PV module mounting structure shall be either fixed or single-axis tracking. The design and construction of the mounting structure shall take into account the following:

3.3.2 The mounting structure shall be compatible with the PV modules used.

3.3.3 The mounting system (fixed and tracking) shall be designed to withstand the wind load (as per the wind zone of Cuba), seismic load, dead load of modules and hardware, and snow loads (if applicable).

3.3.4 The mounting structure shall be designed to prevent bimetallic corrosion between different metals.

3.3.5 In the case of tracking systems, trackers shall be (i) provided with

protection (wind alarm, movement to stow position) against wind speeds higher than the design conditions and (ii) capable of being operated manually.

3.3.6 Mounting Structure shall be constructed at a suitable PV module height to both prevent shadows over adjacent modules and to provide enough ventilation around the modules.

3.3.7 Mounting Structure shall be manufactured to withstand high levels of corrosion by using aluminum or hot-dip galvanized steel, Galvanizing shall be sufficient to provide corrosion protection for the design life of the plant.

3.3.8 The module mounting structure hardware such as bolts and screws shall be of stainless steel SS 304.

3.3.9 If trackers are used, the tracking system shall have a defect warranty of at least five years.

3.3.10 The structure will be based on monopoles with piling or concrete foundations or special ramming profiles (depending on soil characteristics). Bearing capacity tests or pull-out tests will be conducted to demonstrate suitability of the approach. The pile design and piling method proposed should be appropriate for piles with longer below-ground length than assumed in the technical bid, in case this is required due to unexpected soil conditions.

3.3.11 Piles (if any) shall be constructed of either steel or concrete. If steel is specified, the piles shall be manufactured to withstand increased anticipated levels of corrosion by using hot- dip galvanized steel.

3.3.12 The design pile length or footing size shall be confirmed by calculation, based on Site- specific soil investigation test information.

3.3.13 The mounting structure shall be provided with the adequate size/number of the cable ducts for the installation of the cables between PV modules and the junction boxes or inverters.

3.3.14 The mounting structure shall be connected to the earthing protection system by an appropriate arrangement.

3.3.15 The galvanized thickness of the mounting structure must not be less than 90 μm.

3.4 Power Transformers

3.4.1 The power transformer should be– outdoor, oil-filled type, however for ratings less than 5 MVA the dry-cast resin type is also acceptable. In case oil-filled transformers are used, the relevant environmental, fire safety and local regulations shall be complied with.

3.4.2 Transformer Voltage rating shall be 13.8 kV±2x2.5%,60Hz OR 34.5 kV±2x2.5%,60Hz as per requirement of Site design.

3.4.3 All oil-filled transformers shall be complete with oil conservator, oil level indication/alarm, silica gel breather, temperature/alarm/tripping, pressure relief/alarm/tripping, and Buchholz gas and surge protection/tripping/alarm. Oil-insulated transformers shall be installed with oil containment facilities, such as a concrete bund, capable of handling the complete oil content of the transformer in case of leakage. The design of the transformer system installation shall take into account fire and explosion scenarios.

3.4.4 In addition, each transformer shall include winding temperature indication with alarm and tripping contacts.

3.4.5 HV transformers shall be equipped with under load tap changers; MV transformers are not required to have under load tap changers. Each transformer shall be rated for full continuous output capacity. The no load voltages, tapping range, impedance and losses shall be selected to enable full output under normal conditions which allow for the highest and lowest system voltage operation and shall not be restricted over the specified ambient range.

3.4.6 The diverter switches of all on load tap changers shall be located in a separate tank from the transformer windings and the oil level maintained from the main tank oil conservator.

3.4.7 Cooling shall be ONAN, ONAN/ONAF, ONAN/ONAF/ONAF or ONAN/ONAF/ODAF, the radiators may be mounted separate from the tank or mounted on the transformer tank.

3.4.8 Approved facilities shall be provided for inspection, testing and maintenance access to the gas and oil-actuated relays and conservators associated with the transformers.

3.5 Balance of Plant

The balance of plant equipment shall comply with the following key technical specifications:

3.5.1 Stringer combiner boxes (SCB) /Power Cabinets.

The string combiner boxes would be required in case of Central inverters. The following protection and characteristics shall be included:

(i) The enclosure shall be rated IP65

(ii) Safety switch;

(iii) Over-current protection (fuses with disconnect bases);

(iv) Over-voltage protection. For DC boxes, PV specific surge arrester type 2 shall be provided;

(v) Earthing bars connected to the PV power plant earthing system;

(vi) String monitoring device interface with the plant control system and visual alarm in the plant control room in case of abnormal string operation. Surge suppressors must be designed, taking into account the high rate of atmospheric discharges in Cuba.

In case String inverter is used, It should be ensured that all the above protections are inbuilt in the string inverter, otherwise, a separate SCB shall be provided.

3.5.2 Cables

(i) All Power cables shall be capable of continuous operation at the highest system voltage specified with a maximum conductor temperature of 90°C, under rated conditions and a maximum temperature under fault conditions of no more than 250°C and shall be capable of sustaining maximum through fault current without damage for at least, the duration of the short circuit fault clearance time.

(ii) DC cables routed behind a PV array shall be capable of continuous operation at the highest system voltage specified with a maximum conductor temperature of 120°C

3.5.3 Medium Voltage / High Voltage switchgear

(i) MV switchgear shall be of protected, metal enclosed modular type.

(ii) The main compartment shall be insulated in SF6 gas/ vacuum. Circuit breaker arc extinguishing medium shall be either SF6 or vacuum.

(iii) The HV switchgear shall be based on air insulated systems, under particular Site conditions such as high pollution, salinity or reduced space, HV gas insulated switchgear needs to be considered.

3.5.4 Earthing and lightning system

(i) The resistance to earth of any part of the earthing system shall be less than 0.5 ohm, this value should be demonstrated during construction of the plant.

(ii) The earthing conductors used shall be adequate to withstand the maximum system fault current for one second.

(iii) A lightning protection system has been considered the need to strengthen protections against atmospheric discharges and induced surges due to the high density of lightning in Cuba that cause damage to electrical equipment and living beings

(iv) A lightning protection system for each building, inverter enclosures and the PV module array, especially when frameless modules are used, shall be provided. Each lightning protection system shall be bonded to the main earthing system.

(v) Lightning current dischargers (type 1) and overvoltage suppressors (type 2 and 3) will be installed in a staggered and coordinated manner with each other, in the case of medium voltage it will be located in such a way that before an explosion in the dischargers does not cause a breakdown in the medium voltage cell of another equipment.

3.5.5 SCADA System

The SCADA System shall be capable of:

(i) Collecting and storing all relevant data required to verify the plant performance and energy output including but not limited to:

(a) Current, voltage, instantaneous DC power, and DC energy at string level;

(b) Instantaneous AC power, AC energy, frequency at each inverter;

(c) Revenue metering device readings. The Revenue meters should be of accuracy of 0.2S.

(d) MPP tracking parameters, voltage and frequency set point, active and reactive power set point;

(e) Status and alarms of each inverter;

(f) Tracker monitoring; and

(g) Meteorological stationdata (temperature, irradiation, humidity, wind speed, wind direction);

(ii) Displaying the Project's real time status;

(iii) Monitoring all relevant alarms that require operator intervention;

(iv) Generating and storing alarms and notifying configured recipients by email;

(v) Allowing data transmission via Internet; and Tie-in with the utility remote dispatch system and be compliant to the Grid Code.

(vi) For communication with the corresponding Cargo Office (Provincial Office) the use of the following protocols must be guaranteed: Modbus TCP/IP, IEC-60870-5-104, IEC-60870-5-101 and OPC (OLE for Process Control).

(vii) A switch and a router will be guaranteed for interconnection with at least 5 Ethernet port for the connection of a radio equipment for

wireless transmission, at least 2 ports for the connection of single-mode fiber optics and LC and SC type connectors, an IP phone for communication with offices and control centers.

(viii) The electrical part will be integrated into the proposed Control System so that the installation can be monitored, controlled and supervised both locally and remotely as a single System. This includes switches, transformers, measuring instruments and switches and sectionalizes that need to be incorporated into the installation.

(ix) The Automatic system will guarantee the tele-control of the main switch of the Park, as well as the regulation from the Load Office of the active power, reactive power and power factor of each inverter.

(x) The automatic and communications equipment must be for industrial use and guarantee its operation in conditions of temperature up to 55ºC and relative humidity 95%. For the equipment and panels or cabinets that are used for indoor installation, an ambient temperature of 40ºC and relative humidity of 90% will be considered

3.5.6 Electrical System of Auxiliary Services.

The solar plant must present an electrical auxiliary service system capable of powering all the auxiliary equipment as required. The working voltage of the auxiliary services system must be among those regulated in Cuba (NC 365:2011 Normalized Voltages) and the frequency will be 60 Hz.
In the Engineering Stage, the final configuration of the Auxiliary Services Electrical System will be decided.

Auxiliary Services Transformer.

The transformer for the auxiliary services system must meet the following requirements:

(i) It will have a frequency of 60 Hz and a connection scheme that allows the correct operation of the auxiliary services.

(ii) Protected with fuses from its corresponding cell.

(iii) The secondary of the transformer must comply with the Cuban standard NC 365:2011 Normalized Voltages.

(iv) The transformer must be able to carry a load with 100% asymmetry.

(v) The impedance should be between 3.0% and 6.0%.

(vi) Protection against transient over voltages must be provided.

(vii) The transformer must work adequately in a tropicalized environment.

Low Voltage Panel

It will have a general board that contains the protection devices (breakers) with the aim of guaranteeing coordination and thermomagnetic trips, without damaging the electrical equipment that this panel will feed (lighting, alarms, ventilation, direct current supply of the Medium Voltage cells). and protections, etc.) This panel will have two associated bars, one main and one emergency. The emergency bus must have a switching transfer device for an alternate AC input on the 230 V side.

3.5.7 Relay Protection

(i) The protection relay to be installed in each of the switches of the medium voltage will have the following functions:

50/51	Three-phase overcurrent
50/51N	Ground overcurrent
67P	Three-phase directional overcurrent
67N	Directional ground overcurrent
49	Thermal Overload
27	Low Voltage
59	Over tension

The protection relay will have a common DC backup system.

4. Buildings

4.1 At least one building shall be provided, which shall be used as central control room. The building shall house all the functions of operation, maintenance, monitoring and administration for the Project. The building shall provide for all facilities which include, at minimum, air conditioning system, lighting and necessity of electrical facilities, one washing and toilet facility, area for installing control and monitoring system, appropriate size and rack to store fixing devices, special tools, spares and consumable materials necessary in day-to-day routine operation and maintenance. Car parking spaces shall also be provided adjacent to the building including visitor parking.

4.2 The building shall be raised to a minimum elevation of at least 50 cm above historical flood level record.

4.3 Foundations design shall be performed in accordance with the geotechnical studies, foreseeable climatic and seismic loads at Site, retaining maximum wind speeds recorded in the region and thermal loads caused by expected fluctuations of materials and ambient temperatures.

4.4 The minimum design life of all foundations and structural elements shall be 25 years.

4.5 A comprehensive fire detection and alarm system shall be provided to cover all building and fire risk areas within the power station site.

5 Fencing: -

5.1 A secure boundary fence along the full perimeter of the Site with a security gate house at each Site entrance should be provided. The

installation shall have a gatehouse and area lighting.

5.2 The perimeter fence shall be galvanized chain link with galvanized steel pipe poles with a minimum height of 2.5 meters. The top of the fence shall be installed with barbed wire with a minimum height of 0.5 meters.

5.3 Internal fences for the security of any particular installations within the Site shall be erected complete with gates.

5.4 All fencing, gates, doors, and other similar metallic components should be adequately connected to the earthing system.

6 Drainage: -

6.1 A drainage system should be designed and executed in order to protect the Project from flash floods and erosion. The design should be based on the ambient conditions at the Site (climatic and topographical

7 Roads: -

7.1 All works related to access and internal roads are the responsibility of the project developer.

7.2 Access roads should be adequate and suitable for the construction and operational phases of the Project and should be designed in consultation with the relevant authorities.

7.3 Internal roads should be adequate and suitable for the operational phase of the Project.

7.4 The roads shall be designed such that the rainwater flows to the longitudinal and/or transversal slope of the roads and is disposed of via the drainage system. A drainage ditch shall be included for all roads.

8 Water Supply

8.1 Water supply shall be designed in accordance with applicable environmental regulation, and the water resource management plan.

8.2 The project developer shall use reasonable efforts to minimize use of water and to recycle water. Dry cleaning of the PV panels shall be given due consideration.

9 Site Surveillance

Outdoor CCTV cameras shall be provided in order to monitor the whole plant perimeter without dead areas. CCTV cameras shall also be provided at each inverter house and substation. The output of the cameras shall be available on LCD/LED monitor installed in the control room

Annexure -1: Applicable Norms & Standards

The list/table of standards below is not an exhaustive list and it will remain the responsibility of the project developer to ensure that the Project complies with the Laws of Cuba, Industry Documents and applicable international standards and codes of practice, as might be used in accordance with Prudent Utility Practice.

All critical equipment shall be designed and manufactured under a quality assurance program in accordance with the latest ISO 9001. This requirement applies to all suppliers and subcontractors involved in the manufacture and installation of equipment.

In the case of a conflict between standards and/or codes, the more onerous shall apply.

1.Civil & Structure: -

IEC 62093:2005	Balance-of-system components for photovoltaic systems - Design qualification natural environments
BS EN ISO 14713-1:2009	Zinc coatings — Guidelines and recommendations for the protection against corrosion of iron and steel in structures — Part 1: General principles of design and corrosion resistance
ISO 12944	Corrosion Protection of Steel Structures

2. Electrical: -

2.1 PV Modules: -

IEC/EN 61730	Test for electrical safety
IEC/EN 61215	Design qualification and type approval (crystalline)
IEC/EN 61646	Design qualification and type approval (thin film)
IEC 61701	Salt mist corrosion testing of photovoltaic (PV) modules
UL 1703	Standard for Flat-Plate Photovoltaic Modules and panels
IEC 62804	Potential Induced Degradation (PID)
IEC 62716	Ammonia Resistance test of photovoltaic (PV) modules

2.2 Inverter: -

IEC-61683	Energy efficiency Measurement
IEC 61000	Emission/ Immunity requirement
IEC 60068	Environmental testing
IEC 62116	Testing procedure—Islanding prevention measures for power conditioners used in grid-connected photovoltaic (PV) power generation systems
IEC 62109-1 & 2	Safety of power converters for use in photovoltaic power systems.
EN 50530	Overall efficiency of grid connected photovoltaic inverters.
IEEE1547/IEC 61727/ BDEW	Standard for interfacing solar PV plant with utility grid.
Grid Connectivity	Relevant Local regulations and grid code shall be applicable for interfacing of Inverter with the grid.

2.3 String Combiner Boxes

IEC 60529	Specification for degrees of Protection provided by enclosures(IP code)
IEC 60439	Low-voltage switchgear and control-gear assemblies
IEC 60947-2:2006	Low-voltage switchgear and control gear. Circuit breakers
EN 50548:2011	Junction boxes for photovoltaic modules
IEC 60269-6:2010	protection of solar photovoltaic energy systems

2.4 Power Transformer

IEC 60044	Instrument transformers requirement for protective current transformers for transient performance
IEC 60076	Power transformers
IEC 60214	On-load tap changers
IEC 61378	Converter Transformers
IEC 61558	Safety of power transformers, power supplies, reactors. and similar products

2.5 Earthing and lightning protection

IEC 60050	Earthing and protection against electric shock
IEC 61024	Protection of structures against lightning
IEC 61138	Cables for portable earthing and short-circuiting
IEC 62305	Protection against lightning
IEC 62561	Lightning protection components

IEC 62548	Photovoltaic (PV) arrays - Design Requirements

2.6 Cables

IEC 60331	Tests for Electric Cables under Fire Conditions
IEC 60183	Guide to the selection of high voltage cables
IEC 60502	Power cables with extruded insulation and their accessories for rated voltages from 1kV up to 30kV
IEC 60230	Impulse tests on cables and their accessories
IEC 60287	Calculation of permissible current in cables at steady
IEC FDIS 62930	"Electric cables for photovoltaic systems",

2.7 MV/HV Switchgear

IEC 60056	High voltage alternating current circuit breakers
IEC 60185	Current transformers
IEC 60186	Voltage transformers
IEC 60129	Alternating current disconnectors and earthing disconnectors
IEC 60265	High voltage switches
IEC 60282	HV Fuses
IEC 60287	Electric cables - Calculation of the current rating
IEC 60298	Metal-enclosed switchgear for alternating current at rated voltage of over 1 kV and less than or equal to 72.5 kV
IEC 60420	High-voltage alternating current combined fuse-switches and combined fuse- circuit breakers
IEC 60470	High-voltage alternating current contactors
IEC 60694	Specifications common to high voltage switchgear standards
EN 62271	High-voltage switchgear and control gear - Part 1: Common specifications