Chhattisgarh State Renewable Energy Development Agency (CREDA)

(Dept. of Energy, Govt. of Chhattisgarh)

Near Energy Education Park, Village Fundhar
VIP (Air Port Road) Raipur 492015 (C.G.)
Phone (No.) : +91-9425253564
E-mail: credatendercell@gmail.com, Website: creda.co.in

E-BID DOCUMENT No. 105486/CREDA/SPVPP/2022-23 Dated: 29-07-2022

UNIQUE TENDER ID – 105486

E-TENDER FOR STANDARDIZATION OF RATES FOR SUPPLY, DESIGN INSTALLATION AND COMMISSIONING OF SOLAR PHOTO VOLTAIC POWER PLANT WITH LMLA, T-Gel & LITHIUM FERRO PHOSPHATE(LFP) BATTERY BANK WITH OFF-GRID PCU OF CAPACITY RANGING FROM 600W TO 51KW WITH FIVE YEARS CMC, ON SITE AND UNCONDITIONAL WARRANTEE ANYWHERE IN THE STATE OF CHHATTISGARH.

Particulars	From Date & Time	To Date & Time	Place
Date of issue of notice inviting bid	**29.07.2022 05:00 PM**	**-----**	-----
Period of availability of bidding document at website	**29.07.2022 05:00 PM**	**22.08.2022 05:00 PM**	www.creda.co.in/Tenders https://eproc.cgstate.gov.in
Submission of Pre Bid queries in writing	**29.07.2022 05:00 PM**	**05.08.2022 05:00 PM**	To be Submitted hard copy at CREDA HO, Raipur or through E-mail at credatendercell@gmail.com
Submission of Online Bid (Technical + e Price Bid) and submission of Documents in hard copy	**29.07.2022 05:00 PM**	**22.08.2022 05:00 PM**	https://eproc.cgstate.gov.in
Opening of Technical Bid	**23.08.2022 12:00 PM Onwards**		At CREDA H.O., Conference Hall, Raipur. (https://eproc.cgstate.gov.in)
Evaluation of technical bid and Declaration of eligible bidder (The technical qualification part)	**24.08.2022 12:00 PM Onwards**		At Vikas Bhawan, PMGSY, Conference Hall, Civil lines, Raipur
Opening of e- Price Bid	**26.08.2022 12:00 PM Onwards**		At Vikas Bhawan, PMGSY, Conference Hall, Civil lines, Raipur

Tender Document Cost– Rs.10,000.00 + 18% GST = Rs.11,800.00
(in words Rupees Eleven Thousand Eight Hundred Only) to be deposited in CREDA's account along with EMD via Demand Draft/ Pay Order or RTGS / NEFT.

Document can be downloaded from our website www.creda.co.in or from Chhattisgarh e-Procurement portal i.e. https://eproc.cgstate.gov.in.

CHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY

CONTENTS

NIT Ref. No. 8615 /CREDA/SPV-PP/2022-23 Date: 29-07-2022

NOTICE INVITING BID

CREDA invites online bid for standardization of rates for Supply, Design, Installation, and Commissioning of Solar Photovoltaic power plant with LMLA, T-GEL& Lithium Ferro Phosphate (LFP) battery bank with off-grid PCU of capacity ranging from 600w to 51kw with five years CMC, unconditional onsite warrantee for anywhere in the State of Chhattisgarh from registered System integrators of CREDA for SPV with 3 years track record in Solar photovoltaic power plants systems, as per following details-

Sl. No.	Item Description	Approximate Quantity	Cost of Tender Document	EMD	Essentials
1.	SPV-PP with LFP battery bank of capacity ranging from 600W to 30KW	500	Rs 10,000.00 +18% GST = Rs.11,800.00	Rs. 5,00,000.00	As per clause no.1a to 1g of Eligibility Criteria (**Page no.09-10**)
2.	SPV-PP with LMLA battery bank of capacity ranging from 600W to 51KW				
3.	SPV-PP with T-Gel battery bank of capacity ranging from 600W to 51KW				
TOTAL		**500**	**11,800.00**	**5,00,000.00**	

The quantity of Solar Power Plants Mentioned in above table is based on target/ work that are expected to be given by various agencies to CREDA within the period of two years. The quantity may change as per field requirement and fund availability.

Estimated Value of tender:-Rs. 25 crores.

Important Events and time schedule for this Bid are as follows –

Particulars	From Date & Time	To Date & Time	Place
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Technical Bid and Price Bid shall be submitted online only at https://eproc.cgstate.gov.in. However Technical Bid (as per the checklist) also has to be submitted duly signed hard copy at CE

(RE-V). If there is any discrepancy in the e-Bid and hard copy, only the documents in e-Bid shall be valid. **In no case the hard copy of documents shall be evaluated, they are only for record keeping by CREDA.** Bidders are advised to follow the instructions provided for Registration and e-Submission Process accordingly. (For any query about e-bidding please visit user manual at https://eproc.cgstate.gov.in).

Details of this tender are mentioned at Tender Documents which can be downloaded from our website-*www.creda.co.in.*

The Bidder should have to deposit Tender document cost along with EMD as mentioned above through Demand Draft/Pay Order or NEFT/RTGS payable to CREDA Raipur while submitting tender.

Bidders are requested to submit their suggestions/objections/ reservations if any with details so as to avoid any confusion and to ensure clarity and transparency regarding the Bid in writing or by e-mail.

Any Addendum/Corrigendum/Amendment Notice if arises will only be uploaded on CREDA's Website.

CREDA reserves all rights to accept/reject any or all tenders in full/part without assigning any reasons.

Chief Engineer
RE-V, H.O. CREDA
Raipur (CG)

CHECK LIST OF DOCUMENTS TO BE UPLOADED IN THE E-BIDDING PORTAL

To ensure that your Bid uploaded on the Chhattisgarh e-Procurement portal i.e.https://eproc.cgstate.gov.in is complete in all respects, please go through the following checklist & tick mark for the enclosures attached with your Bid –

S. No.	Envelope	Description of documents to be uploaded in the e-bidding portal	Complied(Yes/ No)	Page No
1.	**A. Pre-Qualification**	EMD and Tender Document Fee submission form of the bidder confirmed by CREDA (as on page – 7)		
2.		Scanned copy of Undertaking of the Bidder as mentioned on Page –8 of the tender document on the letter head of bidder		
3.		Scanned copy of original tender document duly signed & with stamp on each page, as a confirmation of acceptance of the Terms & Conditions (T&C).		
4.		PAN, GSTIN issued in the name of the bidder		
5.		Self-certificate from Bidder on not being a debarred from Government contract or a blacklisted company.		
6.		Consortium Agreement along with MoU and Power of Attorney (If Applicable) (**Annexure II**)		
7.		Declaration of conflict of interest - by bidder about any relatives working with CREDA and Affidavit (**Annexure III) (Hard Copy to be submitted as per Clause 6d, Section – 1)**		
8.		Copy of Registration: Certificate as System Integrator of CREDA in SPV Program valid at the time of submission of bid.		
9.	**B. Technical and Financial Qualification**	Copy of Approved and valid Test Reports of components of SPVPP in the name of Bidder/Manufacturer as per eligibility criteria clause 1a of section-1.		
10.		Original Net Worth Certificate duly signed by Chartered Accountant as on 31st March 2021.		
11.		Original certificate for last three financial years Turnover i.e. 2018-19, 2019-20 & 2020-21/2021-22 of work done in SPV Project.		
12.		Original ITRs for last three financial Years i.e. 2018-19, 2019-20 & 2020-21/ 2021-22 of the bidder		
13.		Completion and Performance Certificates of installation and commissioning of SPV power plants by the Bidder in Govt. Scheme of any state or Market Mode Scheme of CREDA in last three financial years i.e. 2019-20, 2020-21, 2021-22 & till 30.06.2022. (**Annexure I**)		
14.		Proof of being Eligible Manufacturer of SPV Modules/ PCU/Batteries/other BOS.		
15.		Manufacture Authorization certificates of major components of solar power plants.		
16.		Technical Data Sheet for each component showing full technical details.		
17.		Declaration for using same make of equipment's as per the test certificate(**Annexure – IX)**		

Note:- Bidders shall have to also submit the original hard copies of the above mentioned documents.

Details of EMD and Tender Document Fee

Name of A/c	CREDA
Bank & Branch Name	ICICI Bank, Panchpedi Naka, Raipur
Bank Account Number	134601000400
Branch IFSC Code	ICIC0001346

Bid No. and Date		
Name of the Bidder		
Bidder's Bank Account Details		
(i)	Name of the bank	
(ii)	Branch	
(iii)	IFSC Code	
(iv)	Account No.	
(v)	Transaction reference number	EMD - _____ ;Bid Document Fee - _____
(vi)	Date of transaction	EMD - _____ ;Bid Document Fee - _____
(vii)	EMD	Rs. ……..…./- In Words (Rs.……)
(viii)	Bid Document Fee	Rs. ……..…./- In Words (Rs.……)

(Sign & Seal of the bidder)

***NOTE –**

1. **The EMD and the Tender Document Fee shall have to be deposited as mentioned in the NIT in CREDA's bank account (amount mentioned above). Bidder shall have to upload the transaction details as above or a scanned copy of the DD (if transaction is done through DD)**
2. **In case the transaction is done through DD, the original DD has to be submitted in envelope as per Clause 6(d).**

UNDERTAKING OF THE BIDDER
(To be submitted on letter head)

I/We have read carefully and examined the notice inviting Bid, schedule, General Rules and terms and conditions of the contract, special conditions, Schedule of Rates and other documents and Rules referred to in the Bid document for the supply.

I/We hereby tender my rates for the execution of the work for CREDA as specified within the time stipulated in the schedule in accordance with all aspects with the specifications, designs, drawings and instructions with such conditions so far as applicable.

I/We agree to keep the Bid valid for One Hundred Eighty (180) days from the due date of submission thereof and not to make any modifications in its terms and conditions.

A sum of **Rs. Five Lakhs/ Rs. One Lakhs for Start-Up & New Entrepreneur** is hereby forwarded as **Earnest Money** in the form of crossed Demand draft/Pay order / RTGS / NEFT payable to CREDA at Raipur (C.G.). If I/We fail to commence or complete the sanction ordered in specified time or fail to fulfill the any condition of Bid document, I/We agree that the CREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the said Earnest Money absolutely. The said Earnest Money shall be retained by CREDA towards security deposit to execute all the works referred to in the Bid documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be required by CREDA.

I/We hereby declare that I/We shall treat the Bid documents, specifications and other records connected with the work as secret/confidential and shall not communicate information derived there from to any person other than a person to whom I/We have authorized to communicate the same or use the information in any manner prejudicial to the safety of CREDA/Government.

I/We shall abide to all the laws and shall be responsible for making payments of all the taxes, duties, levies and other Govt. dues etc. to the appropriate Govt. departments.

Our GST Registration No._____.The PAN No. under the Income Tax Act is _____.

I/We shall be responsible for the payment of the respective taxes to the appropriate authorities and should I/we fail to do so, I/we hereby authorize CREDA to recover the taxes due from us and deposit the same with the appropriate authorities on their demand.

I/We declare that none of our relatives is working in CREDA either on Regular/Contract/Placement basis or I/We don't have any partnership/subcontract obligation with any employee working in CREDA at present directly or indirectly and we will not enter in such obligation in future also. If any breach of declaration is found than we will be responsible for our debarment and any other action taken by CREDA.

Dated: **Signature**

Place: **Name of Bidder with seal.....**

Witness:

Signature: .....

Name: .....

Postal Address:

.....

.....

.....

.....

SECTION - 1

INSTRUCTIONS FOR BIDDERS

1. ELIGIBILITY CRITERIA-

a. TESTREPORTS

i. Bidder must have original valid test report of major component such as SPV Module, Battery, and PCU cum Inverter in the name of manufacturer. They will have to provide copy of such test report of the integrated systems or their major component from Solar Energy Test Centre or any other test center accredited by Ministry of New & Renewable Energy (MNRE)/ NABL. Bidder must also have to submit original test reports of all the major components such as SPV Module, Battery and PCU cum Inverter.

Financial bid of those Bidders will not be opened who have not submitted valid test report.

Bidder should have original test certificate for system valid at the time of opening of the bid.

In case, during the execution of the work, if the bidder/SI wishes to change the make of major components (with the same specifications in this bid) such as Solar Modules and/or Battery and/or PCU cum inverter and/or Charge controller, then such bidder/SI shall have to submit the test report of newly proposed configuration to CREDA and only after due approval from CREDA can the bidder install such system in the field. CREDA reserves the right to allow or disapprove such new configurations as and when they are brought to CREDA's notice by the bidders/SIs.

ii. Bidder shall have to produce original test certificate(s) (in addition to the documents submitted in hard copy as per Clause 6(d)) for the bidding at the time of opening of technical bid.

b. MINIMUM EXPERIENCE

Bidders must have minimum experience in last three consecutive financial years i.e. 2019-20, 2020-21 & 2021-22 till 30.06.2022 as per the details mentioned below–

S.No.	Category	Mandatory Eligibility
1	Category- I	The bidder must have installed and commissioned least one system of 02KW Capacity with LFP/ LMLA/ T-Gel battery bank and total installed cumulative capacity of 100KW. The minimum capacity of system is restricted to 150W for LFP battery bank and 1KW for LMLA, T-Gel battery bank.
2	Category- II	The bidder must have installed and commissioned least one system of 15KW Capacity with LFP/ LMLA/ T-Gel battery bank and total installed cumulative capacity of 1000KW.The minimum capacity of system is restricted to 5KW.

Bidders who are bidding for category "II" (LFP, LMLA, T-Gel battery Bank) will also be considered for categories I (LFP, LMLA, T-Gel battery Bank).

c. Bidders will have to submit experience of certificates containing complete system details from the concerned state/central agencies/department document issued by competent authority duly sealed and signed along with bid document. Experience certificate shall be submitted in attached format (as per **Annexure – I**) or other format containing similar information shall be considered only in-case submitted in Hindi / English Language only. At the time of opening of technical bid, bidders shall have to present original

reports/certificate as above. All these SPV Power Plants should be successfully operating as on date. **Bidder, whose firm is registered as a Pvt. Ltd. / Ltd. / Partnership / Proprietorship firm incorporated and/or worked in the State of Chhattisgarh (under CREDA scheme) consistently for five years shall be treated as Bidder of Chhattisgarh.**

d. Bidders must have a Positive Net worth **(Positive Net worth means "Net value of the Assets minus (-) Net value of liabilities")** of **Rs. 50 Lacs for Category "I", and Rs.1 Crore for Category "II" as** on **31st March 2021/31st March 2022**. They shall have to submit an **Original CA Certified Certificate** duly signed by a qualified and registered Chartered Accountant having UDI number as a proof. Produced certificate must tally with the audited balance sheet.

e. Bidders should have an aggregate turnover of **Minimum Rs.5 Crore for Category "I" and Minimum Rs.10 Crore for Category "II"** in last three consecutive years i.e. 2019-20, 2020-21& 2021-22 in SPV Projects. Certified copies of the annual returns and audited balance sheet submitted to the Registrar of Companies/ Income Tax Authorities should be enclosed. For the preceding years a **Original Summarized Sheet** of turnover certified by registered CA must been closed. **In case of FY 2021-22 Bidder are allowed to submit provisional balance sheet, ITR, Turnover and Net-worth Certificate. CREDA reserves the right to call for these documents once audited from such bidders anytime during the validity of the bid.**

f. Bidder who are debarred from business by Govt. /Govt. Agency in any state would not be eligible to participate in this bid. A self-declaration should be submitted by the bidder to this effect, failing which bid shall be rejected.

g. Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

i. Made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or

ii. Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion litigation history, or financial failures etc; and/or

iii. Participated in the previous bidding for the same work and had quoted unreasonably high or low bid prices and could not furnish rational justification for it to CREDA.

2. CONSORTIUM-

There shall be consortium for the contract bid in the constituent firm indicating clearly, amongst other things, the proposed distribution of responsibilities, both financial as well as technical for execution of the work amongst them. For the purpose of this clause the most experienced partner shall be the lead partner. The copy of the consortium agreement in accordance with the requirements mention in **Annexure - II**. Lead partner shall be nominated as being partner-in-charge and this authorization shall be evidenced by submitting a Power of Attorney signed by second partner. Consortium shall be allowed in this tender up to two partners submitted to fulfilling criteria:-

a. The term Bidder used here in after would therefore apply to both as single entity and as Consortium. Consortium of companies/organizations/bidders (maximum of two members) registered in India and must be in existence for at least 3 (three) years as on publication of this tender. Both the partners should have at least 3(three) years' experience in the field of installation of solar power plant systems.

b. A consortium of maximum two (02) members is allowed in this bid including one as lead bidder.

c. One of the partners of the consortium shall act as Lead member. Both the members of the Consortium shall mandatorily have installation experience of SPV power plant system.

d. Both the partners should individually fulfil criteria of 1d, 1f and 1g.

e. Both the partners should jointly fulfil eligibility criteria as per clause 1a, 1b, 1c and 1e. In case of minimum experience as per clause 1b, incorporation of the Lead Member in the Consortium shall determine the minimum experience required for the Consortium to qualify.

f. Member of any Consortium Firm shall not be permitted to participate either in individual capacity or as a member of any other Consortium in the same tender. Submission or participation in more than one bid will cause disqualification of all the bids submitted by the bidder.

g. All formalities in respect of submission of tender shall be done only in the name of 'Lead Member' and not in the name of consortium. However, name & other details of both the members of Consortium should be clearly mentioned in the bid.

h. Both the partners of consortium shall mandatorily have minimum 3 (three) years installation experience of SPV Power Plant System.

i. The lead partner of consortium shall be solely responsible for any liability, penalty, insurance, CMC and other terms and conditions mentioned in this Tender Document. In event of default by any partner in the execution of his part of contract, both the partners shall be debarred form the tender, execution of work and empanelment list of CREDA.

j. Notwithstanding the permission to assigning the responsibilities of defaulting partner above, both the partner of consortium will retain the full and undivided responsibility for the performance of their obligation under the bid.

k. Both the partner shall be registered in CREDA. Otherwise consortium bid/bidders shall be disqualified.

l. The bid submitted shall include all the relevant information mentioned in this tender document applicable to consortium partner shall be furnished separately for each partner like affidavit as in **Annexure-III** mentioning information of relatives, Experience certificate, **Schedule- I,II,III,IV** and all other relevant documents etc. In case of fails to do, bid shall be rejected.

m. A copy of Memorandum of Understanding (MoU) certified by Magistrate/Sub-Judge/ Notary Public on 100 Rupees stamp paper, executed between the members of Consortium shall be submitted along with the tender. The complete details of the members of the consortium, their share and responsibility in the Consortium etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU.

n. Once the bid is submitted, the MoU shall not be modified / altered/ terminated during the period of execution including any extension thereafter by CREDA or validity of any letter of award awarded to the said Consortium. In case, the Bidder fails to observe/comply with this stipulation, the full Security Deposit shall be liable to be forfeited.

o. A duly notarized agreement, attested by Magistrate/Sub-Judge/ Notary Public on 100 Rupees stamp paper, of Consortium shall be executed between the 'Lead Member' and Consortium partner. This Agreement should be submitted in original with bid. **(Annexure - II)**

p. Copy of the original Memorandum of Understanding (MoU) as stated in clause 2(m) and original copy of agreement as stated in clause 2(o) shall be submitted separately. In absence of any of each shall lead to disqualification from the bid.

q. Duration of MoU and Consortium Agreement shall be valid during the entire execution period/ validity of letter of award and any extension thereafter/currency of the contract including the period of extension, if any.

r. Any change/modification in constitution of Consortium Firm shall not be allowed. Members of the consortium are not allowed to enter into separate consortium(s) with other companies/organisations/bidders to participate in other bids of CREDA as long as this bid is valid.

s. Splitting of EMD/fees among the members of Consortium shall not be permitted.

t. Members of the Consortium Firm shall be jointly and severally liable to CREDA for execution of the project/ Work/ Assignment/ attending meetings/Review for the allocated works etc. The Consortium members shall also be liable jointly and severally for the loss, damages caused to the CREDA during the course of execution of any awarded contract or due to non-execution of the contract or part thereof. Governing Laws for Consortium Firm: The Consortium Agreement in all respect be governed by and interpreted in accordance with Indian Laws.

u. After successful completion of work, experience certificate shall be given by CREDA in accordance with percentage of participation as mentioned in consortium agreement.

All correspondence by CREDA shall be done with the 'Lead member' of Consortium only.

3. START-UP AND NEW ENTREPRENEUR-

a. CREDA may consider awarding work of installation up to **5 Solar Power Plant Systems up to cumulative capacity of 20KW** on **L-1** price to Start-up & New Entrepreneur. The allocation of projects to such bidder shall be after evaluating their performance and progress of ongoing projects (if any).

b. **START-UP**- CREDA may consider Start-up Company registered only in area of Solar PV modules/Batteries/Solar power plants/Solar invertors and PV System integrator, if it produces certificate of being a Start-up entities as issued by Government of India.

NEW ENTREPRENEUR- CREDA shall consider Companies/Proprietorship firm/Partnership firm as NEW ENTREPRENEUR which are registered in CREDA as System Integrator on or before the date of submission of bid.

c. The eligibility criteria as per 1b. to 1e. shall be relaxed for Start-Up and New Entrepreneur bidders. The eligibility criteria applicable to Start-Up and New Entrepreneur bidders shall be as follows:-

i. Registration certificate as System Integrator in CREDA on or before the date of submission of Bid.

ii. Start -up & New Entrepreneur Bidder must have valid test report of all components such as solar modules, PCU, Batteries which he is going to use in the solar power plants. They will have to provide copy of such Test reports of components of solar power plants from test centre approved by Ministry of New and Renewable Energy (MNRE) or NABL/BIS

iii. Start-Up certificate of concerned ministry, Govt. of India.

iv. Certificate for Turnover and Original certificate of positive Net-worth duly signed by Chartered Accountant for at least one financial year i.e. 2020-21/2021-22. Turnover in this category of bidders should not exceed Rs. 2 C**rores** in SPV Projects. ITR and Audited balance sheet of respective year must be submitted

d. EMD of Rs. 1.00 Lakhs in form of RTGS/NEFT along with the bid document fees in a single transaction to CREDA's bank account.

e. Start -up & New Entrepreneur are not allowed to quote prices. For this, they shall have to select "Y" option under Regret while quoting the prices.

4. BIDDING PROCESS-

For ease of accessing the e-bidding website and registration the following is to be done by bidder -

a. Visit https://eproc.cgstate.gov.in

b. Prospective bidders are requested to download, read and understand the Manuals present on the website so as to clearly understand the bid submission process.

c. The user will be directed to e-bidding page where all information regarding registration is available along with helpline details.

d. Technical bid and Price Bid shall be submitted online only at https://eproc.cgstate.gov.in latest by **05.00 PM on 22-08-2022**. Bids submitted after scheduled time and date shall not be considered.

5. EMD AND BID DOCUMENT FEE-

Earnest Money Deposit of Rs. Five Lakhs/ one Lakhs **for Start-Up & New Entrepreneur** for submitted in the form of Demand Draft/Pay Order or RTGS/NEFT as mentioned in the **NIT** vide no. 8615/CREDA/SPV-PP/2022-23 Date: 29.07.2022**,** EMD submitted in any other form e.g. **Cash/Bank Guarantee/FDR/TDR etc. shall not be accepted.**

6. SUBMISSION OF DOCUMENTS -

a. All the documents including technical and financial Bid should be submitted online on Chhattisgarh e-Procurement portal https://eproc.cgstate.gov.in as per the items mentioned in the Check list on page no.06 in this bid.

b. Bidders are advised to finish all the bidding portal related activities such as registration, USB certificate/token approval, and payments etc. well in advance so as to avoid last minute difficulties during the bid submission.

c. Bidders are also advised to make themselves fully aware with the bid submission mechanism to avoid last minute hassles and doubts during bid submission. CREDA shall only entertain genuine technical issues/glitches, provided that the bidder submits evidence regarding the same.

d. Additionally, the bidders shall also have to submit all the documents, in original hard copy, as required in this bid as per the checklist on page 06 during the opening of technical bid. Bidders shall have to submit only the documents as per the checklist in the following envelopes.

Envelope A – Pre Qualification Documents (original DD should be submitted in this envelope)

Envelope B –Financial Qualification Documents.(GST, PAN; Net worth; Turnover; ITR and Balance Sheet)

Envelope C –Technical Qualification Documents

Note: **The Envelopes mentioned above are only for submission sake only and must not be related with the Envelopes mentioned in the context of the checklist on page-06.**The documents submitted in hard copy (offline) before CREDA officials must match with those submitted in the Chhattisgarh e-Procurement portal. Any document other than the uploaded document shall not be considered. CREDA's tender committee will only evaluate the documents submitted on Chhattisgarh e-Procurement portal. In no case the hard copy of documents shall be evaluated, they are only for record keeping by CREDA.

7. SPECIFICATION AMENDMENTS-

a. The Specifications of SPV Modules, Off-Grid PCU, Battery LMLA, T-Gel & LFP, Structures, Earthing LA, ACDB, DCDB, AJB, MJB etc should be as per as Specified in the Bid. If any amendments are issued by CREDA in due course of time, in this context, then those shall be applicable under this Bid.

b. CREDA reserves the right to amend or change minor specifications of the entire or any component of Solar Power Plant system even after the issuance of sanction order as per the site conditions and demand.

8. GST & PAN-

Bidder shall have to submit copies of GST registration number and PAN numbers issued by the appropriate authority.

9. THE BID-

a. The Pre-Qualification, Technical-Financial Qualification Documents and Price Bid, other related documents must be uploaded in the portal i.e. https://.eproc.cgstate.gov.in **from 29-07-2022 05:00 PM onward till 22-08-2022 up to 05:00 PM.**

b. Nobody is authorized to receive or grant receipt for Bid delivered on behalf of CREDA. **Bid received through any other means shall not be considered and shall be rejected.**

10. ANALYSIS OF RATE -

Bidder should quote their rates considering variation of site conditions and all other factors in price of different components and keeping the quantum and quality of work in mind.

11. REGISTRATION OF BIDDER–

Bid shall be rejected of all those bidders who are not registered with CREDA at the time of submission of bid.

12. VALIDITY-

Full descriptive particulars and complete specifications should accompany the offer. Offers should be kept open for acceptance for at least **180 days** from the date of opening. After finalization of this Bid the approved rates shall be valid till two year from the date of award; however CREDA shall have liberty to increase or decrease this validity if needed.

13. TERMS & CONDITIONS-

a. The terms, conditions and specifications mentioned in Bid document shall be binding on the Bidders and no condition or stipulation contrary to the conditions shall be acceptable. It may please be noted that the Bidders who do not accept terms and conditions stipulated in this Bid documents, their offers shall be liable to be rejected out-rightly without assigning any reason whatsoever.

b. Each page of Bid document & enclosures shall be signed by the Bidder and seal affixed. All the pages of the documents issued must be submitted along with the technical offer. In case of any corrections / alterations in the Bid, the Bidder should attest the same; otherwise Bids may not be considered.

c. Bidders are also instructed to submit their Bids in properly arranged manner (with index, proper paging and with flags on important documents). Incomplete, lose, conditional or improper arranged Bids will not be accepted.

14. CREDA RESERVES THE RIGHT-

a. To reject or accept any or all Bids fully or partly without assigning any reason on the grounds considered advantageous to CREDA, whether it is the lowest Bid or not.

b. To split the quantities against the Bid further for the same items/work. No reason will be assigned by CREDA for this and will be binding on the Bidders.

c. To increase or decrease of aggregate quantities as per discretion or circumstances.

d. Due to large quantum of work & limitation of the time period for completion of the work CREDA may, if required, take consent from other eligible Bidders if they agree to work on rates approved by CREDA.

e. CREDA may undergo agreement with those eligible Bidders who give consent to work on rates standardized by CREDA and may allocate work to them. Rates approved through this Bid may be standardized for all eligible Bids to work in **year 2022-23 and 2023-24** and shall be valid till **31-03-2024**. However CREDA reserves right to curtail or extend this period.

f. CREDA reserves the right to amend or change minor specifications of the entire or any component of Solar Power Plant system even after the issuance of sanction order as per the site conditions and demand.

15. COMMUNICATIONS -

a. All the communication between Bidder and CREDA shall be in writing. Notice sent by Fax or other Electronic means shall be effective on confirmation of the transmission. Notice sent by registered post or speed post shall be effective of delivery or at expiry of normal delivery period as under taken by Postal Service.

b. Offers through Telegraph/Fax/Emails/Post/Courier or open offers etc. received shall be summarily rejected.

16. BID DOCUMENT FEE AND EARNESTMONEY DEPOSIT-

a. Each Bidder should submit Bid Document Fee and earnest money in the form of Demand Draft/Pay Order or RTGS/NEFT. Each bidder should submit Tender Document Fee and Earnest Money Deposit (EMD) in the form of RTGS/NEFT as single transaction only as mentioned in the Bid No. **105486/CREDA/SPV-PP/2022-23 Dated 29-07-2022**.

b. **Tender Document Fee and EMD submitted in any other form e.g. Cash/Bank Guarantee/FDR/TDR etc. shall not be accepted.**

17. PRE-BID QUERIES SUBMISSION IN WRITING-

a. All suggestions, doubts, confusion, request, queries etc., shall have to be presented to CREDA in writing or through email to credatendercell@gmail.comon or before **05-08-2022 till 05:00 PM**. After that any representation in this regard shall not be considered.

b. The purpose of pre-bid queries is to clarify issues and questions related to this Bid that can be raised at that stage. Any amendments in the bid documents which may become necessary as a result of pre-bid queries received shall be part of original Bid document and communicated through corrigendum on CREDA website www.creda.co.in and on Chhattisgarh e-Procurement Portal https://eproc.cgstate.gov.in.

18. TECHNICAL CRITERIA-

a. Bidder must have original valid test report of the integrated systems or their major component in the name of manufacturer. They will have to provide copy of such test report of the integrated systems or their major component from Solar Energy Test Centre or any other test center accredited by Ministry of New & Renewable Energy (MNRE)/ NABL. Bidder must also have to submit test reports of all the major components such as SPV Module, Battery, and PCU cum Inverter. Therefore bidder shall have to submit independent test reports of each major components used.
Financial bid of those Bidders will not be opened who have not submitted valid test report.
Bidder should have test certificate for system valid at the time of opening of the bid.

b. The Bidder should have sufficient technically qualified and well-experienced manpower for execution of the project and after sales service of the systems. These details may be called by CREDA and in case there is any deficiency found the Bidder may be debarred.

c. Financial bid of those Bidders will not be opened who have not submitted valid test reports for system.

19. FORFEITURE OF EARNEST MONEY DEPOSIT-

It should be clearly understood that in the event of Bidder failing to enter into the agreement in the prescribed format on their quoted rates and also fails to execute assigned works under any Scheme of CREDA, within stipulated time, if he is so communicated within

the validity period of the offer, the full amount of earnest money will be forfeited and Bidder shall be debarred from future business with CREDA including future participation in bids up to three years. CREDA's decision in this regard will be final and binding on the Bidders.

20. PRICE OF SUPPLY OF SOLAR POWER PLANT SYSTEMS WITH INSTALLATION, COMMISSIONING AND TESTING -

a. The Price quoted for all configuration of each category solar power plant systems with installation, commissioning and testing of SPV Modules, Off-grid PCU, LMLA, T-Gel, & LFP battery bank, Lightening arrester, earthing, Civil works and all other required BOS like Cables, Suitable Nut Bolts etc. with 5 years system warranty and CMC. The GST shall be paid extra as per prevailing rate (the GST regulation notification no. 08/2021-Central tax (Rate) dated 30.09.2021). The prices shall be filled exactly as per **e-Price Bid enclosed**.

b. Any change in GST shall be become applicable during the period of contract.

c. In this regard if there is any change in the composition ratio of goods and services by any Authority/ Courts, same shall be applicable.

d. **There shall be no escalation of rates under any circumstances.**

21. ENGINEERING DOCUMENT-

Bidders will have to submit Engineering Documents with technical details, drawings, Specifications of components and make etc. to CREDA for approval, as and when asked by CREDA. Works may only be started out only after approval of the Engineering Document and their samples.

22. COMPREHENSIVE MAINTENANCE CONTRACT (CMC) -

Comprehensive Maintenance Contract shall have two distinct components as described below-

a. Preventive / Routine Maintenance: This shall be done by the contractor at least once in every three month and shall include activities such as cleaning and checking the health of the SPV Battery, cleaning of module surface, tightening of all electrical connections and any other activity that may be required for proper functioning of the SPV Power Plant as a whole.

b. Breakdown / Corrective maintenance: Whenever a complaint is lodged by the user/CREDA, the bidder shall attend to the same within a reasonable period of time (not exceeding 07 days from the date of complaint) and rectify the defects, period. Replacement of the defective component/ spares if required as and when such requirement would arise. The replacement work shall be carried out within the specified time limit i.e. maximum 07 days for minor replacement/repair and 15 days for major replacement/repair. It is mandatory that the contractor shall submit a certificate, about the rectification/replacement work done, from the concerning beneficiary(s) to the DO, failing which it will be assumed that the contractor has not performed its duties. Major and minor replacement/repair shall be defined by CREDA separately.

For carrying out the maintenance service during CMC effectively, the system integrator shall establish one local service center at suitable place (preferable at the same district).

c. Facilities at the local Service Center: The bidder shall maintain the following facilities at the Local Service Centre for ensuring highest level of services to the end user:

i. Adequate trained manpower specifically trained by the bidder for carrying out the service activities.

ii. Sufficient spare parts, to extend services at the beneficiary's place / site(s).

d. The System Integrator shall submit certificates of maintenance / quarterly visits in

the enclosed format **(Annexure- X)** to respective DOs on quarterly basis, along with the service reports.

e. If the bidder fails to repair the systems against the complaints of breakdown /Corrective maintenance to ensure 100% working status during CMC period in stipulated period i.e. maximum 30 days. Repair / replacement work will be done by CREDA from their SD or any other due payments available with CREDA.

f. A detailed methodology stating the plan to undertake the work of Maintenance Contract, proposed network of service centers should be submitted at the time of Contract.

23. SAMPLES –

If required, samples of the components shall have to be displayed for CREDA in prescribed manner after receipt of notification of CREDA for testing, verification purpose without any additional cost.

24. INSPECTIONS -

CREDA reserves right to inspect the material at Godowns/Temporary stores before dispatch and also at works sites.

25. MANDATORY DEDUCTION -

This deduction is the One Percent of the cost of installation only and it is mandatory to deposit to concerned department as per state govt. Notification. So while quoting the financial bid keep this in mind.

26. CORRUPT OR FRAUDULENT PRACTICES -

a. CREDA requires the bidder/SI to strictly observe the laws against fraud and corruption in force in India, namely, Prevention of Corruption Act, 1988.

b. It is required that each bidder/SI (including their respective officers, employees and sub-contractors) adhere to the highest ethical standards, and report to the Government/ Department all suspected acts of fraud or corruption or coercion or collusion of which it has knowledge or become aware, during the tendering process and throughout the negotiation or award of contract.

27. MANDATORY EMPLOYMENT-

Qualified diploma engineer with minimum wage rupees 15000/- per month for works above rupees 20 lacs and Qualified graduate engineer with minimum wage rupees 25000/- per month for works above rupees 01 crore shall have to be deployed by the System Integrator. (As per CG Govt.'s order no. F7-17/2020/1-6 Dated 02.12.2020)

28. TAX OBLIGATIONS-

CREDA shall deduct TDS for Income Tax, applicable cess on Civil Work etc. under various acts and deposited with the appropriate authority. Costs and taxes before execution of agreement with CREDA, so as to ensure tax deposition as per Government Rules accordingly.

29. JURISDICTION OF THE COURT-

Any dispute arising out of the contract shall be subject to the jurisdiction of Hon'ble High Court of Chhattisgarh.

SECTION - 2
GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS -

In writing General Conditions of Contract, the specifications and bill of quantity, the following words shall have the meanings hereby indicated, unless there is something in the subject matter or content inconsistent with the subject.

a. **CREDA** shall mean the Chhattisgarh State Renewable Energy Development Agency represented through the Chief Engineer/Superintending Engineer.

b. **Work** shall mean any work entrusted to the Bidder as mentioned in the scope of work and Work Order.

c. The "**Engineer in charge**" shall mean the Engineer or Engineers authorized by CREDA for the purpose of this contract. Inspecting Authority shall mean any Engineering person or personnel authorized by CREDA to supervise and inspect the erection of the SPV Power Plant.

d. "**The Eligible SI/Bidder**" shall mean the Bidder awarded with the contract or their successors and permitted assigns. Contract Price shall mean the sum named in or calculated in accordance with the provisions of the contract as the contract price. General Conditions shall mean the General conditions of Contract.

e. "**Specifications**" shall mean the specifications annexed to these General Conditions of contract and shall include the schedules and drawings attached thereto or issued to the eligible Bidder from time to time, as well as all samples and pattern, if any,

f. "**Month**" shall mean calendar month. "Writing" shall include any manuscript, typewritten, printed or other statement reproduced in any visible form whether under seal or written by hand.

g. **Bidder of Chhattisgarh State-**

i. Bidder registered as a Pvt. Ltd. / Ltd. / Partnership /Proprietorship firm incorporated/registered in the State of Chhattisgarh shall be treated as Bidder of Chhattisgarh.

ii. Bidder, whose firm is registered as a Pvt. Ltd. / Ltd. / Partnership / Proprietorship firm incorporated and/or worked in the State of Chhattisgarh (under CREDA scheme) consistently for five years shall be treated as Bidder of Chhattisgarh.

2. PROOF OF MANUFACTURER-

Those bidders who are also manufacturers of an important component of SPVPP such as SPV Modules, PCU, Structures of SPV Power Plant (SPVPP) and Batteries shall have to submit proof of their manufacturing unit and appropriate registration documents and list of Machineries and Equipment's.

3. CONTRACT DOCUMENT-

The term "Contract" shall mean and include the General conditions, specifications, schedules, drawings and Work Orders etc., issued against the contract schedule of price or their final general conditions, any special conditions applying to the particular contract specification and drawings and agreement to be entered into. Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian contract Act or any other Act in vogue or by any person of common knowledge and prudence.

4. MANNER OF EXECUTION-

a. Execution of work shall be carried out under Government Mode Scheme of CREDA in an approved manner as outlined in the technical specifications or where not outlined, in

accordance with desired Specifications laid down by CREDA, to the reasonable satisfaction of the Engineer.

b. Successful Bidder / Bidder here-in-after called the **SI** (System Integrator).

i. After receipt of LOI from CREDA the eligible SI shall conduct a detailed survey of site and submit site details feasibility report and in prescribed format **(Form A & B)** after due verification and signatures of Sarpanch or Sachiv of concerned Gram Panchayat. All necessary documents and survey details shall have to be submitted in concerned District Office of CREDA in prescribed manner.

ii. SI shall also have to submit layout plan duly consented and signed.

iii. Engineer-in-Charge of District Office of CREDA shall examine these reports. After his satisfaction will forward details with his recommendations to EE of Concerned Regional Office of CREDA. Engineer-in-charge may visit the site if he/she is not satisfied with survey report.

iv. In case Engineer-in-Charge of District Office of CREDA finds the site is not suitable for installation of SPV Power Plant, he/she will inform concerned beneficiary organization/ department accordingly and request for alternative site /necessary action.

v. Executive Engineer of concerned Regional Office CREDA will decide the technical feasibility and layout plan of site. Executive Engineer may visit the site if he/she is not satisfied with survey report.

vi. After satisfaction Executive Engineer will forward the site clearance report with technical feasibility to Head Office CREDA for issuance of work orders.

vii. Head Office, CREDA shall be final authority to approve or reject site finalization recommended by Regional Offices.

viii. Concerned Chief Engineer of CREDA after his satisfaction shall issue the work order to eligible SI for installation of SPV Power Plant.

ix. Work order shall be issued to the chosen System Integrator only after execution of the agreement with CREDA.

x. After issuance of LOI/Work Order(s), Executive Engineer of concerned Regional Office CREDA shall finally approve site layout in writing in prescribed format.

xi. The SI shall start work within 15 days after the date of approval of site layout.

c. All the materials required for the installation of SPV Power Plant as per Work Order issued shall be kept at site in the custody of the SI. CREDA shall not be responsible for any loss or damage of any material during the installation.

d. All the electrical works should be done as per various provisions of Indian Electricity Act. The persons engaged for carrying out electrical works should have a valid **B-class** license or above issued by licensing board of Chhattisgarh.

e. After work is started, CREDA may carry out inspections at various stages at its discretion.

f. After installation, joint inspection shall be done in presence of SI and CREDA and after successful commissioning of SPV Power Plant and its approval from CREDA, a JCC shall be signed and the necessary documents shall be forwarded for payments as per guidelines and procedures of CREDA.

5. VARIATIONS, ADDITIONS & OMMISSIONS-

CREDA shall have the right to alter, amend, omit, split or otherwise vary the quantum of work, by notice in writing to the SI. The eligible SI shall carry out such variation in accordance with the rates specified in the contract so far as they may apply and where such rates are not available; those will be mutually agreed between CREDA and the eligible SI.

6. INSPECTION-

a. The Engineer-in-Charge or his authorized representative(s) shall be entitled at all reasonable times to inspect and supervise and test during supply, installation and commissioning. Such inspection shall not relieve the eligible SI from their obligations under this contract.

b. Material can be inspected before dispatch or in transit by the authorized representatives of CREDA at the factory / godown at the cost of the eligible SI, if desired by CREDA.

c. CREDA will undertake real time performance and quality test of randomly selected solar power plant and components during the course of execution as per the specifications and guidelines laid by CREDA to ensure quality and performance of solar power plants and its components.

7. COMPLETION OF WORK-

Time being the essence of contract, the installation of the SPV Power Plant shall be completed within the time schedule prescribed in the Work Order.

8. ELIGIBLE SYSTEM INTEGRATOR'S LIABILITY IN CASE OF DEFAULT-

CREDA may by written notice of default to the eligible SI, terminate the contract in circumstances detailed hereunder -

a. If in the opinion of the CREDA, the eligible SI fails to complete the work within the time specified in the Work Order or within the period for which extension has been granted by CREDA to the eligible SI.

b. If in the opinion of CREDA, the eligible SI fails to comply with any of the provisions of this contract.

c. In the event of CREDA terminating the contract in whole or in part as provided in paragraph (a) above, CREDA reserves the right to engage another eligible SI or agency upon such terms and in such a manner as it may deem appropriate and the eligible SI shall be liable to CREDA for any additional costs or any losses caused to CREDA as may be required for the completion of erection of the SPV Power Plant and or for penalty as defined under this Bid document until such reasonable time as may be required for the final completion of the work. CREDA may debar such a defaulter SI for up to three years from taking participation in taking part in all activities of CREDA.

d. In the event CREDA does not terminate the contract as provided in paragraph (a) the eligible SI shall continue performance of the contract, in which case he shall be liable to CREDA for penalty for delay as set out in clause 16 until the work is completed.

9. FORCE MAJEURE-

The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE such as of God, acts of public, enemy, LWE problems, acts of government, cyclone, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that if SI shall submit delay notice with appropriate cause of delay to the CREDA in writing within **15 days** of force majeure. CREDA shall verify the facts and may grant such extension as facts justify. Delay in supply of any accessories of solar power plants etc. by the related vendors, to whom the Bidder has placed order, shall also not be treated as force majeure.

10. REJECTION OF WORKS -

In the event of any of the material supplied/work done by the eligible SI is found defective in material or workman ship or otherwise not in conformity with the requirements of this contract specifications, CREDA shall either reject the material and/or work and advise the eligible SI to rectify the same. **CREDA may impose penalty for such rejection up to the 200% cost of the entire system. Habitual/repeated offenders shall be black listed/debarred to participate in**

the any Bid/ Activity of CREDA till further orders. The eligible SI on receipt of such notices shall rectify or replace the defective material and rectify the work free of cost. If the eligible SI fails to do so CREDA may-

a. At its option replace or rectify such defective materials and/or work and recover the extra cost so involved from the eligible SI plus **15%** service charges of the cost of such rectification, from the eligible SI and/ or terminate the contract for balance work/ supplies with enforcement of penalty **as stated above**.

b. Defective materials/workmanship will not be accepted under any conditions and shall be rejected outright without compensation. The eligible SI shall be liable for any loss/damage sustained by CREDA due to defective work **with enforcement of penalty as stated above**.

11. EXTENSION OF THE TIME-

If the completion of installation is delayed due to any reason beyond the control of the eligible SI, the eligible SI shall without delay give notice to the CREDA in writing of his claim for an extension of time. CREDA on receipt of such notice may or may not agree to extend the contract/delivery date of the SPV Power Plant as may be reasonable but without prejudice to other terms and conditions of the contract.

Chief Executive Officer, CREDA has full right for unconditional time extension.

12. MAKES OF EQUIPMENTS TO BE USED IN THE WORK-

a. The Solar Modules, Battery, PCU, Charge Controller & Other BOS should be as per BIS/IEC/CE/IES standards.

b. The eligible SI has to ensure that equipment's are as per Technical Requirements of guidelines of CREDA as complied with. The material/works for which CREDA/MNRE or BIS or ISI specification is not available, engineer-in-charge of the works will examine and approve the material/works, preferably of all makes on which CREDA has report of satisfactory performance.

c. Manufacturer Authorization Form (MAF) on with Manufacturer's Letter head of Solar Modules/ Battery/ PCU/ Charge Controller/Structure/Other BOS which the SI is intending to use in the installation shall be submitted with technical bid.

d. The SI shall ensure that all the major components of the Solar Power Plant such as SPV Modules, Battery, PCU, Charge Controller and other BOS are procured from registered vendors of CREDA of respective components.

13. WARRANTEE PERIOD AND POST INSTALLATION SERVICES-

a. The work done/material supplied by the eligible SI should be warranted for satisfactory operation and against any defect in material and workmanship including solar PCU, Batteries and Structures and other balance of equipment, at least for a period of **5 (five) years,** from the date of commissioning of the SPV Power Plant other works as per scope of work.

b. Warrantee on SPV Modules shall be for **10 (ten) years** from the date of commissioning of the SPV Power Plants must be warranted for their output peak watt capacity, which should not be less than **90%** at the end of **10 years** and not less than **80%** at the end of **25 years**.

c. The above warrantee certificates shall be furnished to the CREDA for approval. Any defect noticed during this period should be rectified by the supplier free of cost upon written notice from CREDA provided such defects may be due to bad workmanship or bad materials used.

d. The warrantee period shall be extended by the period during which the plant remains non-operative due to reasons within control of the eligible SIs.

e. This warrantee must be an unconditional onsite warrantee and the eligible SI will have to replace the defective material within **07 days** positively from the date of information given to him by CREDA.

f. Care should necessarily be taken to make the SPV Power Plants operational, once the reporting of the fault/non-operational status is done, within 5 days. If the SPV Power Plant is not made operational within **07 days** CREDA may rectify the same at the cost of SI and the warrantee period shall be extended accordingly for delay period.

g. System Integrators shall have to establish their service stations in the allocated area and shall have to keep sufficient quantity of spares and man power to ensure proper service network for taking care of smooth functioning of SPV Power Plant installed by them. SI shall have to give a toll free number to register complaints.

14. TERMS OF PAYMENT-

a. 95% of the cost of the work order (including GST) after successful commissioning of the Solar Power Plant at the site and submission of JCC in hard copy.

b. Balance 5% of the eligible payment excluding GST shall be retained by CREDA as Security Deposit for a period of **60 Months** from the date of commissioning**.**

15. PENALTY FOR DELAY IN COMPLETION OF CONTRACT-

a. If the eligible SI fails to complete the assigned work within the schedule time specified in the Work Order or any extension granted there to, CREDA will recover from the SI as penalty of up to **Two percent (2%)** per month of the system price excluding GST for every delayed system. For this purpose, the date of taking over shall be reckoned as the date of completion. The total penalty shall not exceed **5% (Five Percent)** of the cost. The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE.

b. Review of the progress of installation of Solar Power Plant allocated to SIs shall be done time to time by CREDA and if the progress of installation is found unsatisfactory, the allocation of entire remaining uninstalled system or their part of can be re-allocated to other SI as per discretion of CREDA.

16. SECURITY DEPOSIT (SD)-

a. The Earnest Money shall be retained by CREDA up to the duration of validity of Tender, after agreement is done to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be required by CREDA.

b. Beside this **5%** of the cost shall also be retained as SD during the five years of warrantee period. No interest shall be payable on the SD.

c. Period for which EMD and SD are to be retained may be extended in case the warrantee period is extended due to nonperformance of the system.

d. All costs of damages and delays for which the eligible SI is liable to the CREDA will be deducted from any money due to the eligible SI including the security deposit of any project under CREDA.

17. INSURANCE-

The eligible SI shall arrange insurance coverage for the materials and Solar Power Plant System at his/ beneficiary's custody for the work under execution and successful commissioning and subsequent handover to the beneficiary. The eligible SI shall take up insurance or such other measures for the manpower so as to cover the claim for damage/accident under workmen's compensation Act and other applicable State/Central laws. CREDA shall not bear any responsibility on this account.

18. PENALTY DUE FROM THE ELIGIBLE SI-

All costs of damages and delays for which the eligible SI is liable to the CREDA will be deducted from any money due to the eligible SI including the security deposit of any project under CREDA.

19. RESPONSIBILITY OF ELIGIBLE SI-

Notwithstanding anything mentioned in the specifications of subsequent approval or acceptance of the SPV Power Plant by CREDA, if any, the ultimate responsibility for satisfactory performance of the entrusted work shall rest with the eligible SI. If in any case the eligible SI does not complete the work as per the Work Orders issued to them then CREDA may take over the task & complete the project at the risk and cost of eligible SI.

20. RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE-

If any loss or damage occurs to the work or any part thereof or materials/plant/equipment's for incorporation therein the period for which the eligible SI is responsible for the cause thereof or from any cause whatsoever, the eligible SI shall at his own cost rectify/replace such loss or damage, so that the permanent work confirms in every respect with the provision of the contract to the satisfaction of the Engineer. The eligible SI shall also be liable for any loss or damage to the work/equipment's occasioned by him in course of any operation carried out to him during performing the contract.

21. RESPONSIBILITY TOWARDS THE WORKMAN OR OUT SIDERS–

a. **The eligible SI shall have to take insurance coverage from any authorized Insurance Company against Workmen compensation due under Workmen Compensation Act and submit copy of the insurance document before issuance of Work Order.**

b. The eligible SI shall ensure all safety measures during execution and repairs of the work. CREDA, will, in no case be responsible for any accident fatal or non-fatal, caused to any workman or outsider in course of transport or execution or repairs of work.

c. All the expenditure including treatment or compensation will be entirely borne by the eligible SIs. The eligible SI shall also be responsible for any claims of the workers including, labor payments PF, Accidental Insurance, Gratuity, ESI & other legal obligations.

d. CREDA shall have all rights to deduct such claims of payments from SI in case of complaints of such violations.

22. NON-ASSIGNMENTS-

a. The eligible bidder shall not assign or transfer the work orders issued as per this contract or any part thereof without the prior approval of CREDA.

b. If eligible bidder transfer/assign/sublet (as per the sublet policy of CREDA) in full or any part of work allocated to him without prior permission from CREDA in writing to any third party shall be liable to be debarred/black listed from any bid/Activity of CREDA till further orders.

c. Bidders are advised to refer the sublet policy of CREDA from CREDA website.

23. CERTIFICATES NOT TO AFFECT RIGHTS OF CREDA-

The issuance of any certificate by CREDA or any extension of time granted by CREDA shall not prejudice the rights of CREDA in terms of the contract nor shall they relieve the eligible SI of his obligations for due performance of the contract.

24. SETTLEMENT OF DISPUTES THROUGH ARBITRATION-

a. Except as otherwise specifically provided in the contract, all disputes concerning

questions of fact arising under the contract shall be decided by the Chief Executive Officer (CEO), CREDA provided a written appeal by the eligible SI is made to CREDA. The decision of the CEO, CREDA shall be final and binding to the all concerns.

b. Any dispute or difference including those considered as such by only of the parties arising out of or in connection with the contract shall be to the extent possible be settled amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled by arbitration at Chhattisgarh.

25. LAWS GOVERNING CONTRACT-

The contract shall be constituted according to and subject to the Laws of India and jurisdiction of the High Court of Bilaspur, Chhattisgarh.

26. LANGUAGE AND MEASURES-

All documents pertaining to the Contract including specifications, schedules, notice correspondences, operating and maintenance instructions, drawings or any other writings shall be written in English / Hindi language. The metric system of measurement shall be used in this contract.

27. CORRESPONDENCE-

a. Any notice to the eligible SI under the terms of the contract shall be served by registered mail to the registered office of the eligible SI or by hand to the authorized local representative of the eligible SI and copy by post to the eligible SI's principal place of business.

b. Any notice to CREDA shall be served to the Chief Engineer, CREDA Raipur in the same manner.

28. SECRECY-

The eligible SI shall treat the details of the specifications and other documents as private and confidential and they shall not be reproduced without written authorization from CREDA.

29. AGREEMENT-

The successful eligible SI shall have to enter into an agreement with the CREDA in the approved contract agreement form within **10 days** of the receipt of call from CREDA.

30. DECLARATION OF CONFLICT OF INTEREST-

a. Any regular employee working or worked on basis of contract or through placement agency cannot work directly or indirectly in any scheme of CREDA. If such a person is found working with any SI or through sublet then, such SI shall be blacklisted for three years.

b. The bidder shall not be permitted to Bid for the work if the section of HO CREDA (responsible for implementation of work) in which his near relative is posted. Furthermore, the successful bidder shall not be given work in the district in which his near relative is posted. The bidder shall also intimate the names of his near relatives working in CREDA. Bidder shall also intimate the name of persons who are working with him in any capacity and who are near relatives to any employee in CREDA. Any breach of this condition by SI would render himself liable to be blacklisted for three years and removed from approved list of SIs in CREDA.
Note- By the term near relatives are meant Wife, Husband, Parents and son, Brother, Sister, Brother-in-law, Father-in-law, and Mother-in-law etc.

c. Bidder must produce an affidavit **(Annexure – III)** stating the names of retired/removed employee of CREDA (if any) in his employment who retired /removed within last two years, if in case there is no such person in his employment, his affidavit should clearly state this fact. This affidavit is mandatory, if it is not produced along with the bid, the bid shall be rejected.

31. BID EVALUATION CRITERIA-

a. Offers of only those parties, who are found qualified based on Eligibility Criteria and Technical Bid, will be taken into further consideration and financial bid of only those parties who are qualifying the criteria of Technical Bid will be opened.

b. Other things being equal, the lowest rates shall normally be preferred, but CREDA shall have rights and liberty to amend/lower the rates.

c. Conditional Bids shall not be accepted.

d. CREDA shall have rights and liberty to call any /other parties who are technically qualified but not accepted to work on approved rates, as and when required in accordance with quantum of work and scheduled time limits for completion of targets.

32. EVALUTION OF PRICE BID-

Price bid shall be evaluated on the basis of quoted rates. L1 rate i.e. lowest rate of total of Supply and Installation & Commissioning cost of Solar Power Plant System shall be considered, however CREDA shall have discretionary power to amend/lower the rates.

33. ALLOCATION OF TARGETS AND AREA OF WORK–

a. Preference shall be given to L1 Bidder in any or all categories for allocation of works.

b. Additionally, the allocation of works to bidders, including L1 bidder shall be subject to their past performance in the schemes of CREDA. CREDA reserves the right to amend the allocations to bidders based on this criterion.

c. Increase or decrease allocations shall be decided at the sole discretion of CREDA, which shall be final, binding and conclusive on the bidders.

d. Allocation can be further extended or curtailed as per discretion of CREDA, in interest of expeditious work completion.

e. CREDA reserves all rights for allocation of works and the decision of CEO, CREDA shall be final and binding.

f. Review of the progress of installation of SPVPP System allocated to SIs shall be done time to time by CREDA and if the progress of installation is found unsatisfactory, the allocation of entire remaining uninstalled System or their part of can be re-allocated to other SI as per discretion of CREDA.

34. BID REJECTION-

If financial bid of a bidder has been opened on the **basis of technical bid of a bidder which has been determined to be substantially responsive to the bidding document and in latter stage it is found that bidder does not meet the eligibility criteria or the technical bid is found substantially non-responsive, CREDA reserves rights to reject such bid of a bidder anytime.**

We (on behalf of Eligible SI/Bidder) have read all the above stated details &accept to comply with it in total.

(Name, Signature & Seal of the SI)

SECTION-3
SCOPE OF WORK

The scope of work in brief will be as follows-

1. **Survey of Sites, design, supply, installation & commissioning of SPV Power Plants as per design and specifications approved by CREDA and concerned agency, on turnkey basis. Five years onsite unconditional onsite warrantee for manufacturing defects shall be required for each of the system after successful commissioning and proper handing over.**

2. **The scope of work shall also include the following:**

   a. Survey of Sites, Submission of site clearance certificate and layout where the SPV Power Plant is to be installed. A layout plan of the site should also be submitted clearly indicating the identified location for installation of SPV power plant.

   b. Work order shall be issued only after receipt of satisfactory site clearance reports suitable for system installation.

   c. SI shall furnish all necessary information to beneficiary for SPV Power Plant Warrantee, DOs & Don't etc. so as to avoid further misunderstandings and disputes.

   d. Detailed planning of time bound smooth execution of project.

   e. Design, supply, installation & commissioning of SPV Power Plants of required capacity as per design and specifications approved by CREDA, on turn key basis.

   f. Providing User Manuals and Warrantee Cards to beneficiary /CREDA.

   g. SI shall have to submit JCCs within 120 days of Installation and Commissioning of SPV Power Plant in District Office of CREDA.

   h. Onsite unconditional warrantee for manufacturing defects for Five years fault-less operation, assure inventory for maintenance.

   i. SI must ensure safety and insurance against risk liability of all personnel associated during installation and repairs of the system.

   j. Training of at least two persons nominated by user, on the various aspects of operation and maintenance of the offered system after commissioning of the system.

   k. The eligible SI shall maintain sufficient inventory of the spares to ensure that the system can be made functional within 7 days from the communication of breakdown of the system during the warrantee period.

   l. The eligible SI shall run the system on trial basis and shall closely monitor the performance of the system before handing over the system, so that the assured generation can be estimated for monitoring of the performance of the system. CREDA shall examine the generation and ascertain if the generation is adequate with reference to the capacity of the SPV Power Plant.

   m. The eligible SI shall have to monitor the performance of the system before its handing over to the beneficiary, so that the desired generation can be assured.

   n. Performance Guarantee Test: Successful performance guarantee test to demonstrate the rated capacity of SPV power plant as per CREDA's norms shall have to be conducted by SI in presence of representatives of CREDA, if required.

   o. System Integrators shall have to establish their service stations in the allocated area and shall have to keep sufficient quantity of spares and man power to ensure proper service network for taking care of smooth functioning of SPV power plant installed by them. SI shall have to give a toll free number to register complaints.

   p. The system shall have to be installed by trained manpower/contractor from a recognized training centre as per guidelines of CREDA. The training certificate can be checked by the officials of CREDA at the time of visit/inspection, if required.

SECTION -4

TECHNICAL SPECIFICATION FOR SOLARPHOTOVOLTAIC POWERPLANT

I. GENERAL TECHNICAL SPECIFICATION:

A standalone solar photovoltaic power generator/plant proposed comprises of solar PV modules of given capacity, with battery bank, PCU with necessary control electronics, interconnecting wires / cables, module mounting structures, necessary grounding /earthing etc.

BROAD TECHNICAL PARAMETERS

SN	Category	Solar PV module Array Capacity (Wp)	PCU Capacity with MPPT and DC to AC Invertor (VA)	Battery Bank Capacity /Configuration LMLA, T-gel, Lithium Ferro phosphate(LFP)			
				LMLA, T-gel Battery		Lithium Ferro phosphate (LFP) Battery	
				Voltage in V	Capacity in AH	Voltage in V	Capacity in AH
1	Category-I	600	750	24	180	24	138
2		1200	1500	48	180	48	138
3		2400	3000	48	300	48	228
4		3000	3750	48	400	48	270
5		3600	4500	48	400	48	270
6		4800	6000	96	300	96	228
7		6000	7500	96	400	96	270
8		7200	9000	96	600	96	378
9		9000	11250	120	600	144	378
10		10500	13125	120	600	144	378
11		12000	15000	120	600	144	378
12	Category-II	15000	18750	240	300	240	228
13		18000	22500	240	400	240	270
14		21000	26250	240	400	240	300
15		24000	30000	240	600	240	378
16		30000	37500	240	600	240	378
17		36000	45000	240	900	-	-
18		48000	60000	240	1000	-	-
19		51000	63750	240	1000	-	-

II. MINIMAL TECHNICAL REQUIREMENTS/ STANDARDS:

01. SPV MODULES-

a. **SPV** array contains specified number of same capacity, type and specification modules connected in series or parallel to obtain the required voltage or current output. Only IEC/BIS Tested module shall only be used in the system. The wattage of each module should be at least 300 Wp of 72 cell and open circuit voltage of the PV modules under STC should be at least 42 Volts.

b. Modules supplied with the SPV Power Plant systems shall have certificate as per IS14286/IEC 61215 specifications or equivalent National or International/ Standards. STC performance data supplied with the modules shall not be more than one year old.

c. Modules must qualify to IS/IEC 61730 Part I and II for safety qualification testing.

d. The minimum module efficiency should be minimum 15 percent and fill factor shall be more than 70percent.

e. Modules must qualify to IEC TS 62804-1:2015 for the detection of potential-induced e-gradation - Part 1: Crystalline silicon (Mandatory in case the SPV array voltage is more than 600 VDC).

f. The name plate shall conform the IS 14286/IEC61215.

g. Module to Module wattage mismatch in the SPV array mismatch shall be within (±) 3 percent

h. Variation in overall SPV array wattage from the specified wattages shall be within zero percent to +10 percent.

i. The PV Modules must be warranted for output wattage, which should not be less than 90% of the rated wattage at the end of 10 years and 80% of the rated wattage at the end of 25 years.

j. **IDENTIFICATION AND TRACEABILITY-**

Each PV module must use a RF identification tag (RFID), which must contain the following information:

i Name of the manufacturer of PV Module
ii Name of the Manufacturer of Solar cells
iii Month and year of the manufacture (separately for solar cell and module)
iv Country of origin (separately for solar cells and module)
v I-V curve for the module (should be submitted in soft copy at D.O.)
vi Peak Wattage, I_m, V_m and FF for the module
vii Unique Serial No and Model No of the module
viii Name of the test lab issuing IEC certificate
ix Other relevant information on traceability of solar cells and module as per ISO 9000 series.

The RFID must be inside of module lamination. The module laminate, but must be able to with stand harsh environmental conditions

k. The panel should be supplied with CREDA Logo in the form of sticker on the back of SPV panel or duly laminated inside the glass of solar module with the remark "Manufactured for CREDA". Inter connections of solar modules should be through good quality male female joint. Name of manufacturer, Sl. No. of Module & manufacturing year should be clearly fixed inside the glass lamination of every module. Back label should be affixed behind every module which should clearly state the specifications & capacity of the module.

l. All SPV modules must be indigenously built and made in India

Test reports/ certificate from IEC/NABL accredited laboratory to be mandatorily enclosed for relevant IEC/equivalent BIS Standards. All Solar modules shall be strictly as per MNRE's ALMM list w.e.f. 31.03.2021.

02. BATTERY-

a. Battery Bank - Technical Specifications For Lithium Ferro phosphate (LFP) Battery-

The battery should Lithium Ferro phosphate **(LFP)** having capacity mentioned in the chart at standard conditions. The configuration of battery assembly should be as per requirement of capacity. The cell should be prismatic/ cylindrical type. The other feature of the battery should be as follows:

SN	Description	Specification
1	Minimum cell capacity	3.2V 6Ah / 3.2V 10Ah
2	Working Temperature Range (both for charging & discharging)	-20°C~60°C; humidity ≤ 85% (While Discharging) 0°C ~ 50°C ; humidity ≤ 85 % (While Charging)
3	Storage Temperature Range	0°C - 30°C (3 months at 25°C)
4	Cycle Life (Full charge to full discharge @ 25 deg C before capacity of battery falls below 75%)	≥ 2500 Cycles (The cycle life is defined as the number of complete charge/ discharge cycles that the battery is able to support before that is capacity falls under 90 % of its original capacity; cycle life derived at 25°C)
5	Battery Warranty	5 years
6	Type of BMS	Smart BMS
7	Type of Cell	Cylindrical / Prismatic
8	Protection	Overcharge protection Deep discharge protection Short circuit protection Over temperature protection
9	Charging Time	Around 4 to 5hrs
10	Low Voltage Cut-off	For 24 V Bank– 21.2V, For 48 V Bank – 39.75V, For 96 V Bank – 79.5V, For 120 V Bank – 119.25V, For 240 V Bank – 198.75V
11	High Voltage Cut-off	For 24 V Bank – 28.8V, For 48 V Bank – 54V, For 96 V Bank – 108V, For 120 V Bank – 162V, For 240 V Bank – 270V
12	IS Standards	IS 15767 (2008) IS 16270

The Lithium iron phosphate battery needs a very good “Battery Management Systems” BMS to ensure the proper charging and discharging of each cell of battery with temperature compensation. This battery also needs constant current and constant voltage charging methodology related to upper voltage limit of battery. BMS primary focus is therefore on the safety and the protection of the battery pack, to minimize the risk of sudden failure and to maximize the life cycle of the battery. The secondary function of the BMS is to perform battery diagnosis, such as state of charge (SOC) estimation, state of health (SOH) estimation and state of power (SOP) estimation. Hence a very good battery management system to be incorporated and got it tested with battery from MNRE/NABL accredited lab as per IEC/BIS standard.

b. Battery Bank - Technical Specifications For Low Maintenance Lead Acid (LMLA) Battery-

2 Volts Tubular Plate Cell in dry charged condition for SPV Power Plant along with arrangement for inter connection for these cell in parallel connection, deep discharge electrolyte, Volt meter, Level indicator, Porcelain/acid resistant ceramic vent plug, Petroleum.

Supply of 12 Volts Tubular Plate long life low antimony Tubular Positive Plates Cells as per detailed Technical Specifications with deep discharge electrolyte insulated terminal

connectors micro-porous ceramic vent plug for anywhere in the state of Chhattisgarh.

The general specifications shall be as under:

i The battery bank shall consist of required number of deep-discharge electrochemical storage cells, suitably interconnected as required. Parallel connections of storage cells will be discouraged.

ii The cells shall be capable of deep discharge and frequent cycling with long maintenance intervals and high columbic efficiency. Automotive or car batteries shall not be accepted.

iii The nominal voltage and capacity of the storage bank shall be selected and specified by the supplier in the bid.

iv The self-discharge rate of the battery bank or individual cell shall not exceed four (4) percent per month.

v The permitted maximum depth of discharge (DOD) shall be specified by the supplier in the bid.

vi Unless otherwise specified the cycle life of the battery shall not be less than 1200 DC discharged cycles between the fully charged state and the permitted maximum DOD at the rate of C/10. It should be able to deliver 80% of its rated capacity from fully charged position to DOD.

vii The cells shall include explosion proof safety events.

viii The cells shall include the required number or corrosion resistant inter-cell required chemicals electrolyte packed in separate containers. Full instructions and technical details shall be provided for electrolyte filling and battery recharging at site for the first time.

ix The cells shall preferably be supplied in dry charged condition, complete with all required chemicals electrolyte packed in separate containers. Full instructions and technical details shall be provided for electrolyte filling and battery recharging at site for the first time.

x If the cells are supplied in uncharged conditions, then the supplier shall provide full instructions for first time charging including, but not limited to, the following:
(i) A check list of all items required.
(ii) Minimum specification with possible alternatives, of the required battery charger for first time charging
(iii) Instruction of electrolyte filling, battery charging etc. and instructions on the transportation of charged batteries, if required.

xi Suitable number of corrosion resistant and acid-proof storage racks shall be supplied to accommodate the cells. The rack design shall be such that minimum space is required, without any way obstructing the maintenance requirements. For metallic racks, standards specified for control panel enclosures and other metallic shall govern.

xii All technical and other details pertaining to the storage cells shall be supplied including but not limited to the following:-

Rated voltage and ampere hour capacity of each storage cell has the rated discharge rate.
(i) Permitted maximum DOD.
(ii) Self discharge rate.
(iii) Cycle life of the storage cell and the anticipated life (in years) of the battery bank.
(iv) Total number of storage cells in use.
(v) Details on cell interconnections, if any.
(vi) Rates for single tier and double tier battery rate should be quoted in Price Bid.
(vii) Self discharge per month < 3% @ 27^0C.
(viii) Charge efficiency >93% @ 20% DOD (i.e. 80% SOC).
(ix) Topping-up frequency not more than once in 12 months after commissioning.

(x) Supplied in dry charge condition.
(xi) Insulated terminal connectors, fasteners, sealed floats and charge instruction card supplied.
(xii) Special micro-porous ceramic vent plugs.
(xiii) Low antimony tubular positive plates.
(xiv) Rugged construction & Long Cycle life.

xiii **Battery Rack for LMLA Battery-**
Battery rack for the battery bank of 2V cells should be of Metallic suitable for battery mounting & duly painted. Placement of battery should be such that maintenance of the battery could be carried out easily. The non-reactive acid proof mat should be provided to cover the entire floor space of the battery room.

c. Battery Bank - Technical Specifications for Tubular Gel (T-gel) Battery-

i Tubular positive plates for T-Gel - Proven cycling and deep cycling capabilities.

ii Gelled electrolyte for T-Gel with H_2SO_4 electrolyte - no stratification and no failure Partial State of Charge (PSOC)

iii Valve regulated - no water top up during service life

iv Antimony free alloy - longer shelf life because of very low self-discharge

v High pressure die-cast spine grids - rate of grid corrosion is very low & higher float life

vi Supplied in filled and charged condition - 100% capacity on first discharge

vii Versatile in mounting can be mounted both in horizontal and vertical orientation for AGM and Vertical mounting for T-Gel batteries

2 Volts Tubular Plate Cell and 12 volts T-Gel Battery Technical characteristics

T-Gel Battery Technical Characteristics	
Service life:	Minimum 05 years "service life up to 50°C for 2 Volt
	Minimum 05 years service life up to 50°C for 12 Volt
Cyclic Endurance:	as per IEC 61427 by a 3rd party
	as per IEC 60896-2 by a 3rd party
Design Cycle life: 2 Volt	2100 cycles at 80% Depth of Discharge at 27°C
	6000 cycles at 20% Depth of Discharge at 27°C
Design Cycle life: 12 Volt	1575 cycles at 80% Depth of Discharge at 27°C
	4500 cycles at 20% Depth of Discharge at 27°C
Conforming Standards :	Storage Batteries:-IS15549, IS16270,IS13369 &IS16046
Operating temperature:	Range: -20°C to +55°C (Optimum life can be obtained at an avg., of 31°C)
Operation	
Charger settings:	Chargers of constant potential & current limit type with temperature compensation are to be used
Standalone SPV System	Regulation Voltage: 2.3 to 2.4 ± 0.005 V/cell at 25°C
	Charge Current Limit : up to 0.40 C 10A Max
SPVPP System	CREDA SPVPP Installation & Commissioning Tender Norms.

viii All technical and other details pertaining to the storage cells shall be supplied including but not limited to the following:-
Rated voltage and ampere hour capacity of each storage cell has the rated discharge rate.
(i) Permitted maximum DOD.
(ii) Self-discharge rate.
(iii) Cycle life of the storage cell and the anticipated life (in years) of the battery bank.
(iv) Total number of storage cells in use.

(v) Details on cell interconnections, if any.
(vi) Self-discharge per month <4% @ 27^0C.
(vii) Charge efficiency >93% @ 20% DOD (i.e. 80% SOC).
(viii) Supplied in fully charged condition
(ix) Insulated terminal connectors, fastener sand charge instruction card supplied.
(x) Low antimony tubular positive plates.
(xi) Rugged construction & Long Cycle life.

ix Battery Bank-

The battery bank capacity shall be of different capacities as specified in the price schedule T-Gel battery. The general specifications shall be as under:

(i) The battery bank shall consist of required number of deep-discharge electro-Chemical storage cells, suitably interconnected as required. Parallel connections of storage cells will be discouraged.
(ii) The cells shall be capable of deep discharge and frequent cycling with long maintenance intervals and high columbic efficiency. Automotive or car batteries shall not be accepted.
(iii) The nominal voltage and capacity of the storage bank shall be selected and specified by the supplier in the bid.
(iv) The self- discharge rate of the battery bank or individual cell shall not exceed four (4) percent per month.
(v) The permitted maximum depth of discharge (DOD) shall be specified by the supplier in the bid.
(vi) Unless otherwise specified the cycle life of the battery shall not be less than 1200 DC discharged cycles between the fully charged state and the permitted maximum DOD at the rate of C/10. It should be able to deliver 80% of its rated capacity from fully charged position to DOD.
(vii) The cells shall include explosion proof safety events.
(viii) The cells shall include the required number or corrosion resistant inter-cell connectors. Full instructions and technical details shall be provided.
(ix) The cells shall preferably be supplied in fully charged condition, complete with all required racks and connectors.

x Battery Rack-

Battery Bank must be supplied with necessary racks (duly acid resistant powder coated with 9 tank process) & Heavy duty copper connectors with Lead /Tin coating as required as per the GA drawing.

xi Tools Kit & testing equipment-

Necessary Tool kits shall be provided along with each battery bank for any immediate maintenance of batteries. The list of items are listed here:-

(i) Multi meter (10A)
(ii) Petroleum jelly - 1/4Kg,
(iii) Rubber hand gloves-set
(iv) Spanner One Set
(v) Operation and instruction manual - Plastic coated Instruction manual
(vi) Clamp Meter(100A)

All above tools are necessary to be provided for each battery bank set more than 12 nos. in case of 2V cell batteries (at each site).The tool kit must be in a proper hard case and easy to carry.

03. POWER CONDITIONING UNIT (PCU) CUM INVERTER-

The Power conditioning unit (PCU) should have inbuilt charge controller and Inverter of capacity & ratings as specified in the Table for various capacity of Solar Power Plants. The PCU will have following features:

a. MOSFET/ IGBT based MPPT charging.
b. Output voltage 230V + 2% of modified/ pure sine wave for single phase PCU & 415V +

2% for three phase PCU.

c. Output frequency: 50 Hz + 0.5Hz

d. Capacity of PCU/ Inverter is specified at 0.8 lagging power factor.

e. THD: less than3%

f. Efficiency: >90% of PCU at full load

g. Indicator: Array charger on Battery charging Inverter ON Load on solar/ battery Grid charger on load on Grid on Fault

h. Display parameters charging current Charging voltage of PV panels Output voltage Grid voltage Power output in KW Energy delivered in Kwh

i. MIMIC Diagram: To indicate power flow and operation of the charge controller/ battery charger; shall have provision for visual indications of existing power input/output through MIMIC diagram.

j. The PCU should be dual input type, where under normal condition the input is fed from a SPV panel and in the absence of SPV power or low SPV power conditions an external AC source can be used for battery charging. All these operation should be automatic. When battery bank is fully charged, the PCU should have the feature to feed the power generated from solar to load and draw the additional power from main supply to meet the load requirements in the case load is more than solar energy produced. The PCU continuously monitors the state of Battery Voltage, Solar Power output and the loads. Due to sustained usage of power, when the Battery Voltage falls below a preset level, the PCU will automatically transfer the load to the grid power and also charge the Batteries through the inbuilt Grid Charger. Once the batteries are charged to the present level, the PCU cuts off the Grid power from the system and will restore to feeding the loads from the battery bank & continue to charge the battery bank from the available solar power. The PCU always gives preference to the solar power and will use Grid power only when the solar power / battery charge is insufficient to meet the load requirement.

k. Full Protection against polarity reversal of PV array and battery, Over Current, Short Circuit, Deep Discharge, Input Surge Voltage, open circuit, accidental short circuit and night time leakage of current from battery to module.

l. Adequate protection shall also be incorporated under no-load conditions (i.e. when the system is ON & the load is removed.

The PCU charge controller must be synchronize with Battery Management System (BMS).

m. The voltage setting for lead acid batteries shall be as follows –

Particular	**For LMLA Battery**	**For T-Gel Battery**
Bulk Voltage	2.60+/- 0.02V x no. of cell	2.40+/- 0.02V x no. of cell
Float Voltage	2.30+/- 0.02V x no. of cell	2.28+/- 0.02V x no. of cell
Load reconnect Voltage	2.16+/- 0.02V x no. of cell	2.20+/- 0.02V x no. of cell
Low Voltage disconnect	1.90+/- 0.02V x no. of cell	1.90+/- 0.02V x no. of cell

The PCU/ inverters should be tested from the MNRE / NABL /BIS /IEC accredited testing calibration laboratories.

04. Mandatory BIS/IEC Standard -

The BOS items / components of the SPV power plants/ systems deployed must conform to the latest edition of IEC/ Equivalent BIS Standards/ MNRE specifications / as specified below:

S NO	**BOS ITEMS/SYSTEMS**	**Applicable BIS/Equivalent IEC Standard Or MNRE Specifications**	
		Standard description	**Standard no.**
1	Crystalline Silicon Terrestrial Photovoltaic Modules	Crystalline Silicon Terrestrial Photovoltaic(PV) Modules- Design Qualification and Types Approval	IS 14286 (2010)
2	Storage Batteries	General requirements & method of testing tubular lead acid / GEL/ maintenance free capacity test, charge/Discharge efficiency, self discharge	IS 16046 (PART-2):2018/ ICE 62133-2:2017

		Secondary cells and batteries for SPV application, general- requirements and methods of test	IS 16270
3	Power Conditioner/Inverters including MPPT and protection	Efficiency measurements	IEC 61683/IS 61683 and IS 16221 Part 2 (2015)
		Environment testing	IEC 60068-2(1,2,14,30)/equivalent BIS standard
4	Charge Controller/ MPPT Units	Environment Testing	IEC 60068-2(1,2,14,30)/equivalent BIS standard
5	Cables	General test and measuring method PVC insulated cables for working voltage up to and including 1100V and UV resistant for outdoor installation	IEC 60227/IS 694 IEC 60502/IS 1554(Part I & II)
6	Switches/Circuits/Breaks/connectors	General requirements connectors –safety AC/DC	IEC 60947 part I,II,III/IS 60947 PART I,II,III/EN 50521
7	Junction boxes/enclosures for invertors/charge	General requirements	IP 54(for outdoor)/IP21 9for indoor) as per IEC 529

**In case if the Charge controller is in-built in the inverter, no separate IEC 62093 test is required and must additionally conform to the relevant national/international Electrical Safety Standards wherever applicable.

05. MODULE MOUNTING STRUCTURE-

a. The module & frame structure shall be mild steel, hot dipped galvanized (80 micron) with corrosion resistant painting for holding the PV modules.

b. Each panel frame structure shall be so fabricated as to be grouted on ground on its legs.

c. The size of angle iron/C channel should not be less than 40x40x5 mm. Anti-Theft Nut Bolts of SS (with washers) should be used for mounting modules for better theft proofing. Regarding civil structures. The bidder need to take care of the load baring capacity of the roof and need to arrange suitable structures based on the quality of roof.

d. The total load of the structure (when installed with PV modules) on the terrace should be less than 60kg/m^2.

e. The minimum front clearance of the structure from the roof level should be 300mm.

f. The legs of the structures made with hot dip GI angles will be fixed and grouted in the RCC foundation columns made with 1:2:4 cement concrete. The foundation should be as per design of structure to withstand maximum wind loading.

g. There shall be a minimum air gap of 3 +/- 0.3cm between the facing edges of two adjacent modules on all sides.

h. Each panel frame structure shall have inclination between 20 - 40 degrees depending on the site location seasonal load requirement. A weather proof junction box as per the relevant ISI specifications, to be provided where the module terminals shall be interconnected and output taken.

i. All nuts bolts, and fasteners should be made of stainless steel.

j. The structure should be designed to allow easy replacement of any module and shall be aligned with site requirement.

k. The structure should be designed for simple mechanical and electrical installations.

l. It will be designed to withstand severe cyclone/ storm with the speed max. 150 Km/hr (STAAD.Pro report may be required to be submitted)

m. The systems should be installed at ground level / roof top at least the height of 450mm with a CC block of 300x300x300 mm with each support.

06. BATTERY TROLLEY/RACK-

A metallic box of minimum 18 SWG thick made of pre coated galvanized (60 micron thickness) ms sheet or Polymer/ABS box of minimum 2mm thickness for housing the storage battery indoors should be provided with proper lock and key. The boxes should be inscribed with CREDA written on front faces. The size of box should be as per battery size. The battery should be fixed inside the battery box so it should be properly separated to avoid the electrical contract between battery and box. Danger logo as approved by CREDA shall be screen printed on the box. The BMS module is the part of battery pack.

07. ELECTRICALCONNECTIONS-

High quality ISI mark copper wires/cables of reputed makes are to be provided for connecting Solar Modules, from junction box to PCU, and Battery.

A suitable connection point shall be provided to the consumer from PCU, at a distance not more than 05 meters, from where consumer shall have its own wiring to the use points.

08. ARRAY JUNCTION BOXES -

The junction boxes for 5KW and above are to be provided in the PV array for termination of connecting cables. The Junction Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminum /cast aluminum/ ABS/ Polycarbonate alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JBs shall be such that input & output termination can be made through suitable cable glands.

Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups. Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification. For System <5Kw, normal junction boxes with necessary fixture should be used. DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCBs shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. Interconnection from ACDB to consumer main power board.

All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/IS60947 part I, II and III. The changeover switches, cabling work should be undertaken by the bidder as part of the project. All the Panels shall be metal clad, totally enclosed, rigid, floor mounted, air insulated, and cubical type suitable for operation on three phase/single phase. The panels shall be designed for minimum expected ambient temperature of 55^0 Celsius, 80% humidity and dusty weather. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better should conform to Indian Electricity Act and rules (till last amendment). Connecting cables PVC insulated copper cables (ISI marked) for: The cable should be used as per site considering

the maximum permissible loss up to 2%, however for 5 KW plant the minimum cable should be as follows:-

Module interconnections (4.0 mm copper single core multi strand),

Module parallel interconnection (10 mm copper single core multi strand)

Array or AJB to PCU (16 mm copper two cores)

Battery to PCU (16 mm copper single core multi strand) might be double cables if required PCU to load/change over switch (Single core copper cable 6.0 mm multi strand) as per requirement of site.

09. LIGHTNING AND OVER VOLTAGE PROTECTION-

The SPV Power Plant shall be provided with lightening and over voltage protection. The principal aim in this protection is to reduce the over voltage to a tolerable value before it reaches the PV or other sub-system components. The source of over voltage can be lightening or any other atmospheric disturbance. The Lighting Arrestor (LA) is to be made of 1¼" diameter (minimum) and 12 feet long GI spike on the basis of the necessary meteorological data of the location of the projects. Necessary foundation for holding the LA is to be arranged keeping in view the wind speed of the site and flexibility in maintenance in future. Each LA shall have to be earthed through suitable size earth bus with earth pits. The earthing pit shall have to be made as per IS 3043. LA shall be installed to protect the array field, all machines and control panels installed in the control rooms. Number of LA shall vary with the capacity of SPV Power Plant & location.

10. SURGE PROTECTION DEVICE-

Internal surge protection shall consist of three MOV type arrestors connected from +ve and –ve terminals to earth (via Y arrangement) for higher withstand of the continuous PV-DC voltage during earth fault condition. SPD shall have safe disconnection and short circuit interruption arrangements through integrated DC in built bypass fuse (parallel) which should get tripped during failure mode of MOV, extinguishing DC arc safely in order to protect the installation against fire hazards. Nominal discharge current (In) at 8/20 micro seconds shall be minimum 10 KA with maximum discharge (I_{max}) at 8/20 micro seconds minimum 20 KA with visual indication (through mechanical flag) in modules to monitor the life of SPD.

11. EARTHING PROTECTION-

Each array structure of the PV yard shall be grounded properly. In addition the lightening arrestor/masts shall also be provided inside the array field. Provision shall be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant shall be thoroughly grounded in accordance with Indian Electricity Act/IE rules as amended up to date. The earthling pit shall be made as per IS: 3043. All the array structures, equipment & control systems shall be compulsorily connected to the earth. Number of earthling shall vary with the capacity of SPV Power Plant &location. G.I./Copper strips should be used for earthling instead of G.I. wires. LA should be installed to protect the array field & machines installed in the control rooms. Number of LA shall vary with the capacity of SPV Power Plant & location. The LA installations should be approved from CREDA prior to installation.

12. DC DISTRIBUTION BOARD (DCDB)-

This shall consist of suitable powder coated metal casing. In this box a separate arrangement which shall consist of MCCBs of suitable specifications & which can withstand

respective flow of current, with the purpose of providing the option for isolating the battery bank & SPV arrays should be made. There shall be copper bus bars of suitable rating. Proper rating HRC fuse & MCCB/Isolator for DC application should be suitably installed in DCDB as battery bank isolator. Best quality Ah meter has to be installed to measure the cumulative charging & discharging status of battery bank. In DC circuits AC MCB or MCCB shall not be permitted. As per drawing attached. Volt meter/ Amp meter to measure charging and discharging current/voltage.

13. AC DISTRIBUTION BOARD (ACDB)-

This shall consist of box of suitable powder coated metal casing. One feeder per phase shall be provided in ACDB with MCB of suitable capacity installed at each feeder in the ACDB. One Electronic Energy Meter, ISI make, Single / Three Phase, of good quality shall also be installed in ACDB suitable placed to measure the consumption of power from SPV Power Plant. Proper rating MCB shall be installed at every feeder (in case of single phase output also, there shall be three feeders) to protect feeders from the short circuit current as per the requirement of the site & instructions of CREDA. A separate dedicated feeder from conventional/grid line to PCU as well as ACDB should also be installed, if required as per CREDA's instruction. A separate change over switch of proper rating should also be suitably installed in the ACDB to isolate the existing connected load from the Solar System & cater the power to the existing load from conventional power (Grid), in case of emergency. ACDB should be connected between PCU & Load. Separate Electronic Energy Meters should be installed for incoming and outgoing circuits of ACDB for SPVPPs of capacity more than 1 kWp. One nos. of Timer for suitable capacity with connector and SPD of suitable Capacity for Lightening protection shall be installed.

14. DANGER BOARDS-

Danger boards should be provided as and where necessary as per IE Act/IE Rules as amended up to date as per the instructions of CREDA & affixed at various appropriate locations.

15. CABLES/WIRE-

All cables should be of copper as per IS and should be of 650V/1.1 KV grade as per requirement. All connections should be properly made through suitable lug/terminal crimped with use of suitable proper cable glands. The size of cables/wires should be designed considering the line loses, maximum load on line, keeping voltage drop within permissible limit and other related factors. The cable/wire should be of ISI/ISO mark for overhead distribution, with prior approval of CREDA. For normal configuration the minimum suggested sizes of cables are:

Module to module/SJB/AJB	4 sq mm (single core)
AJBs to MJBs/DCDB	16 sq mm (two core), with respect to current ratings of designing
MJBs to DCDB	minimum 50 sq mm (single core) or as per design & rating
DCDB to PCU	minimum 50 sq mm (single core), or as per design & rating
Battery to BPP	minimum 50 sq mm (single core) or as per design & rating
BPP to DCDB	minimum 50 sq mm (single core) or as per design & rating
DCDB to PCU	minimum 50 sq mm (single core) or as per design & rating
PCU to ACDB	as per design & rating

The size & rating of the cables may vary depending on the design & capacity of SPV Power Plant. Follow the attached drawing. Bidder should compulsorily get the design & rating

of the cables approved from CREDA prior to the installation. Bidder has to provide certificate cable used in SPVPP.

16. JUNCTION BOXES-

Junction Boxes shall be mounted on poles of array support structure. The junction boxes should be made of FRP (Hensel or equivalent make (IP65), with prior approval of CREDA). It should be provided with proper locking arrangements.

17. TOOL KIT-

Complete tool kit other then battery tool kit with tool box for complete maintenance and operation including spanner, screw driver, wire cutter, nose player, player, hammer etc.

18. DATA ACQUISITION SYSTEM / PLANT MONITORING-

a. Data Acquisition System shall be provided for each of the solar PV plant having capacity 10 KW or above.

b. Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis. Metering and Instrumentation for display of systems parameters and status indication to be provided.

c. Solar Irradiance: An integrating Pyrometer / Solar cell based irradiation sensor (along with calibration certificate) provided, with the sensor mounted in the plane of the array. Readout integrated with data logging system.

d. Temperature: Temperature probes for recording the Solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system

e. The following parameters are accessible via the operating interface display in real time separately for solar power plant:

i. AC Voltage.
ii. AC Output current.
iii. Output Power
iv. Power factor.
v. DC Input Voltage.
vi. DC Input Current.
vii. Time Active.
viii. Time disabled.
ix. Time Idle.
x. Power produced

19. OTHER FEATURES-

A toll free number (i.e. 1800 12345 91) of IVRS of CREDA and CONTACT NUMBER OF TECHNICAL PERSON INSTALLATION AGENCY of minimum computer font size 72 or 13 mm is to be embossed/ punch in front of battery box by contractor/ bidder, which in case of non- working/operational problems etc of system will be dialed by the beneficiary etc to lodge a complaint in respect of system problems. The IVRS will divert the complaint to Contractor/ bidder through E mail, SMS etc. The contractor/ bidder will have to rectify the same to make/ restore the system to working position within 72 hours in the warrantee period of 5 years, failing which the system may be get rectified on contractor/ bidder cost and the cost will be recovered by contractor/ bidders pending claims what so ever and appropriate action as per noncompliance etc of agreement will be considered/taken.

20. INSTALLATION OF SYSTEM-

The system should be properly installed at site. The SPV module mounting structure should be properly grouted depending upon the location and requirement of the site. The grouting should be such that it should withstand the maximum wind speed /storm. Adequate space should be provided behind the PV module/array for allowing un-obstructed air flow for passive cooling. Cables of appropriate size should be used to keep electrical losses to a bare minimum. Care should be taken to ensure that the battery is placed with appropriate leveling on a structurally sound surface. All wiring should be in a proper conduit or capping case. Wire should not be hanging loose. Any minor items which are not specifically included in the scope of supply but required for proper installation and efficient operation of the Solar Power Generator/Plant system, is to be provided by the manufacturer as per standards.

21. ELECTRIC CABLE-

All the cables shall be supplied conforming to IEC 60227– IS 694 / IS 1554 – IS / IEC 60502 shall be of 650 V/1.1 kV grade as per requirement. Only PVC copper cables shall be used.

22. WARRANTY-

The mechanical structures, electrical works including power conditioners/inverters/charge controllers/ maximum power point tracker units/distribution boards/digital meters/ switchgear/ storage batteries, etc. and overall workmanship of the SPV power generator/Plant system must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5years.

23. TRACEABILITY OF THE PRODUCT TO BE SUPPLIED-

In order to prevent the misuse of the product such as unauthorized sale or diversion to the open market, the following incorporation shall be made in the product.

Engraving (or) Screen printing of CREDA at a suitable place on the main components viz SPV Panel, battery, PCU to be used in the installation of the solar power pack.

24. SPEICIFICATIONS OF ELEVATED STRUCTURES-

a. Specification of Elevated Parking Structure with Control Box for 1.2 KWSPVPP-

i Steel Should be used – IS2062Grade-A.
ii All Weld Must be6mm.
iii All Fabrication should be completed before hot dip galvanized.
iv Hot Dip Galvanizing should be as per Relevant IS.
v Specification and Zinc Coating 87 Microns/610 gm Per Sq.m.

b. Specification of Elevated Parking Structure with Control Room for 2.4 KWSPVPP-

i Steel Should be used – IS2062 Grade-A.
ii All Weld Must be 6mm.
iii All Fabrication should be completed before hot dip galvanized.
iv Hot Dip Galvanizing should be as per Relevant IS.
v Specification and Zinc Coating 87 Microns/610 gm Per Sq.m.

c. Specification of Elevated Parking Structure with Control Room for 3.0 KW SPVPP-

i Steel Should be used – IS2062 Grade-A.
ii All Weld Must be6mm.
iii All Fabrication should be completed before hot dip galvanized.
iv Hot Dip Galvanizing should be as per Relevant IS.

v Specification and Zinc Coating 87 Microns/610 gm Per Sq.m.

d. Specification of Elevated Parking Structure with Control Room for 4.8 KW SPVPP-

i Steel Should be used – IS2062Grade-A.
ii All Weld Must be 6mm.
iii All Fabrication should be completed before hot dip galvanized.
iv Hot Dip Galvanizing should be as per Relevant IS.
v Specification and Zinc Coating 87 Microns/610 gm Per Sq.m.

e. Specification of Elevated Parking Structure with Control Room for 6.0 KW SPVPP-

i Steel Should be used – IS2062 Grade-A.
ii All Weld Must be 6mm.
iii All Fabrication should be completed before hot dip galvanized.
iv Hot Dip Galvanizing should be as per Relevant IS.
v Specification and Zinc Coating 87 Microns/610 gm Per Sq.m.

f. Specification of Elevated Parking Structure with Control Room for 9.0 KW SPVPP-

i Steel Should be used – IS2062 Grade-A.
ii All Weld Must be 6mm.
iii All Fabrication should be completed before hot dip galvanized.
iv Hot Dip Galvanizing should be as per Relevant IS.
v Specification and Zinc Coating 87 Microns/610 gm Per Sq.m.

g. Specification of Elevated Parking Structure with Control Room for 10.5 KW SPVPP

i Steel Should be used – IS2062 Grade-A.
ii All Weld Must be 6mm.
iii All Fabrication should be completed before hot dip galvanized.
iv Hot Dip Galvanizing should be as per Relevant IS.
v Specification and Zinc Coating 87 Microns/610 gm Per Sq.m.

25. WARRANTY AND MAINTENANCE-

a. The PV modules will be warranted for a minimum period of 25 years from the date of supply. (Output wattage should not be less than 90% at the end of 12 Years and 80% at the end of 25 years).

b. The mechanical structures, electrical components including battery and overall workmanship of the complete Solar PV Power Pack must be warranted against any manufacturing/ design/ installation defects must be warranted for a minimum of 5 years from the date of commissioning and handing over of the system.

c. The Comprehensive Maintenance (within warranty period) shall be executed by the firm themselves or through the authorized dealer/ service centre of the firm in the concerned district. Separate work order shall be issued by CREDA for the CMC.

d. It is mandatory for the contractor to open an authorized service center in the concerned area before the supply/ installation of the system.

e. Necessary maintenance spares for five years trouble free operation shall also be supplied with the system.

f. The supplier shall be responsible to replace free of cost (including transportation and insurance expenses) to the purchaser whole or any part of supply which under normal and proper use become dysfunctional within one month of issue of any such complaint by the purchaser.

g. The Comprehensive Maintenance (within warranty period) will include the total system including Battery etc whatsoever at site.

h. It is an essential part of the contract that the bidder shall provide warranty of the system for 5 years. During the warranty following maintenance will required to be carried out by the contractor.

i. Quarterly checking up keeping and replacement of the any component or subcomponents of the system for proper operation of the system.

j. Repairing/replacement of all defective components and sub-components including battery of the system as per the requirement to ensure proper operation of the system.

k. The scope of work includes repairing/replacement of power plant to make the system functional within warranty period whenever a complaint is lodged by the user at site. The contractor shall attend the same within a week. Apart from this any complaint registered/ service calls received / faults notified in the report generated by the IVRS should be attended to and the system should be repaired/ restored/ replaced within 4 days.

l. In case of any damage or breakage of the component due to negligence or fault of beneficiary or theft etc, the same shall be replaced at users cost.

m. In case of Solar PV module damaged due to natural calamity, contractor shall replace the same at his own cost, if required during warranty period.

n. The safety and security of the system shall be sole responsibility of the use.

SECTION -5

ANNEXURES, SPECIFICATIONS, FORMS

ANNEXURE – I

(EXPERIENCE CERTIFICATE ON THE OFFICIAL LETTER HEAD OF CONCERNED GOVERNMENT DEPARTMENT WITH SEAL AND SIGN BY AUTHORIZED SIGNATORY)

Ref.No…….....……. Date……...……..

CERTIFICATE OF COMPLETION - OFF GRID SPV POWER PLANTS

This is to certify that **Name of Bidder, Address of Registered Office** has successfully completed the work of design supply, installation & commissioned of.....Nos. Off-grid SPV power plants (…….Scheme) against various Sanction of Name of Agency at various locations in …..……. State, as per following details–

S.no	Capacity of Solar Power Plants	Year & Scheme	Total no. System	Remarks
	Total -			

This workmanship and performance of the above installed systems are found satisfactory and are in successful operation.

Seal & Sign
(Authorized Signatory)

ANNEXURE – II

CONSORTIUM AGREEMENT

(Note: This agreement should be on a non-judicial stamp paper of Rs. 100/- and shall be attested by Magistrate/Sub-Judge/ Notary Public)

This Consortium Agreement executed on this ……..Day of …….2022

BETWEEN

M/S ..... , a Company/Proprietorship Firm/Partnership Firm incorporate under the Law of companies Act 1956/2013 and having its registered/principal office at…….. (GST No…….) through its proprietor……. S/o …….. (here in after called the "Partner-I"/"Lead Partner" which expression shall include its successors, executors and permitted assigns)

AND

M/s .....a Company/Proprietorship Firm/ Partnership Firm under Firm (GST No. ……) and having its registered/principal office at…….. Through its Partner Mr. …….. S/o ……(here in after called the "Partner–II"/"Second Partner" which expression shall include its successors, executors and permitted assigns)

This agreement is for the purposes of submission of bid as per the **BID DOCUMENT No. 105486/CREDA/ SPV-PP/2022-23 Dated-29.07.2022** and entering into a contract in case of award for the work of Supply, Design, Installation, and Commissioning of Solar Photovoltaic power plant with LMLA, T-GEL& Lithium Ferro Phosphate battery (LFP) bank with off-grid PCU of capacity ranging from 600w to 51kw with five years CMC, unconditional onsite warrantee for anywhere in the State of Chhattisgarh for **ELECTRIFICATION SCHEME** of **CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)**

AND WHEREAS as per Tender document, Consortium bids will also be considered by the Owner provided they meet the specific requirements in that regard.

NOW THIS INDENTURE WITNESSETH AS UNDER -

In consideration of the above premises and agreements all the partners to this Consortium do hereby now agree as follows:

1. We the partners in the Consortium hereby confirm that the name and style of the Consortium shall be "……../……."Consortium."

2. FORMATION AND PRINCIPLE PLACE OF BUSINESS FORMATION -

FORMATION-

The partner of the consortium do hereby form a Consortium pursuant to the laws of state of Chhattisgarh in order for the consortium to carry on the purposes for which provision is made herein

PRINCIPAL PLACE OF BUSINESS -

The Consortium Partner shall maintain principal place of business at…….. The partners of the consortium may re-locate its office from time to time or have additional offices as the partners may determine.

3. PURPOSE OF THE CONSORTIUM-

The object of the consortium to bid and perform **BID DOCUMENT No. 105486/CREDA/ SPV-PP/2022-23 Dated-29.07.2022** from CHHATTISGARH STATE RENEWABLE

ENERGY DEVELOPMENT AGENCY (CREDA) For Supply, Design, Installation, and Commissioning of Solar Photovoltaic power plant with LMLA, T-GEL& Lithium Ferro Phosphate battery bank with off-grid PCU of capacity ranging from 600w to 51kw with five years CMC, unconditional onsite warrantee for anywhere in the State of Chhattisgarh for electrification Scheme and to deal with the same in any manner what so ever.

4. TERM-

The term of the consortium shall commence as of the date hereof and shall be terminated and dissolved upon the earliest to occur of (i) on mutual understanding of partners by executing separate agreement regarding dissolution of consortium (ii) the unanimous agreement of the partners (iii) the order of a court of competent jurisdiction(iv) Competition of the above mention tender

5. PERCENTAGE OF PARTICIPATION-

CONSORTIUM PARTNER	PARTNER	PERCENTAGE
1) M/S……	Lead Partner (Partner 1)	.....
2) M/s……	Other Partner (Partner 2)	.....
TOTAL -		

6. PARTICIPATION-

Both the partners have decided to perform the above mention work of CREDA in their above proportionate work.

7. The Lead Member is hereby authorized by the second member of the Consortium to bind the Consortium and receive instructions for and on their behalf. For this purpose second member will submit a duly signed Power of Attorney.

8. A copy of Memorandum of Understanding (MoU) certified by Magistrate/Sub-Judge/ Notary Public on 100 Rupees stamp paper, executed between the members of Consortium shall be submitted along with the tender. The complete details of the members of the consortium, their share and responsibility in the Consortium etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU.

9. Duration of MoU and this Agreement shall be valid during the entire execution period/ validity of letter of award and any extension thereafter/currency of the contract including the period of extension, if any.

10. Any change/modification in constitution of Consortium Firm shall not be allowed. Members of the consortium are not allowed to enter into separate consortium(s) with other companies/organizations/bidders to participate in other bids of CREDA as long as this bid is valid.

11. The lead partner of consortium shall be solely responsible for any liability, penalty, insurance, CMC and other terms and conditions mentioned in this Tender Document. In event of default by any partner in the execution of his part of contract, both the partners shall be debarred form the tender, execution of work and empanelment list of CREDA.

12. Notwithstanding the permission to assigning the responsibilities of defaulting partner above, both the partner of consortium will retain the full and undivided responsibility for the performance of their obligation under the bid.

13. The bid submitted shall include all the relevant information mentioned in this tender document applicable to consortium partner shall be furnished separately for each partner like affidavit as in **Annexure-III** mentioning information of relatives, Experience certificate, **Schedule-I,II,III,IV** etc. In case of fails to do, bid shall be rejected.

14. Members of the Consortium Firm shall be jointly and severally liable to CREDA for execution of the project/ Work/ Assignment/ attending meetings/Review for the allocated works etc. The Consortium members shall also be liable jointly and severally for the loss, damages caused to the CREDA during the course of execution of any awarded contract or due to non-execution of the contract or part thereof. Governing Laws for Consortium Firm: The Consortium Agreement in all respect be governed by and interpreted in accordance with Indian Laws.

15. Subject to the terms of this Agreement, the all member shall be responsible for providing technical and financial support and responsible for execution of project as per agreement to be signed.

16. In case of any breach of the said Contract by any of the partners of the CONSORTIUM, we hereby agree to be fully responsible for the successful execution/performance of the contract in accordance with the terms of the Contract.

17. Further, if the Owner suffered any loss or damage on account of any breach of the contract or any shortfall in the completed equipment/ plant, meeting the guaranteed performance parameters as per the technical specifications/ contract documents, the lead Partner and Second Partner of these presents undertake to promptly make good such loss or damage caused to the Owner, on the Owner's demand without any demur.

18. The financial liability of the partners to this Consortium Agreement, to the Owner with respect to the any or all claims arising out of the performance or non-performance of the contract shall, however be not limited in any way so as to restrict or limit the liabilities of either of the partner.

19. This Consortium Agreement shall be governed, construed and interpreted in accordance with Laws of India. Courts of Raipur (C.G.) shall have exclusive jurisdiction in all matters arising there under.

20. It is further agreed that this CONSORTIUM Agreement shall be irrevocable and shall form an integral part of the Contract and shall continue to be enforceable till the Owner discharges the same. It shall be effective on the date first above mentioned for all purposes and intents.

IN WITNESS WHEREOF, the partners to this Consortium agreement have, through their respective authorized representatives, have executed these presents and affixed their hands and common seal of their respective companies on the day, month and year first above mentioned.

FOR,M/s …….	**FOR,M/s…….....……**
(MR.……..…)	(MR……...)
Lead Partner/Partner-1	Other Partner/Partner-2
WITNESS-	WITNESS-
1……...	1……...
1……...	1……...
2……...	2……...
2…….	2…….

ANNEXURE – III

FORMAT FOR THE AFFIDAVIT

(Declaration of conflict of Interest)

(Note: This affidavit should be on a non-judicial stamp paper of Rs. 100/- and shall be attested by Magistrate/Sub-Judge/ Notary Public)

I,…….(Name of the bidder authorized representative of the bidder) son/ daughter of…… resident of …… …… (full address), aforesaid solemnly affirm and state as under:

1. I hereby certify that all the information furnished with the bid submitted in response to Tender/bid no. 105486/CREDA/SPV-PP/2022-23 DATE-29-07-2022 issued by Chhattisgarh State Renewable Energy Development Agency (CREDA) (authority inviting bids) for Supply, Design, Installation, and Commissioning of Solar Photovoltaic power plant with LMLA, T-GEL & Lithium Ferro Phosphate(LFP) battery bank with off-grid PCU of capacity ranging from 600w to 51kw with five years CMC, unconditional onsite warrantee for anywhere in the State of Chhattisgarh (name and identification of work) are true and correct.

2. I hereby certify that I have been authorized by..... (Company name) to sign on their behalf, the bid mentioned in Sr.No.1 above.*

3. Information furnished in the bidding documents is correct in all respects to the best of my knowledge and belief.

4. The near relations, as per clause 30(a) in Section - 02, in CREDA, are not in employment of the firm/company. (Note:-By the term near relatives is meant Wife, Husband, Parents and Son, Brother, Sister, Brother–in-law, Father-in-law, Mother-in-law etc.) (if working mention the name/names)

……..…….

…….

5. The name of near relative (if any) as per Clause 31(b) who retired/removed within the last two years. (If None, clearly State None)

……..…….

……..…….

6. No near relative is working as Financial Accountant in the CREDA. (if working mention the name)

……..…….

……..…….

7. No person is working in the company in any capacity, who are near relatives to any Officer in Chhattisgarh State Renewable Energy Development Agency (CREDA) (If working mention the name)

……..…….

……..…….

8. Our company/firm/ or otherwise is not under the clarification of ineligibility for corrupt and fraudulent practices by the Central Government, the State Government or any public undertaking, autonomous body, authority by whatever name called under the Central or the State Government as mention in clause 1(f) of tender document.

9. I hereby authorize the CREDA Officials to get all the documents verified from appropriate sources (s).

Deponent

Place: ……..
Date: ……

* Not applicable if the bidder is an individual and is signing the bid on his own behalf.

Verification

I……. S/o……do here by affirm that contents stated in Para 1 to 9 above and contents submitted in technical & financial bid are true to the best or my knowledge and believe and are based on my/our record.

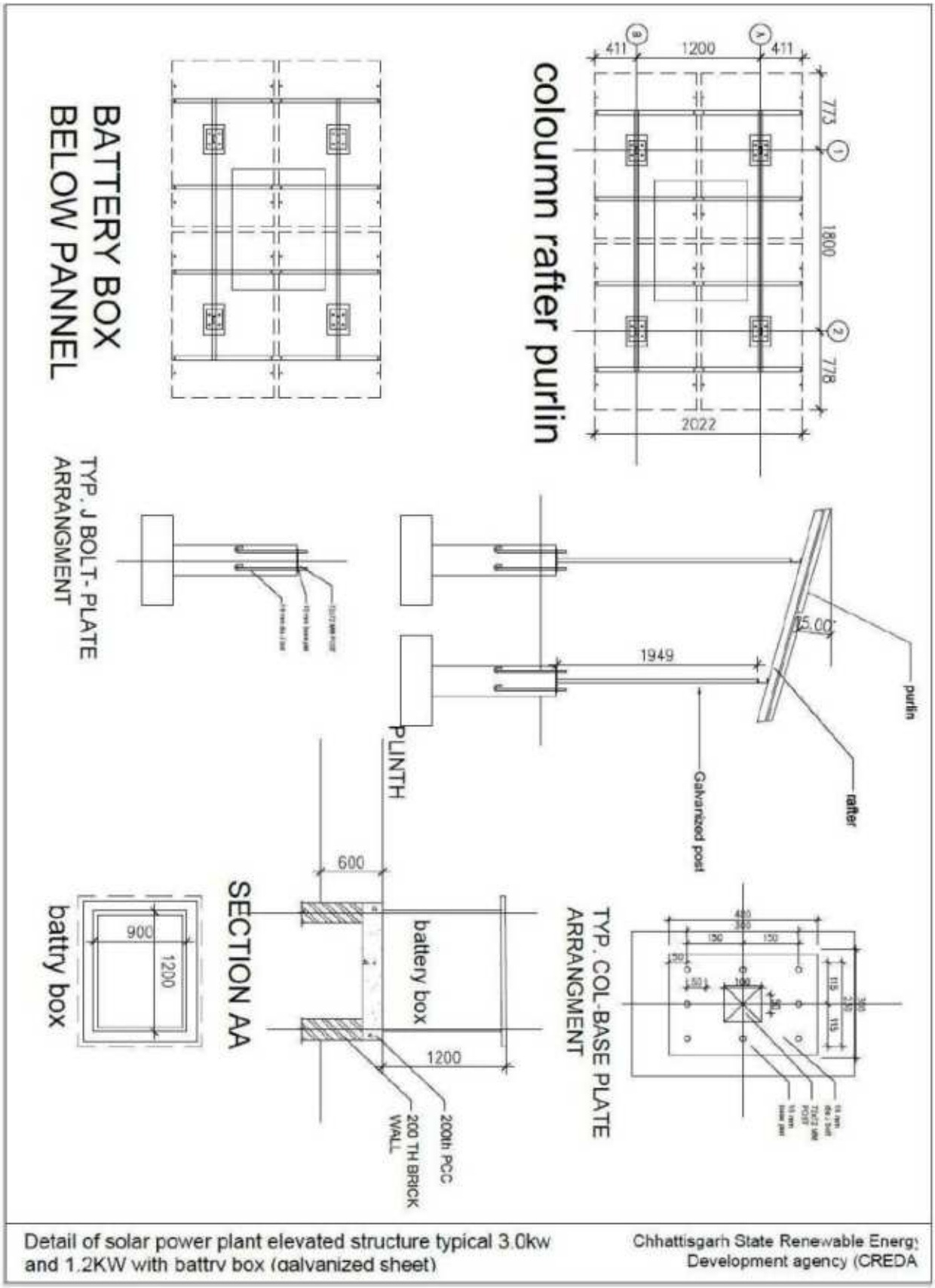
Verified that this date of …… at (Place)…….

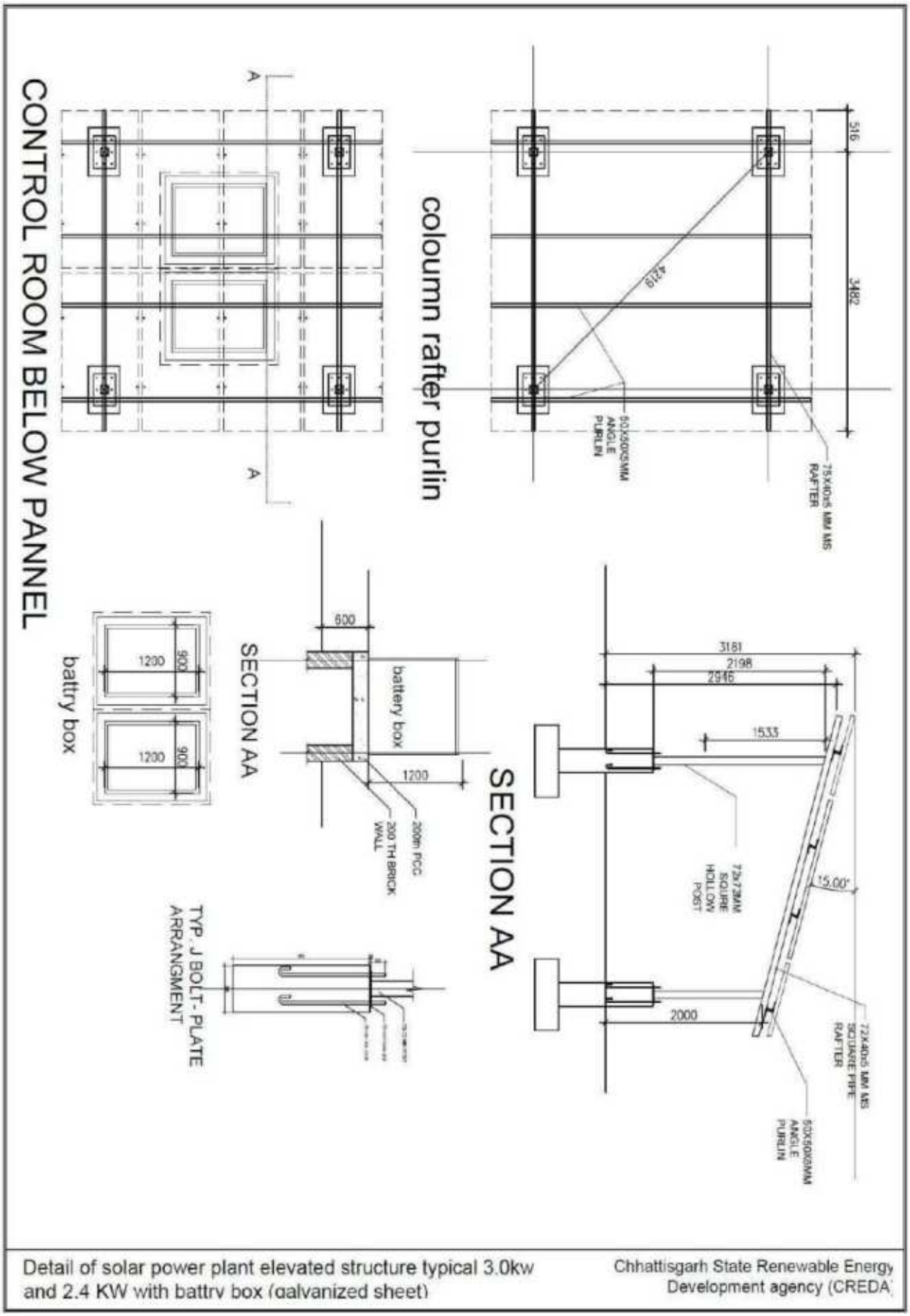
Deponent

ANNEXURE – IV

Drawing Section

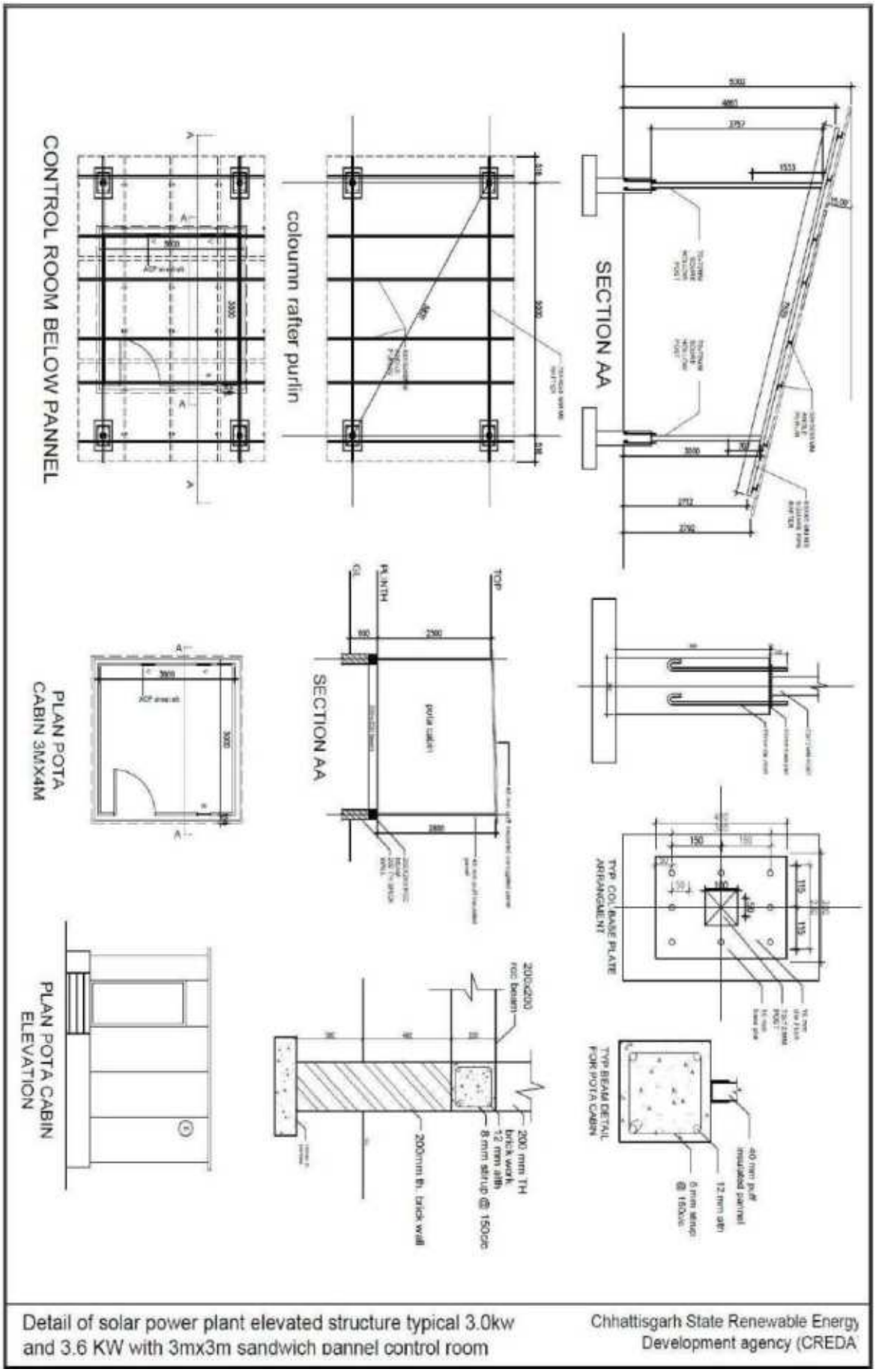
Complete Drawing of Elevated Module Mounting Structure& Civil Works





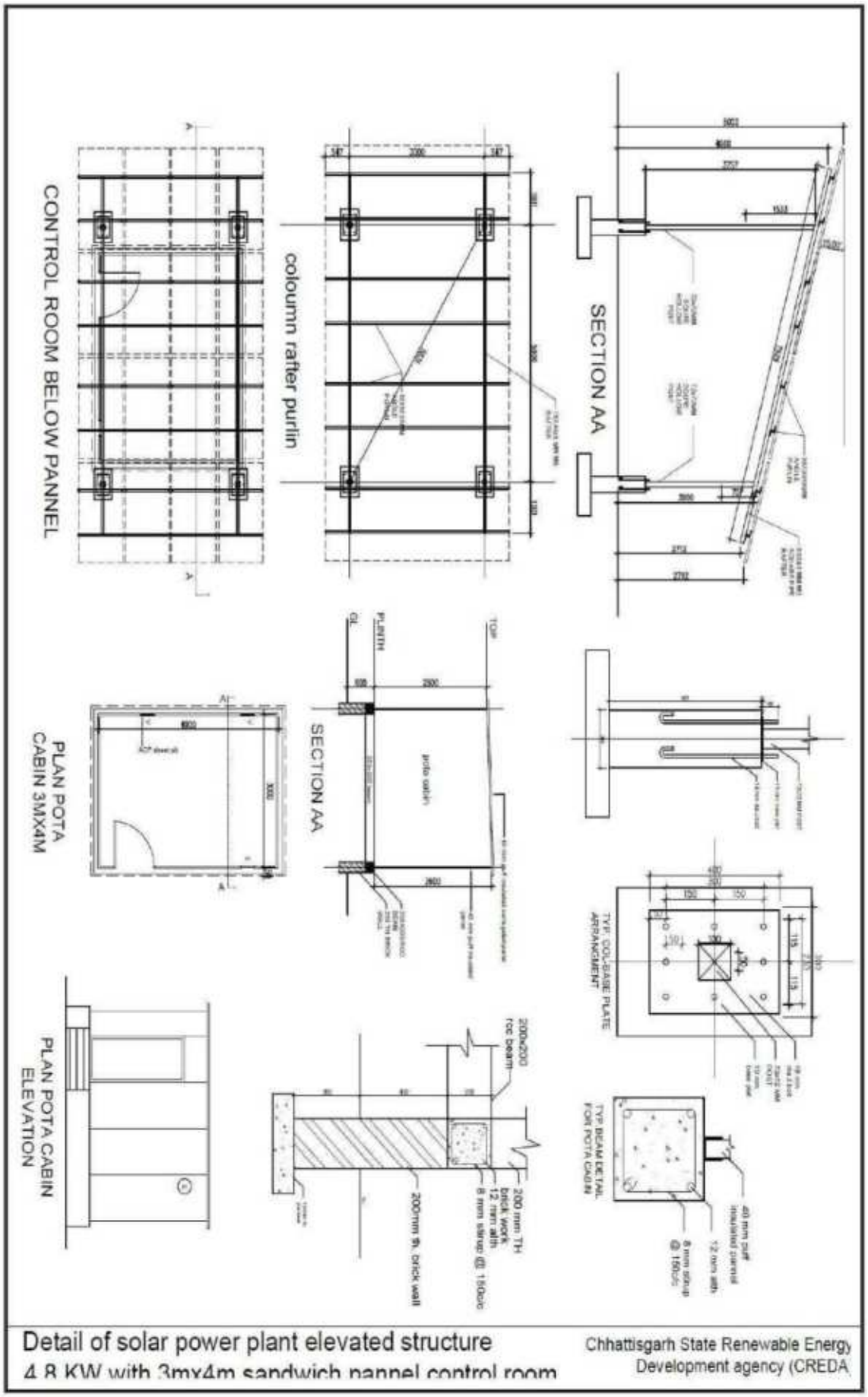
Detail of solar power plant elevated structure typical 3.0kw and 2.4 KW with battry box (galvanized sheet)

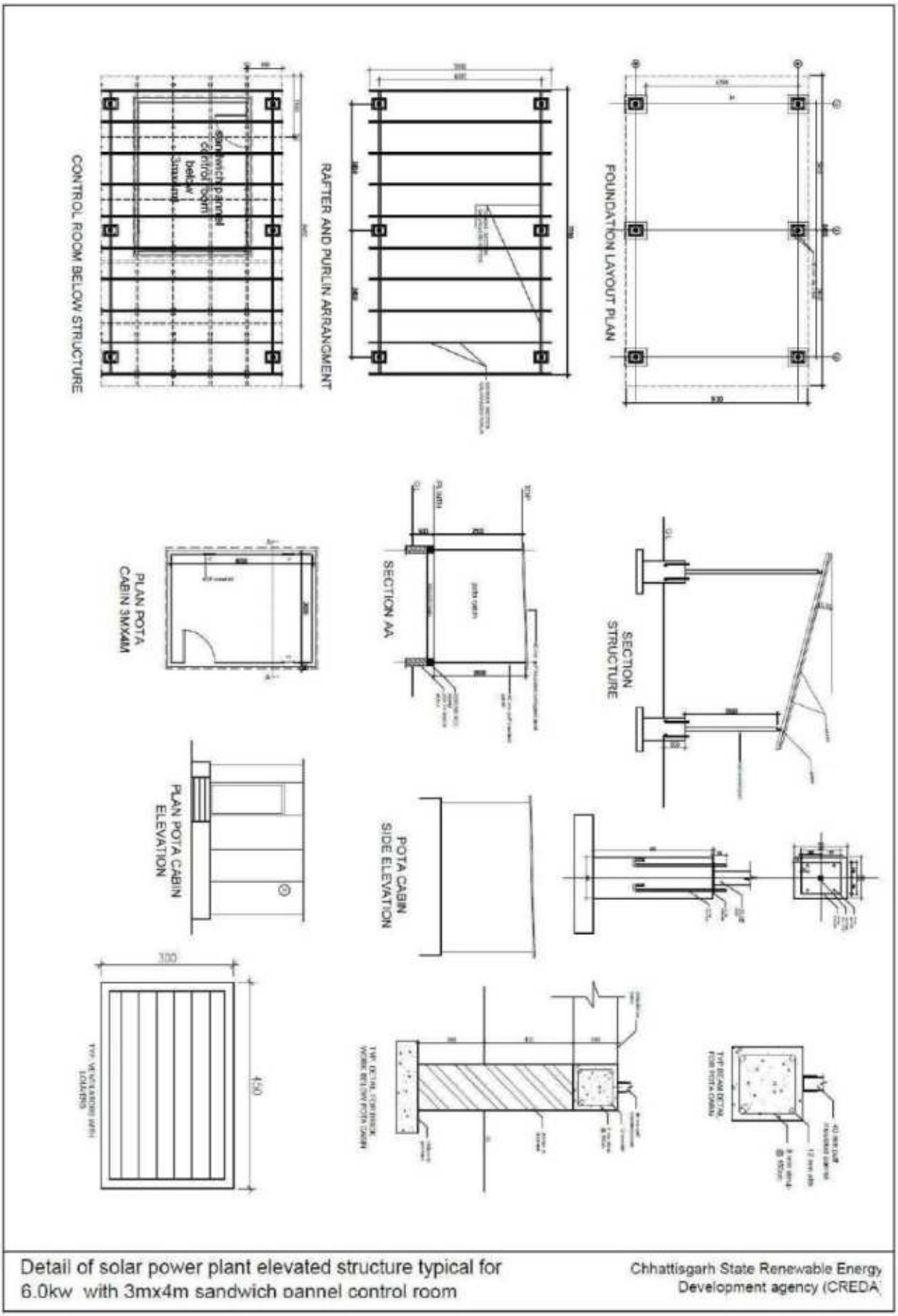
Chhattisgarh State Renewable Energy Development agency (CREDA)



Detail of solar power plant elevated structure typical 3.0kw and 3.6 KW with 3mx3m sandwich pannel control room

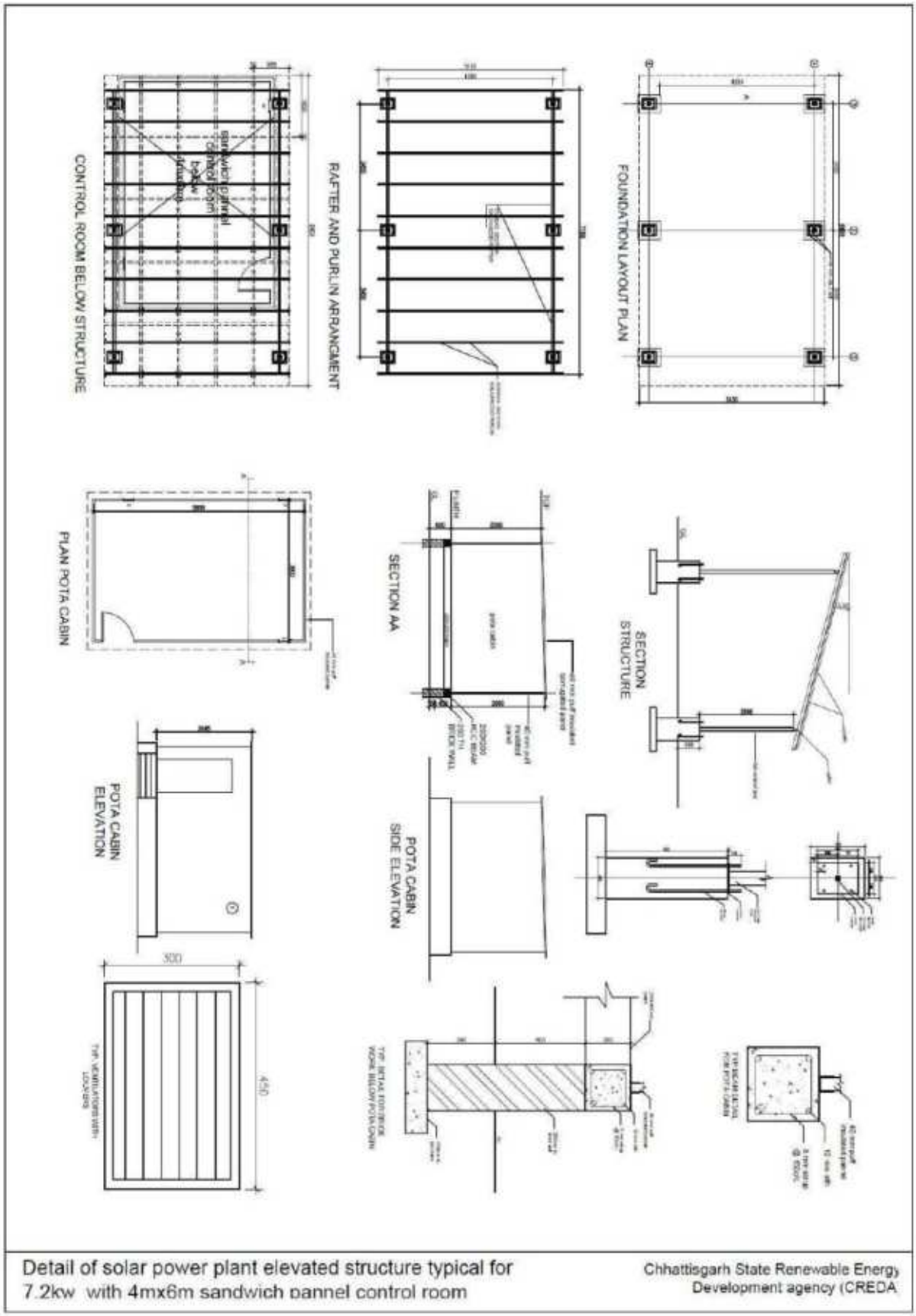
Chhattisgarh State Renewable Energy Development agency (CREDA


CONTROL ROOM BELOW PANNEL
coloumn rafter purlin
SECTION AA
PLAN POTA CABIN 3MX4M
SECTION AA
TYP. COLBASE PLATE ARRANGMENT
PLAN POTA CABIN ELEVATION
200x200 rcc beam
200 mm TH brick work 12 mm alth
200mm th. brick wall
TYP BEAM DETAIL FOR POTA CABIN
40 mm puf insulated panelal
12 mm alth
8 mm stirup @ 150c/c
Detail of solar power plant elevated structure
4.8 KW with 3mx4m sandwich pannel control room
Chhattisgarh State Renewable Energy Development agency (CREDA



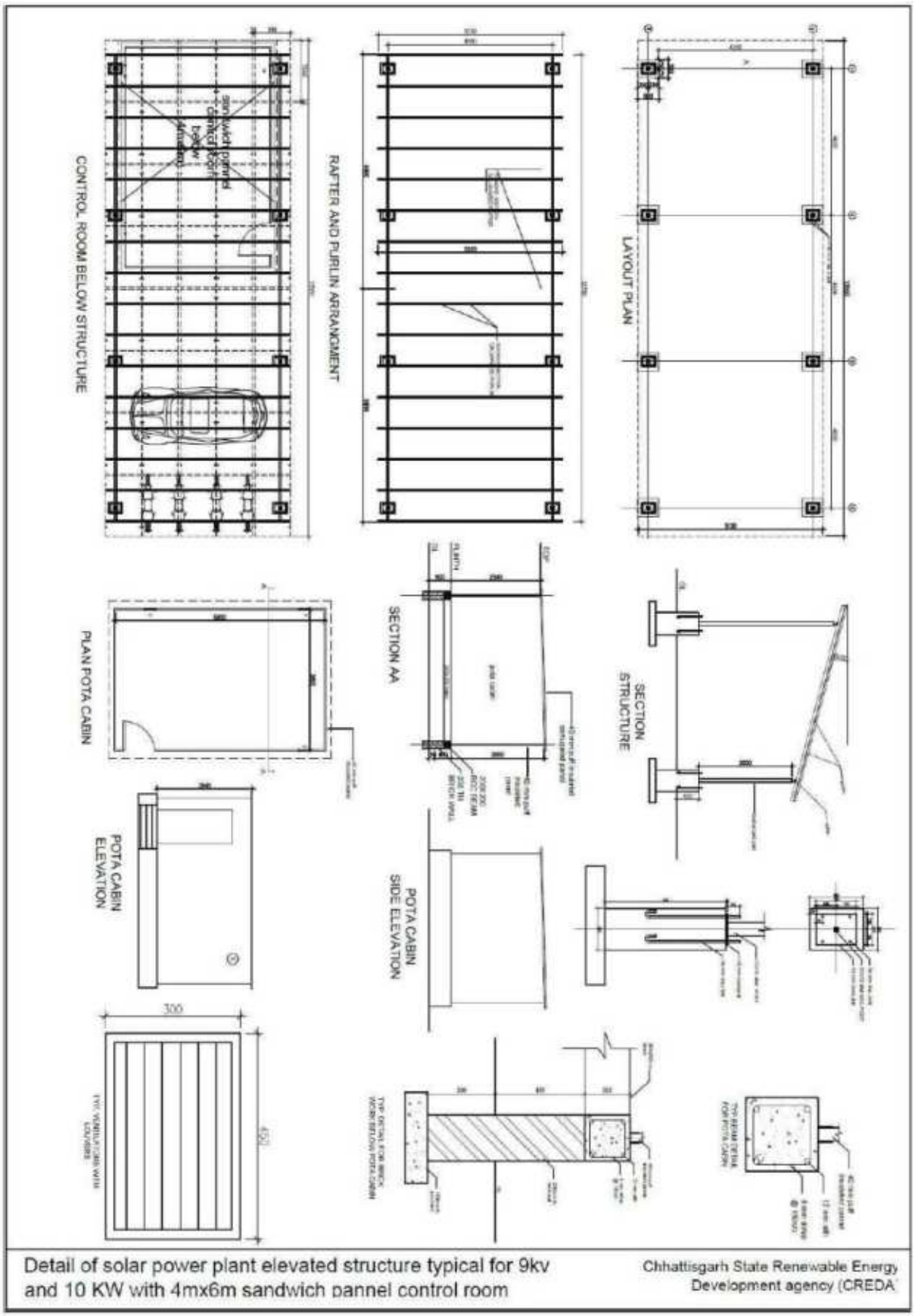
Detail of solar power plant elevated structure typical for 6.0kw with 3mx4m sandwich pannel control room

Chhattisgarh State Renewable Energy Development agency (CREDA)



Detail of solar power plant elevated structure typical for 7.2kw with 4mx6m sandwich pannel control room

Chhattisgarh State Renewable Energy Development agency (CREDA

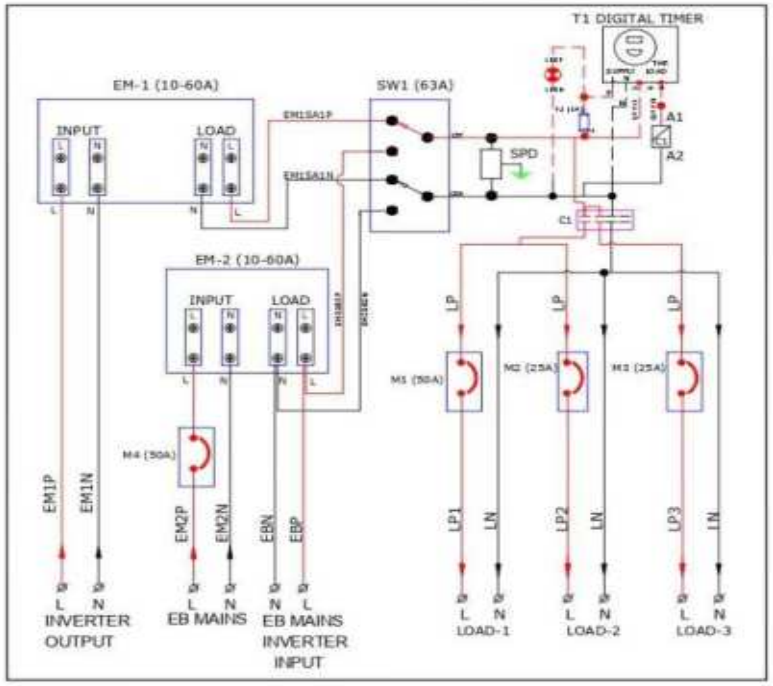


Detail of solar power plant elevated structure typical for 9kv and 10 KW with 4mx6m sandwich pannel control room

Chhattisgarh State Renewable Energy Development agency (CREDA)

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:
- POWER CABLES
- CONTROL CABLES

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	EM - 1 & EM - 2	DIGITAL ELECTRONIC ENERGY METER (kWH) 10-60A	02	Nos	L&T/SECURE/REUTED
2	F1	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX/ REPUTED
3	F1	GLASS FUSE LINK 5Amps,5x20mm	01	No	PROTECTRON
4	SW1	CHANGEOVER SWITCH 63A,2 POLE,2WAY	01	No	TELERGON/SALZER/GT/REPUTED
5	SPD	SURGE PROTECTION DEVICE 1 PHASE	01	No	PHOENIX/FINDER
6	L1	POWER 'ON' LAMP (LED) 230/220V AC GREEN COLOR	01	No	TEKNIC / VAISHNO / REPUTED
7	T1	DIGITAL PROGRAMMABLE TIMER MODEL:TS2M1	01	No	SELEC / REPUTED
8	C1	CONTACTOR AX25-30-10 220-230 AC	01	No	ABB / REPUTED
9	M3, M2	1 POLE MCB 25A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
10	M1, M4	1 POLE MCB 50A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
11	MAINS , PCU & INVERTER	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE /REPUTED
12	FEEDERS	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE/REPUTED
13	MAINS, PCU,INVERTER	TERMINAL BLOCKS TB16	06	Nos	PHOENIX / ELMEX/REPUTED
14	FEEDERS	TERMINAL BLOCKS TB16	06	Nos	PHOENIX / ELMEXREPUTED
15	----	END PLATES	06	Nos	PHOENIX / ELMEXREPUTED
16	----	END CLAMPS	01	LOT	PHOENIX / ELMEXREPUTED
17	----	LUGS FOR INTERNAL WIRING	01	LOT	3D/ REPUTED
18	----	2.5SQMM&4 SQMM YELLOW/GREEN COLOR CABLE	01	LOT	RR /POLYCAB/REPUTED
19	----	CABLES • POWER CABLE 10SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /POLYCAB/REPUTED
20	----	ENERGY METER GLASS COVERS	02	Nos	REPUTED
21	----	PACKING BOX	01	No	REPUTED

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING. ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER, ISI MAKE, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER (IN CASE OF SINGLE PHASE OUTPUT ALSO, THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONAL/GRID LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED, IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & CATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER (GRID). IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPVPPS OF CAPACITY MORE THAN 1 KWP.

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 500 X 125 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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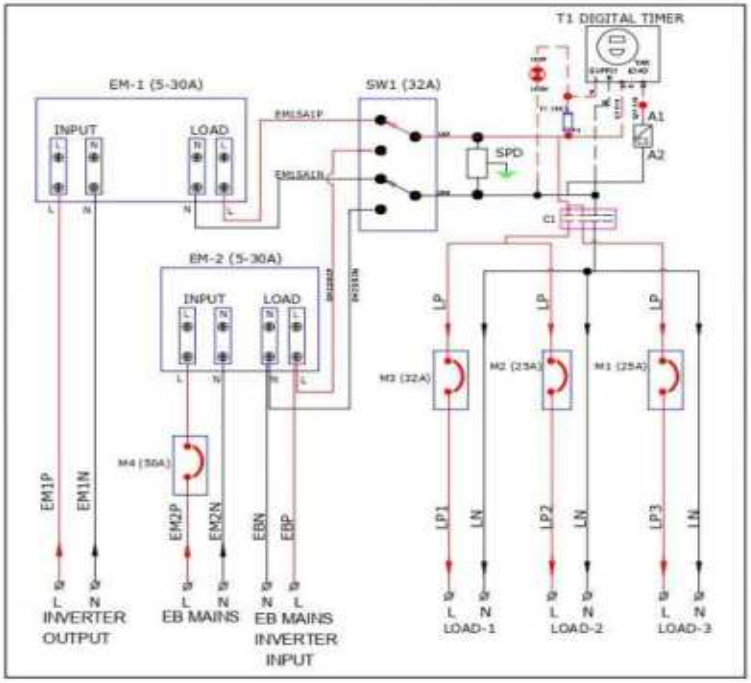
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

ACDB 8KW DUAL ENERGY METER WITH TIMER CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV.0
DWG No. F03.01.0334			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:
- —— POWER CABLES
- — — CONTROL CABLES

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING. ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER, (ID MAKE, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER (IN CASE OF SINGLE PHASE OUTPUT ALSO, THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONALISED LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED. IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & CATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER (GRID). IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPVPPS OF CAPACITY MORE THAN 1 KWP.

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	EM - 1 & EM - 2	DIGITAL ELECTRONIC ENERGY METER (kWh) 05-30A	02	Nos	L&T/SECURE/REUTED
2	F1	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX/ REPUTED
3	F1	GLASS FUSE LINK 5Amps,5x20mm	01	No	PROTECTRON
4	SW1	CHANGEOVER SWITCH 32A,2 POLE,2WAY	01	No	TELERGON/SALZER/GT/REPUTED
5	SPD	SURGE PROTECTION DEVICE 1 PHASE	01	No	PHOENIX/FINDER
6	L1	POWER 'ON' LAMP (LED) 230/220V AC,GREEN COLOR	01	No	TEKNIC / VAISHNO / REPUTED
7	T1	DIGITAL PROGRAMMABLE TIMER MODEL:TS2M1	01	No	SELEC / REPUTED
8	C1	CONTACTOR AX24-30-10 220-230 AC	01	No	ABB / REPUTED
9	M1,M2	1 POLE MCB 25A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
10	M3	1 POLE MCB 32A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
11	M4	1 POLE MCB 50A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
12	MAINS , PCU & INVERTER	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE /REPUTED
13	FEEDERS	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE/REPUTED
14	MAINS, PCU,INVERTER	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEX/REPUTED
15	FEEDERS	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEX/REPUTED
16	----	END PLATES	06	Nos	PHOENIX / ELMEX/REPUTED
17	----	END CLAMPS	01	LOT	PHOENIX / ELMEX/REPUTED
18	----	LUGS FOR INTERNAL WIRING	01	LOT	3D/ REPUTED
19	----	2.5SQMM&4 SQMM YELLOW/GREEN COLOR CABLE	01	LOT	RR /POLYCAB/REPUTED
20	----	CABLES • POWER CABLE 6SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /POLYCAB/REPUTED
21	----	ENERGY METER GLASS COVERS	02	Nos	REPUTED
22	----	PACKING BOX	01	No	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 600 X 125 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL - 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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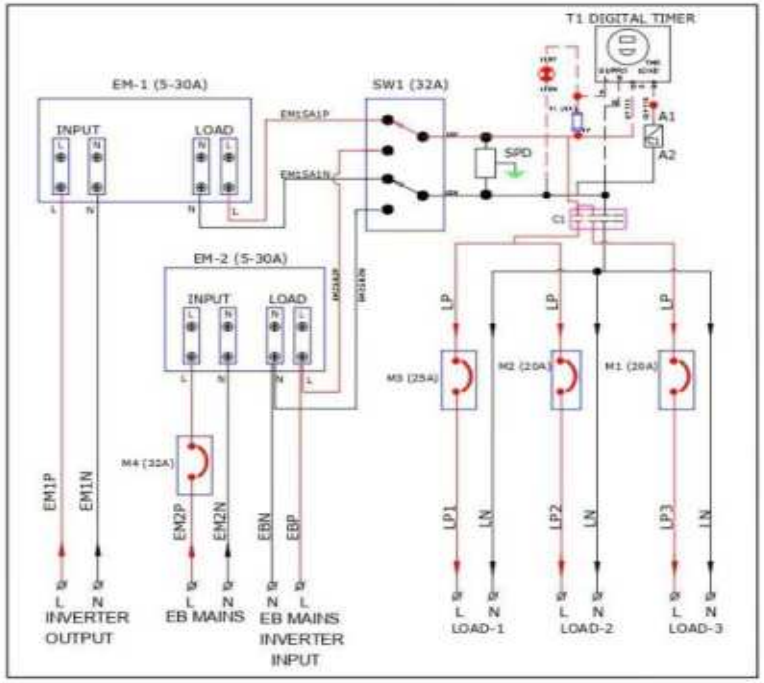
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

ACDB 6KW WITH DUAL ENERGY METER & TIMER CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV.0
DWG No. F03.01.05			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:
- POWER CABLES
- CONTROL CABLES

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING. ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER. (S) MAKE, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER (IN CASE OF SINGLE PHASE OUTPUT ALSO. THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONAL/GRID LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED, IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & CATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER (GRID), IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPVPPS OF CAPACITY MORE THAN 1 KWP.

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	EM - 1 & EM - 2	DIGITAL ELECTRONIC ENERGY METER (kWh) 05-30A	02	Nos	L&T/SECURE/REUTED
2	F1	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX/ REPUTED
3	F1	GLASS FUSE LINK 5Ampa,5x20mm	01	No	PROTECTRON
4	SW1	CHANGEOVER SWITCH 32A,2 POLE,2WAY	01	No	TELERGON/SALZER/GT/REPUTED
5	SPD	SURGE PROTECTION DEVICE 1 PHASE	01	No	PHOENIX/FINDER
6	L1	POWER "ON" LAMP (LED) 230/220V AC GREEN COLOR	01	No	TEKNIC / VAISHNO / REPUTED
7	T1	DIGITAL PROGRAMMABLE TIMER MODEL:TS2M1	01	No	SELEC / REPUTED
8	C1	CONTACTOR AX12-30-10 220-230 AC 1SBL911074R8010	01	No	ABB / REPUTED
9	M1,M2	1 POLE MCB 20A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
10	M3	1 POLE MCB 25A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
11	M4	1 POLE MCB 32A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
12	MAINS , PCU & INVERTER	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE /REPUTED
13	FEEDERS	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE/REPUTED
14	MAINS, PCU,INVERTER	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEX/REPUTED
15	FEEDERS	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEXREPUTED
16	----	END PLATES	06	Nos	PHOENIX / ELMEXREPUTED
17	----	END CLAMPS	01	LOT	PHOENIX / ELMEXREPUTED
18	----	LUGS FOR INTERNAL WIRING	01	LOT	3D/ REPUTED
19	----	2.5SQMM&4 SQMM YELLOW/GREEN COLOR CABLE	01	LOT	RR /POLYCAB/REPUTED
20	----	CABLES • POWER CABLE 4SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /POLYCAB/REPUTED
21	----	ENERGY METER GLASS COVERS	02	Nos	REPUTED
22	----	PACKING BOX	01	No	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 530 X 125 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 60 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL - 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

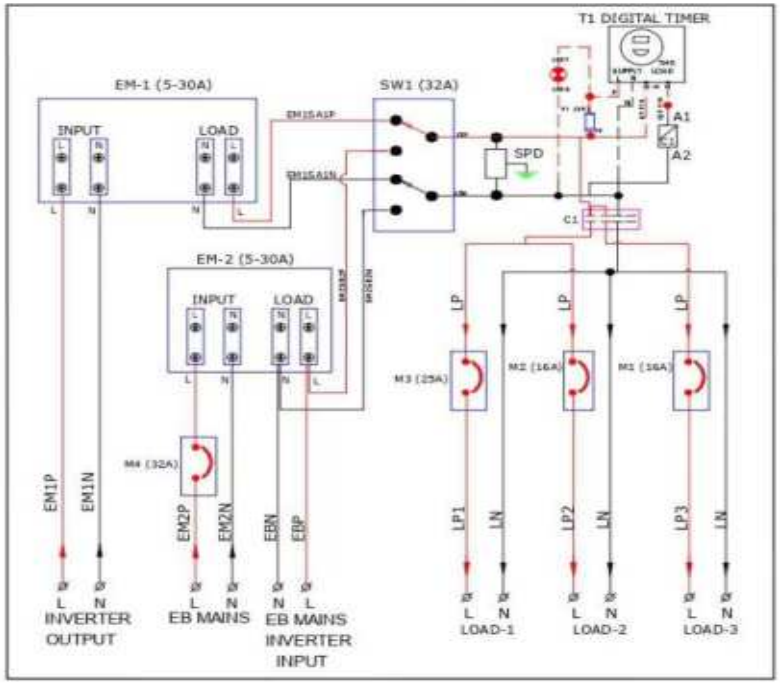
ACDB 5KW WITH DUAL ENERGY METER & TIMER CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF1
DATE	DATE	DATE	REV.0
20.06.19	20.06.19	20.06.19	

DWG No. F03.01.0487 — SHEET SIZE: A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:
- POWER CABLES
- CONTROL CABLES

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING. ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER, (S) MAKE, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER (IN CASE OF SINGLE PHASE OUTPUT ALSO, THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONAL/GRID LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED, IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & CATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER (GRID), IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPVPPS OF CAPACITY MORE THAN 1 KWP.

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	EM - 1 & EM - 2	DIGITAL ELECTRONIC ENERGY METER (kWH) 05-30A	02	Nos	L&T/SECURE/REUTED
2	F1	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX/ REPUTED
3	F1	GLASS FUSE LINK 5Amps,5x20mm	01	No	PROTECTRON
4	SW1	CHANGEOVER SWITCH 32A,2 POLE,2WAY	01	No	TELEBRGON/SALZER/GT/REPUTED
5	SPD	SURGE PROTECTION DEVICE 1 PHASE	01	No	PHOENIX/FINDER
6	L1	POWER 'ON' LAMP (LED) 230/220V AC,GREEN COLOR	01	No	TEKNIC / VAISHNO / REPUTED
7	T1	DIGITAL PROGRAMMABLE TIMER MODEL:TS2M1	01	No	SELEC / REPUTED
8	C1	CONTACTOR AX12-30-10 220-230 AC 1SBL911074R8010	01	No	ABB / REPUTED
9	M1,M2	1 POLE MCB 16A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
10	M3	1 POLE MCB 25A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
11	M4	1 POLE MCB 32A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
12	MAINS , PCU & INVERTER	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE /REPUTED
13	FEEDERS	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE/REPUTED
14	MAINS, PCU,INVERTER	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEX/REPUTED
15	FEEDERS	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEXREPUTED
16	----	END PLATES	06	Nos	PHOENIX / ELMEXREPUTED
17	----	END CLAMPS	01	LOT	PHOENIX / ELMEXREPUTED
18	----	LUGS FOR INTERNAL WIRING	01	LOT	3D/ REPUTED
19	----	2.5SQMM&4 SQMM YELLOW/GREEN COLOR CABLE	01	LOT	RR /POLYCAB/REPUTED
20	----	CABLES • POWER CABLE 4SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /POLYCAB/REPUTED
21	----	ENERGY METER GLASS COVERS	02	Nos	REPUTED
22	----	PACKING BOX	01	No	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 600 X125 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 60 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

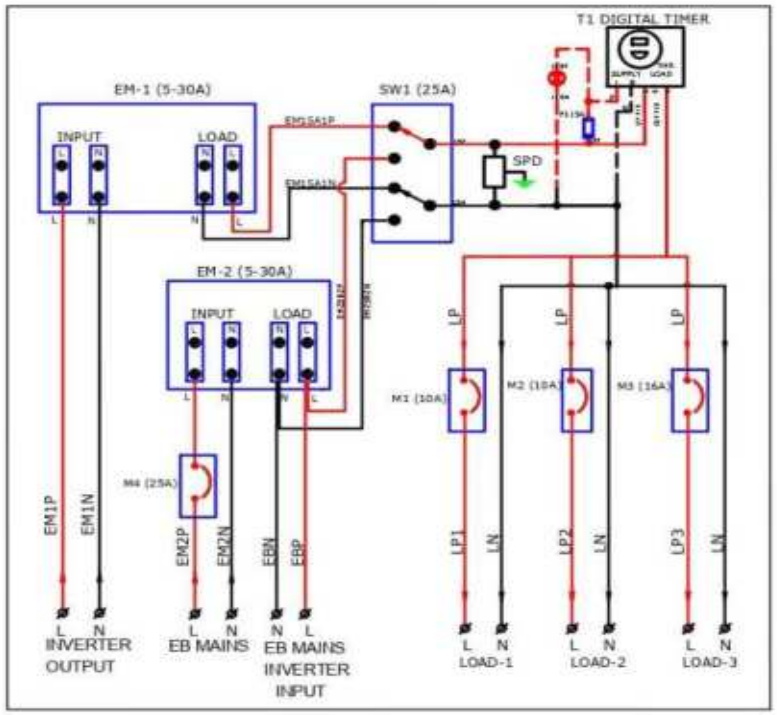
ACDB 4KW WITH DUAL ENERGY METER & TIMER CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VJK	SRW	1 OF 1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV.0

DWG No. F03.01.04 — SHEET SIZE: A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
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3	F1	GLASS FUSE LINK 5Amps.5x20mm	01	No	PROTECTRON
4	SW1	CHANGEOVER SWITCH 25A,2 POLE,2WAY	01	No	TELERGON/SALZER/GT/REPUTED
5	SPD	SURGE PROTECTION DEVICE 1 PHASE	01	No	PHOENIX/FINDER
6	L1	POWER "ON" LAMP (LED) 230/220V AC.GREEN COLOR	01	No	TEKNIC / VAISHNO / REPUTED
7	T1	DIGITAL PROGRAMMABLE TIMER MODEL:TS2M1	01	No	SELEC / REPUTED
8	M1,M2	1 POLE MCB 10A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
9	M4	1 POLE MCB 25A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
10	M3	1 POLE MCB 16A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
11	MAINS , PCU & INVERTER	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE /REPUTED
12	FEEDERS	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE/REPUTED
13	MAINS, PCU,INVERTER	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEX/REPUTED
14	FEEDERS	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEXREPUTED
15	----	END PLATES	06	Nos	PHOENIX / ELMEXREPUTED
16	----	END CLAMPS	01	LOT	PHOENIX / ELMEXREPUTED
17	----	LUGS FOR INTERNAL WIRING	01	LOT	3D/ REPUTED
18	----	2.5SQMM&4 SQMM YELLOW/GREEN COLOR CABLE	01	LOT	RR /POLYCAB/REPUTED
19	----	CABLES • POWER CABLE 4SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /POLYCAB/REPUTED
20	----	ENERGY METER GLASS COVERS	02	Nos	REPUTED
21	----	PACKING BOX	01	No	REPUTED

NOTE:
- POWER CABLES
- CONTROL CABLES

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING, ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER, ISI MAKE, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER (IN CASE OF SINGLE PHASE OUTPUT ALSO, THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONAL/GRID LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED. IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & DATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER (GRID), IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPV/PPS OF CAPACITY MORE THAN 1 KWP.

ENCLOSURE DETAILS

01	• DIMENSION : 400 X400 X126 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 60 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.

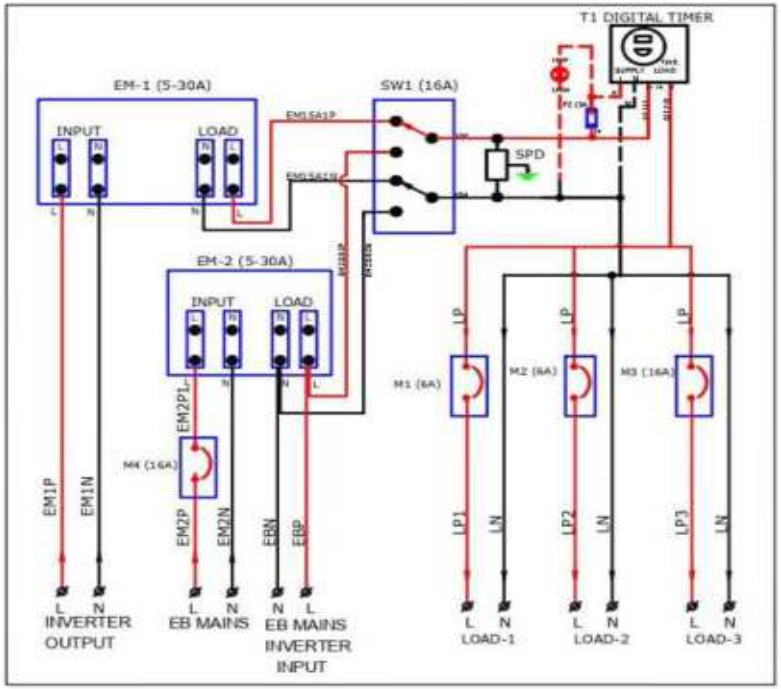
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

ACDB 3KW DUAL ENERGY METER WITH TIMER CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV.0
DWG No. F03.01.0011			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:
- POWER CABLES
- CONTROL CABLES

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING. ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER, ISI MARK, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER (IN CASE OF SINGLE PHASE OUTPUT ALSO, THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONAL/GRID LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED. IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & GATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER /GRID). IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPV/PPS OF CAPACITY MORE THAN 1 KW.

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	EM - 1 & EM - 2	DIGITAL ELECTRONIC ENERGY METER (kWH) 05-30A	02	Nos	L&T/SECURE/REUTED
2	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX/ REPUTED
3	F2	GLASS FUSE LINK 5Amps,5x20mm	01	No	PROTECTRON
4	SW1	CHANGEOVER SWITCH 16A,2 POLE,2WAY	01	No	TELERGON/SALZER/GT/REPUTED
5	SPD	SURGE PROTECTION DEVICE 1 PHASE	01	No	PHOENIX/REPUTED
6	L1	POWER "ON" LAMP (LED) 230/220V AC GREEN COLOR	01	No	TEKNIC / VAISHNO / REPUTED
7	T1	DIGITAL PROGRAMMABLE TIMER MODEL:TS2M1	01	No	SELEC / REPUTED
8	MLM2	1 POLE MCB 6A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
9	M3, M4	1 POLE MCB 16A, 230VAC	02	No	SCHNEIDER / ABB /C&S/REPUTED
10	MAINS , PCU & INVERTER	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE /REPUTED
11	FEEDERS	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE/REPUTED
12	MAINS, PCU,INVERTER	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEX/REPUTED
13	FEEDERS	TERMINAL BLOCKS TB10	06	Nos	PHOENIX / ELMEX/REPUTED
14	----	END PLATES	06	Nos	PHOENIX / ELMEX/REPUTED
15	----	END CLAMPS	01	LOT	PHOENIX / ELMEX/REPUTED
16	----	LUGS FOR INTERNAL WIRING	01	LOT	3D/ REPUTED
17	----	2.5SQMM&4 SQMM YELLOW/GREEN COLOR CABLE	01	LOT	RR /POLYCAB/REPUTED
18	----	CABLES • POWER CABLE 4SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /POLYCAB/REPUTED
19	----	ENERGY METER GLASS COVERS	02	Nos	REPUTED
20	----	PACKING BOX	01	No	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X400 X125 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL - 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.

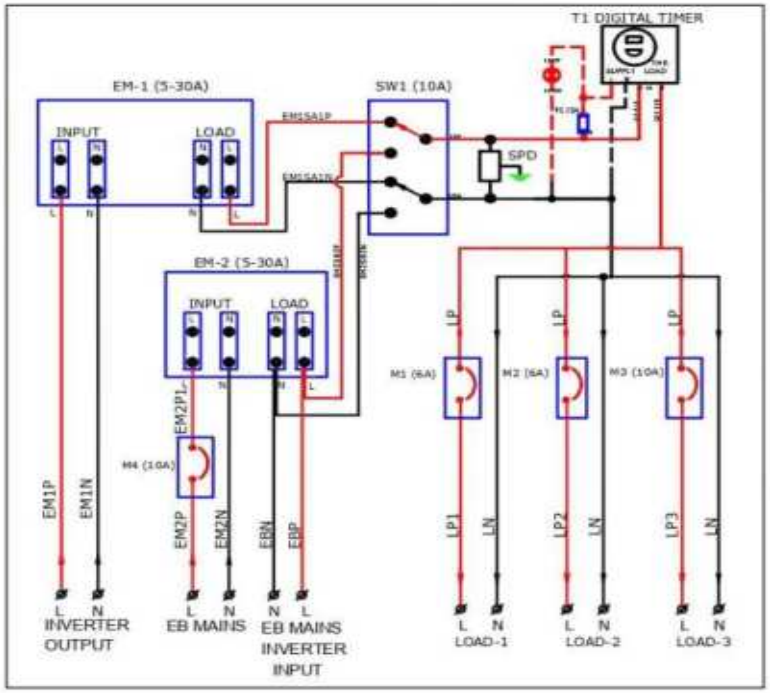
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

ACDB 2KW DUAL ENERGY METER WITH TIMER CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV.0
DWG No. F03.01.0006			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:
- POWER CABLES
- CONTROL CABLES

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	EM - 1 & EM - 2	DIGITAL ELECTRONIC ENERGY METER (kWH) 05-30A	02	Nos	L&T/SECURE/REUTED
2	F1	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX/ REPUTED
3	F1	GLASS FUSE LINK 5Amps,5x20mm	01	No	PROTECTRON
4	SW1	CHANGEOVER SWITCH 10A,2 POLE,2WAY	01	No	TELEROON/SALZER/GT/REPUTED
5	SPD	SURGE PROTECTION DEVICE 1 PHASE	01	No	PHOENIX/FINDER
6	L1	POWER 'ON' LAMP (LED) 230/220V AC GREEN COLOR	01	No	TEKNIC / VAISHNO / REPUTED
7	T1	DIGITAL PROGRAMMABLE TIMER MODEL:TS2M1	01	No	SELEC / REPUTED
8	M3,M4	1 POLE MCB 10A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
9	M1, M2	1 POLE MCB 6A, 230VAC	02	No	SCHNEIDER / ABB /C&S/REPUTED
10	MAINS , PCU & INVERTER	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE /REPUTED
11	FEEDERS	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE/REPUTED
12	MAINS, PCU,INVERTER	TERMINAL BLOCKS TB6	06	Nos	PHOENIX/ ELMEX/REPUTED
13	FEEDERS	TERMINAL BLOCKS TB6	06	Nos	PHOENIX/ ELMEX/REPUTED
14	----	END PLATES	06	Nos	PHOENIX/ ELMEX/REPUTED
15	----	END CLAMPS	01	LOT	PHOENIX/ ELMEX/REPUTED
16	----	LUGS FOR INTERNAL WIRING	01	LOT	3D/ REPUTED
17	----	2.5SQMM&4 SQMM YELLOW/GREEN COLOR CABLE	01	LOT	RR /POLYCAB/REPUTED
18	----	CABLES • POWER CABLE 4SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /POLYCAB/REPUTED
19	----	ENERGY METER GLASS COVERS	02	Nos	REPUTED
20	----	PACKING BOX	01	No	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X400 X125 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIEMENS GREY) • COATING THICKNESS : 60 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING. ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER, ISI MAKE, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER (IN CASE OF SINGLE PHASE OUTPUT ALSO, THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONAL/GRID LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED, IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & CATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER (GRID), IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPV/PPS OF CAPACITY MORE THAN 1 KW/P.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.

CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

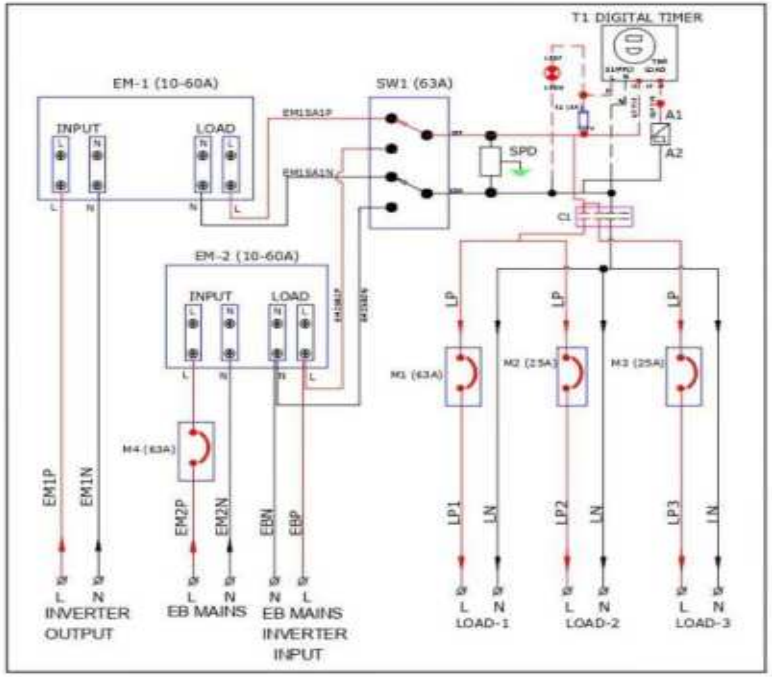
ACDB 1KW DUAL ENERGY, TIMER CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF1
DATE 30.06.19	DATE 30.06.19	DATE 30.06.19	REV.0

DWG No. F03.01.0534 — SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:
- POWER CABLES
- CONTROL CABLES

BILL OF MATERIALS

SL.NO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	EM -1 & EM - 2	DIGITAL ELECTRONIC ENERGY METER (kWH) 10-60A	02	Nos	L&T/SECURE/REUTED
2	F1	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX/ REPUTED
3	F1	GLASS FUSE LINK 5Ampe,5x20mm	01	No	PROTECTRON
4	SW1	CHANGEOVER SWITCH 63A,2 POLE,2WAY	01	No	TELEROON/SALZER/GT/REPUTED
5	SPD	SURGE PROTECTION DEVICE 1 PHASE	01	No	PHOENIX/FINDER
6	L1	POWER 'ON' LAMP (LED) 230/230V AC GREEN COLOR	01	No	TEKNIC / VAISHNO / REPUTED
7	T1	DIGITAL PROGRAMMABLE TIMER MODEL TS2M1	01	No	SELEC / REPUTED
8	C1	CONTACTOR AX25-30-10 220-230 AC	01	No	ABB / REPUTED
9	M3, M2	1 POLE MCB 25A, 230VAC	02	Nos	SCHNEIDER / ABB /C&S/REPUTED
10	M1, M4	1 POLE MCB 63A, 230VAC	01	No	SCHNEIDER / ABB /C&S/REPUTED
11	MAINS , PCU & INVERTER	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE /REPUTED
12	FEEDERS	CABLE GLAND PG - 16	03	Nos	JIGO / ACTIVE/REPUTED
13	MAINS, PCU,INVERTER	TERMINAL BLOCKS TB16	06	Nos	PHOENIX / ELMEX/REPUTED
14	FEEDERS	TERMINAL BLOCKS TB16	06	Nos	PHOENIX / ELMEXREPUTED
15	----	END PLATES	06	Nos	PHOENIX / ELMEXREPUTED
16	----	END CLAMPS	01	LOT	PHOENIX / ELMEXREPUTED
17	----	LUGS FOR INTERNAL WIRING	01	LOT	3D/ REPUTED
18	----	2.5SQMM&4 SQMM YELLOW/GREEN COLOR CABLE	01	LOT	RR /POLYCAB/REPUTED
19	----	CABLES • POWER CABLE 6SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /POLYCAB/REPUTED
20	----	ENERGY METER GLASS COVERS	02	Nos	REPUTED
21	----	PACKING BOX	01	No	REPUTED

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING. ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER, ISI MAKE, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER. (IN CASE OF SINGLE PHASE OUTPUT ALSO, THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONAL GRID LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED. IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & CATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER (GRID), IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPV/PPS OF CAPACITY MORE THAN 1 KWP.

ENCLOSURE DETAILS

D1	• DIMENSION : 400 X 300 X 125 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING. • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID.
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.

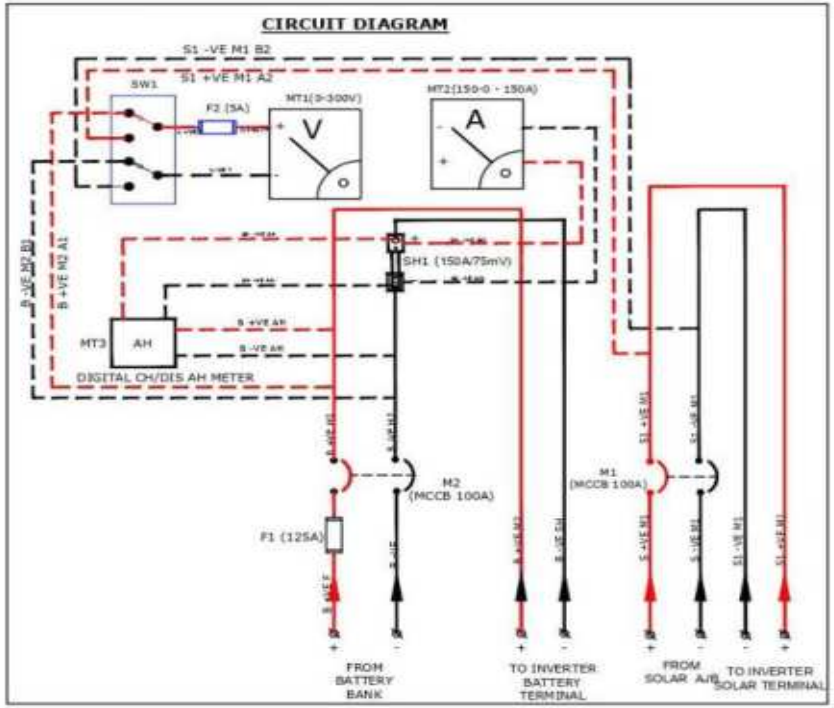
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

ACDB 10KW DUAL ENERGY METER WITH TIMER CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV.0
DWG No. F03.01.0334			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:

- 8 KW SYSTEM VOLTAGE (120V) :100-260VDC
- —— POWER CABLES
- ------ CONTROL CABLES

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK 125A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX / REPUTED
4	F2	GLASS FUSELINK 5A, 6X30MM	01	No	PROTECTRON / REPUTED
5	M2	MCB 100A, 2/3POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
6	M1	MCCB 100A,2/3POLE DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A COS ROTARY SWITCH,2 POLE,2WAY	01	No	SALZER / TELEBOON / REPUTED
8	SH1	SHUNT 150A/75mV	01	No	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-300V, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 150-0-150A, SIZE 96 X96mm	01	No	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 100- 260VDC	01	No	EIC / RISHAB / COUNTRON / REPUTED
12	SOLAR	CABLE GLAND PG19	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (DPBB) 150A	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	SOLAR & BATTERY	TERMINAL BLOCKS (DPBB) 150A	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
16	---	MBX30MM INSULATOR	01	No	REPUTED
17	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	SD / REPUTED
18	---	CABLES /COPPER BUS BAR • POWER CABLE 25SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
19	---	2.5 SQMM YELLOW/GREEN COLOR EARTHING CABLE	0.2	Mtrs	RR / POLYCAB / REPUTED
20	---	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
21	---	WIRE DUCT,DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
22	---	PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 600 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SAND GREY) • COATING THICKNESS : 60 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT. WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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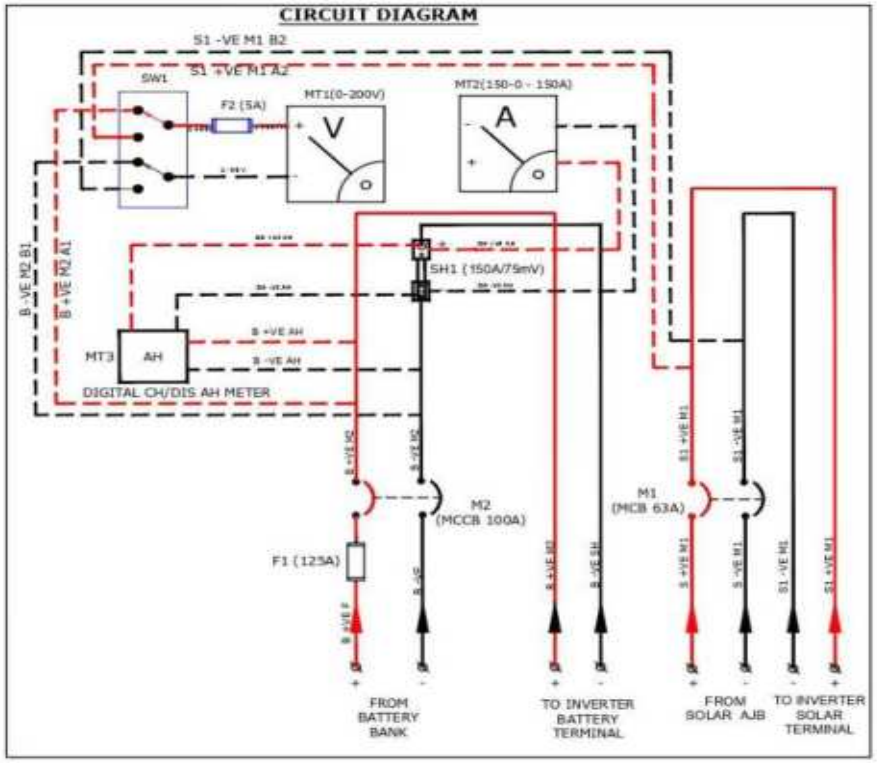
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB 8KW CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF 1
DATE 10.08.21	DATE 10.08.21	DATE 10.08.21	REV.0
DWG No. F03.02.007			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	--------

CIRCUIT DIAGRAM



NOTE:

- 6KW SYSTEM VOLTAGE (96V) :80-170VDC
- ——— POWER CABLES
- ------- CONTROL CABLES

BILL OF MATERIALS

SL NO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	No	C&S
2	F1	FUSE LINK125A,DC RATED	01	No	C&S
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX/REPUTED
4	F2	GLASS FUSELINK 5A 5X20MM	01	No	PROTECTRON
5	M1	MCB 63A, 2POLE, DC RATED	01	No	C&S/ABB/SCHNEIDER
6	M2	MCCB 100,2/3POLE, DC RATED	01	No	C&S/ABB/SCHNEIDER
7	SW1	6A COS ROTARY SWITCH	01	No	SALZER
8	SH1	SHUNT 150A/75MV	01	No	EIC/RISHAB
9	MT1	DC ANALOG VOLT METER 0-200V, SIZE 96 X 96mm	01	No	EIC/RISHAB
10	MT2	DC ANALOG AMMETER METER 150-0-150A, SIZE 96 X 96mm	01	No	EIC/RISHAB
11	MT3	DIGETAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 80- 170VDC	01	No	EIC/RISHAB/COUNTRON/REPUTED
12	SOLAR	CABLE GLAND PG19	04	Nos	JDG/ACTIVE/REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JDG/ACTIVE/REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (STRIP) 150A RED COLOR	04	Nos	PHOENIX / ELMEX/WAGO
15	SOLAR & BATTERY	TERMINAL BLOCKS (STRIP) 150A BLACK COLOR	04	Nos	PHOENIX / ELMEX/WAGO
16	---	M6X30MM INSULATOR	01	No	REPUTED
17	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	3D/REPUTED
18	---	CABLES /COPPER BUS BAR • POWER CABLE16SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR /FINOLEX/POLY CAB/REPUTED
19	---	2.5 SQMM YELLOW/GREEN COLOR EARTHING CABLE CRIMPING WITH 2.5 E-6 RING LUGS 2NOS	0.2	Mtrs	RR /FINOLEX/POLY/REPUTED
20	---	END CLAMPS	08	Nos	PHOENIX / ELMEX/WAGO
21	---	WIRE DUCT,DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 500 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL / FLOOR MOUNTING WITH FASTENERS	REPUTED

LABEL - 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPR.

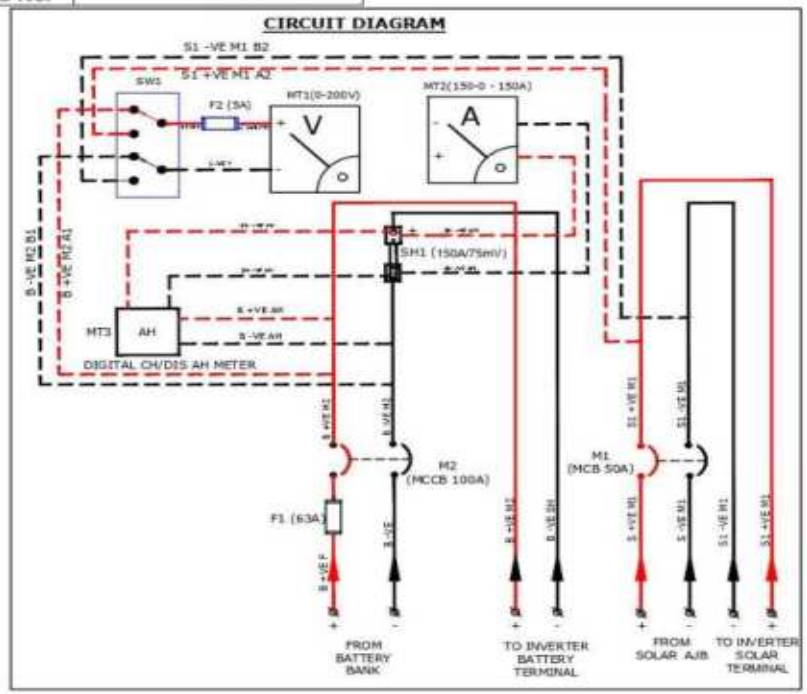
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB-6KW- CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S.	VK	SRW	
DATE 09.01.2020	DATE 09.01.2020	DATE 09.01.2020	REV.0
DWG No. F03.02.0081			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK 63A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX / REPUTED
4	F2	GLASS FUSELINK 5A, 5X20MM	01	No	PROTECTRON / REPUTED
5	M1	MCB 50A, 2POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
6	M2	MCCB 100A,2POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A COS ROTARY SWITCH,2 POLE,2WAY	01	No	SALZER / TELERGON / REPUTED
8	SH1	SHUNT 150A/75mV	01	No	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-200V, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 150-0-150A, SIZE 96 X96mm	01	No	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 40 - 170VDC	01	No	EIC / RISHAB / CONTRON / REPUTED
12	SOLAR	CABLE GLAND PG16	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (STRIP) 150A	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	SOLAR & BATTERY	TERMINAL BLOCKS (STRIP) 150A	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
16	---	M6X30MM INSULATOR	01	No	REPUTED
17	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	3D / REPUTED
18	---	CABLES :-COPPER BUS BAR • POWER CABLE 150MM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
19	---	2.5 SQMM YELLOW/GREEN COLOR EARTHING CABLE	0.2	Mtrs	RR / POLYCAB / REPUTED
20	---	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
21	---	WIRE DUCT,DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
22	---	PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 600 X 500 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING GRADE : RAL7032(GREY) • COATING THICKNESS : 60 MICRONS • FINISHED : POWDER COATED • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. RATING CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

NOTE:

- 5KW SYSTEM VOLTAGE (96V) :80-170VDC
- —— POWER CABLES
- —— CONTROL CABLES

DESCRIPTION
THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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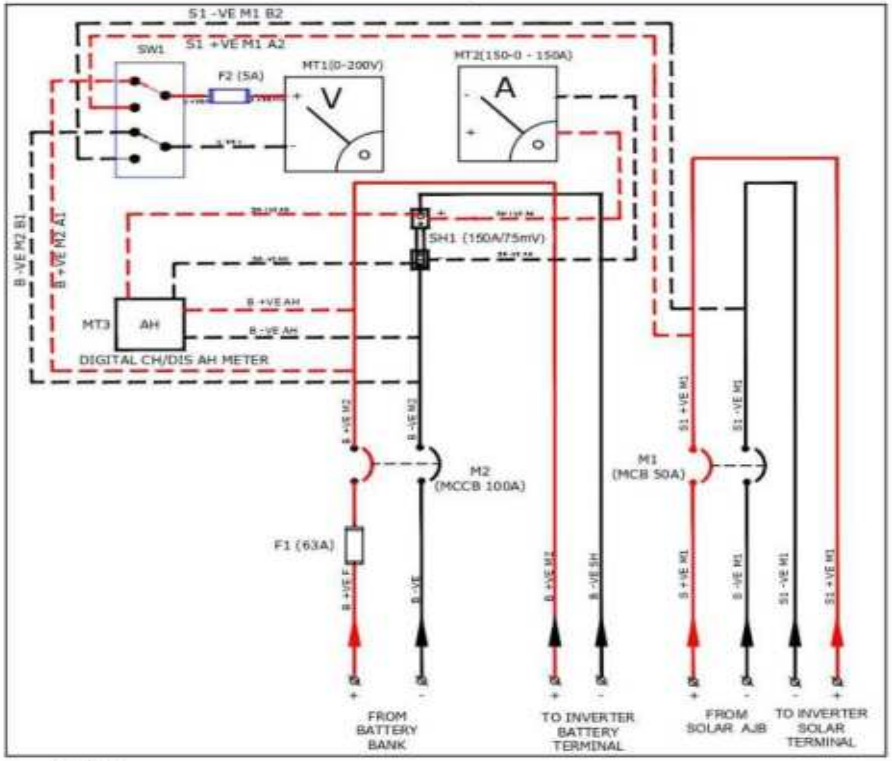
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB-5KW CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF 1
DATE 11.04.19	DATE 11.04.19	DATE 11.04.19	REV.0
DWG No. F03.02.0027			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:

- 4KW SYSTEM VOLTAGE (96V) :80-170VDC
- —— POWER CABLES
- ---------- CONTROL CABLES

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK 63A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX / REPUTED
4	F2	GLASS FUSE LINK 5A,5X20MM	01	No	PROTECTRON / REPUTED
5	M1	MCCB 50A, 2POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
6	M2	MCCB 100A,2POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A COS ROTARY SWITCH,2POLE,2WAY	01	No	SALZER / TELERGON / REPUTED
8	SH1	SHUNT 150A/75mV	01	No	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-200V, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 150-0-150A, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 80- 170VDC	01	No	EIC / RISHAB / COUNTRON / REPUTED
12	SOLAR	CABLE GLAND PG19	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (STRIP) 150A	08	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	---	M8X30MM INSULATOR	01	No	REPUTED
16	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	3D / REPUTED
17	---	CABLES /COPPER BUS BAR • POWER CABLE16SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
18	---	2.5 SQMM YELLOW/GREEN COLOR COPPER CABLE	0.2	MTRS	RR / POLYCAB / REPUTED
19	---	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
20	---	,DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
21	---	CARTON PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 500 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIEMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.

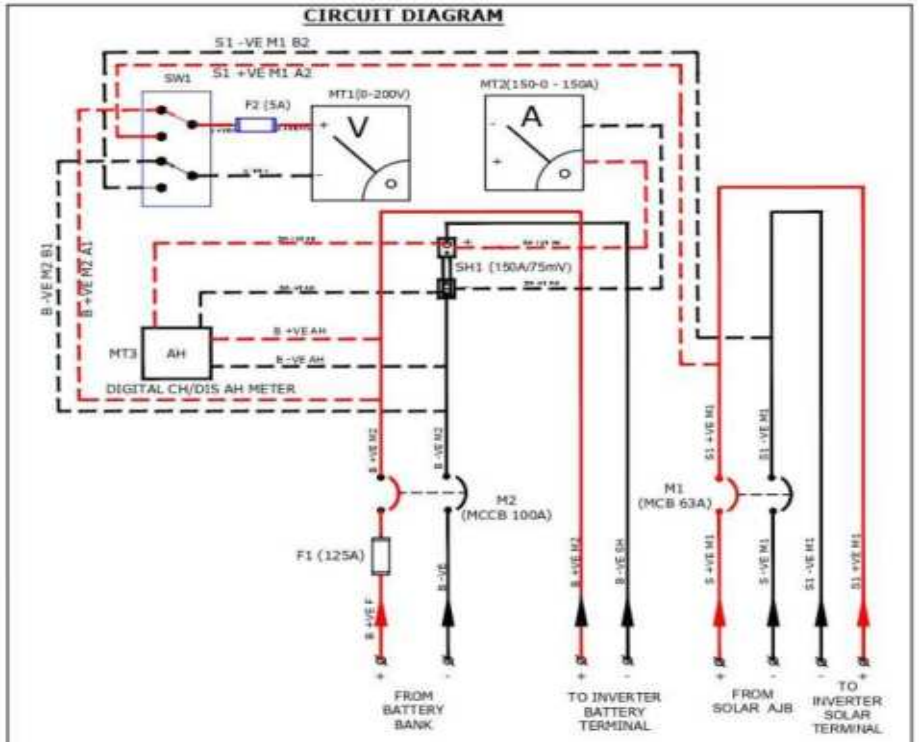
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB 4KW CREDA MODE

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF 1
DATE 20.08.19	DATE 20.08.19	DATE 20.08.19	REV.0
DWG No. F03.02.0003			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:

- 3KW SYSTEM VOLTAGE (48V) :40-85VDC
- ——— POWER CABLES
- ------- CONTROL CABLES

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK125A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX / REPUTED
4	F2	GLASS FUSE LINK 5A,6X30MM	01	No	PROTECTRON / REPUTED
5	M1	MCCB 63A, 2POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
6	M2	MCCB 100A, 2POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A COS ROTARY SWITCH,2POLE,2WAY	01	No	SALZER / TELERGON / REPUTED
8	SH1	SHUNT 150A/75mV	01	No	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-200V, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 150-0-150A, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 40- 170VDC	01	No	EIC / RISHAB / COUNTRON / REPUTED
12	SOLAR	CABLE GLAND PG16	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (STRIP) 150A	08	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	---	M8X30MM INSULATOR	01	No	REPUTED
16	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	3D / REPUTED
17	---	CABLES /COPPER BUS BAR • POWER CABLE16SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
18	---	2.5 SQMM YELLOW/GREEN COLOR COPPER CABLE	0.2	MTRS	RR / POLYCAB / REPUTED
19	---	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
20	---	,DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
21	---	CARTON PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 500 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIEMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
01	14-05-2020	MCB RATING AS CHANGED FROM 100A TO 63A	-----	-----	-----

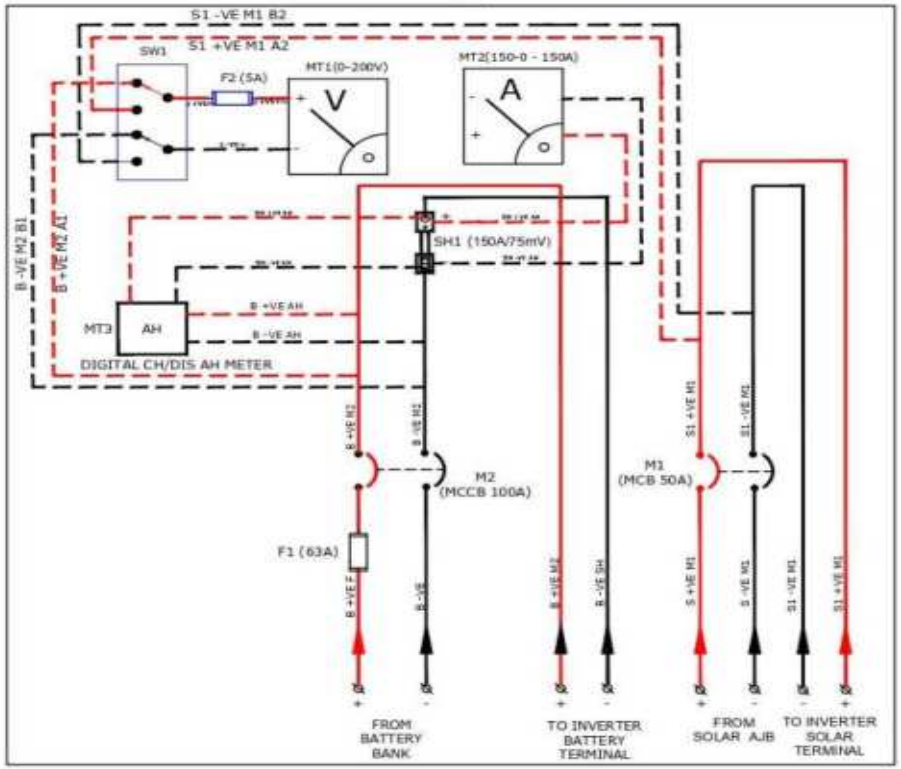
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB-3KW CREDA MODE

DRAWN	CHKD.	APPR.	SHEET
M.S.S.	VIK	SRW	1 OF 1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV.0
DWG No. F03.02.0038			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:

- 2KW SYSTEM VOLTAGE (48V) :40-85VDC
- —— POWER CABLES
- ------ CONTROL CABLES

BILL OF MATERIALS

SL NO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	Nos	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK 63A,DC RATED	01	Nos	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	Nos	PHOENIX / REPUTED
4	F2	GLASS FUSE LINK 5A,5X20MM	01	Nos	PROTECTRON / REPUTED
5	M1	MCCB 50A, 2POLE, DC RATED	01	Nos	C&S / ABB / SCHNEIDER / REPUTED
6	M2	MCCB 100A,2POLE, DC RATED	01	Nos	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A CDS ROTARY SWITCH,2POLE,2WAY	01	Nos	SALZER / TELERGON / REPUTED
8	SH1	SHUNT 150A/75mV	01	Nos	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-200V, SIZE 96 X 96mm	01	Nos	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 150-0-150A, SIZE 96 X 96mm	01	Nos	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 40- 85VDC	01	Nos	EIC / RISHAB / COUNTRON / REPUTED
12	SOLAR	CABLE GLAND PG19	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (STRIP) 150A	08	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	---	M6X30MM INSULATOR	01	Nos	REPUTED
16	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	SD / REPUTED
17	---	CABLES /COPPER BUS BAR • POWER CABLE 16SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
18	---	2.5 SQMM YELLOW/GREEN COLOR COPPER CABLE	0.2	MTRS	RR / POLYCAB / REPUTED
19	---	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
20	---	DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
21	---	CARTON PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 500 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL - 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR

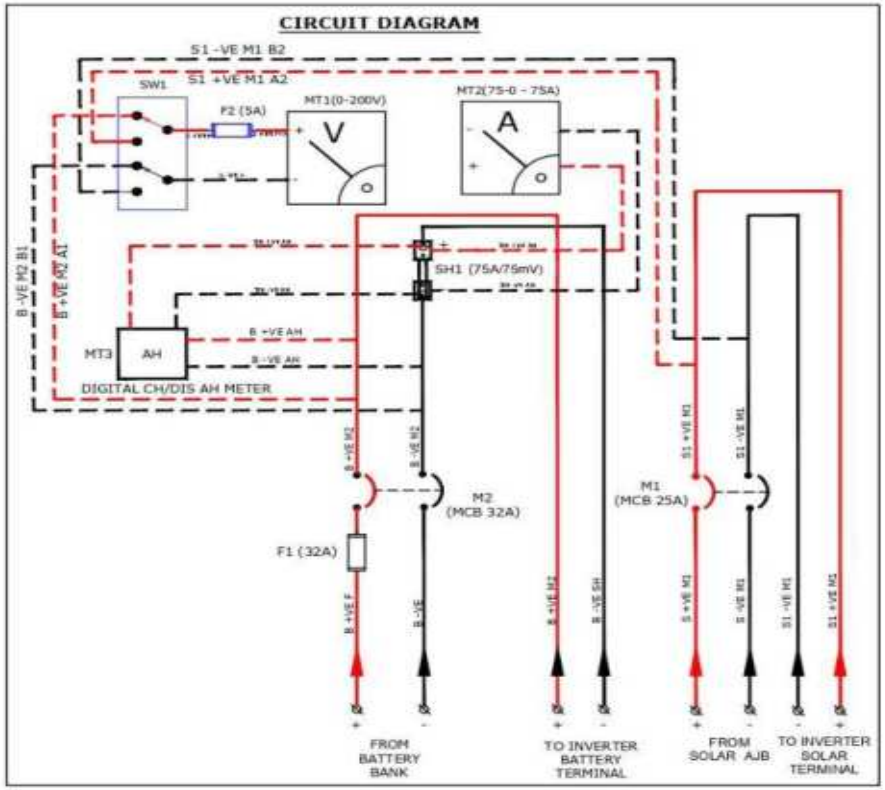
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB 2KW CREDA MODE

DRAWN	CHKD	APPR.	SHEET
M.S.S	VIK	SRW	1 OF 1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV.0
DWG No. F03.02.0003			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	F03.02.0038

CIRCUIT DIAGRAM



NOTE:

- 1KW SYSTEM VOLTAGE (48V) :40-85VDC
- —— POWER CABLES
- - - - - CONTROL CABLES

BILL OF MATERIALS

SL NO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 32A,AC RATED	01	No	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK 32A, AC RATED	01	No	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX / REPUTED
4	F2	GLASS FUSE LINK 5A,5X20MM	01	No	PROTECTRON / REPUTED
5	M1	MCB 25A, 2POLE, AC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
6	M2	MCB 32A, 2POLE, AC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A COS ROTARY SWITCH,2POLE,2WAY	01	No	SALZER / TELEREGN / REPUTED
8	SH1	SHUNT 75A/75mV	01	No	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-200V, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 75-0-75A, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 40- 85VDC	01	No	EIC / RISHAB / COUNTRON / REPUTED
12	SOLAR	CABLE GLAND PG19	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS TB19	08	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	---	M6X30MM INSULATOR	02	No	REPUTED
16	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	SD / REPUTED
17	---	CABLES /COPPER BUS BAR • POWER CABLE10SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
18	---	2.5 SQMM YELLOW/GREEN COLOR COPPER CABLE	0.2	MTRS	RR / POLYCAB / REPUTED
19	---	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
20	---	DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
21	---	CARTON PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 500 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SIMENS GREY) • COATING THICKNESS : 80 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.

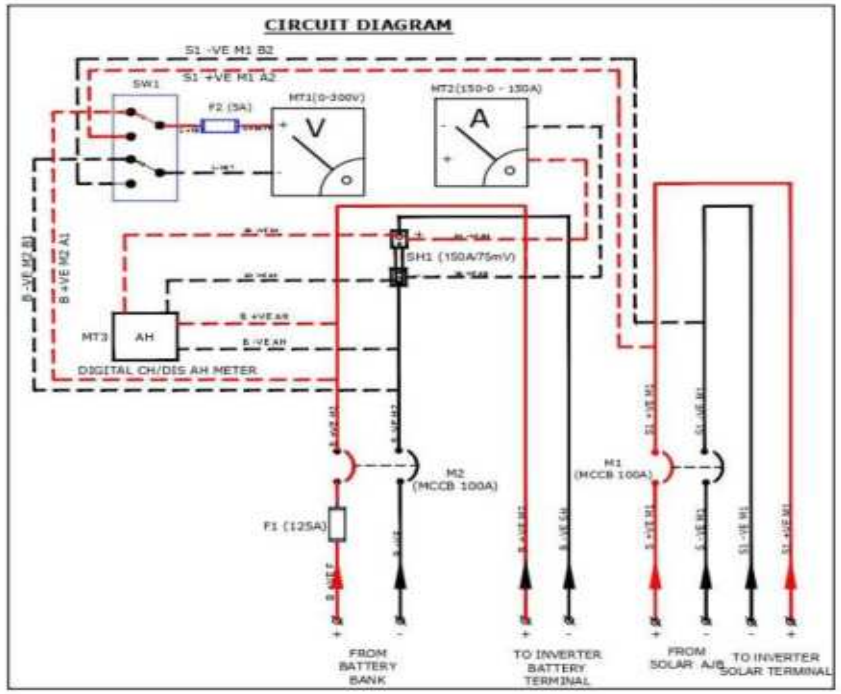
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB 1KW- CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF 1
DATE 20.06.19	DATE 20.06.19	DATE 20.06.19	REV 0
DWG No. F03.02.0073			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:

- 10 KW SYSTEM VOLTAGE (120V) :100-260VDC
- —— POWER CABLES
- ------ CONTROL CABLES

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK 125A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX / REPUTED
4	F2	GLASS FUSELINK 5A, 5X20MM	01	No	PROTECTRON / REPUTED
5	M2	MCB 100A, 2/3POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
6	M1	MCCB 100A,2/3POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A COS ROTARY SWITCH,2 POLE,2WAY	01	No	SALZER / TELEMOON / REPUTED
8	SH1	SHUNT 150A/75mV	01	No	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-300V, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 150-0-150A, SIZE 96 X96mm	01	No	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 100- 260VDC	01	No	EIC / RISHAB / COUNTRON / REPUTED
12	SOLAR	CABLE GLAND PG18	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (DPBB) 16SA	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	SOLAR & BATTERY	TERMINAL BLOCKS (DPBB) 16SA	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
16	---	M6X30MM INSULATOR	01	No	REPUTED
17	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	3D / REPUTED
18	---	CABLES /COPPER BUS BAR • POWER CABLE 25SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
19	---	2.5 SQMM YELLOW/GREEN COLOR EARTHING CABLE	0.2	Mtrs	RR / POLYCAB / REPUTED
20	---	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
21	---	WIRE DUCT,DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
22	---	PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 300 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING GRADE : RAL 7032(SHADE GREY) • COATING THICKNESS : 60 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL : - 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB 10KW CREDA

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	SRW	1 OF 1
DATE 10.08.21	DATE 10.08.21	DATE 10.08.21	REV.0
DWG No. F03.02.008			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	------

BILL OF MATERIAL 6 INPUT / 1 OUTPUT WITH SPD				
SL NO	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	ABS/PC Enclosure 380x280x130mm	01	No	Tribox / Fibox
2	Diode PCB Board 1000V DC, 20 A Reverse Blocking Diode With Necessary Busbar Arrangement	01	No	Reputed
3	SPD 1000VDC Type 2, Arresting Capacity To 40kA	01	No	PhoeniX /Reputed
4	Terminal Block UK16	02	Nos	Phoenix/Salzer/Reputed
5	Terminal Block UK6	01	No	Phoenix/Salzer/Reputed
6	End Plate UK4-10	01	No	Phoenix/Salzer/Reputed
7	End Stopper	03	Nos	Phoenix/Salzer/Reputed
8	Cable gland PG16	06	Nos	Jigo / Active / Reputed
9	Cable gland IP65 PG9	01	No	Jigo / Active / Reputed
10	Cable gland IP65 PG16	02	Nos	Jigo / Active / Reputed
11	Hylam Sheet 3mm Thk	01	No	Reputed
12	Spacers 4X35mm	04	Nos	Reputed
13	Product Labels And Identification	01	Lot	Reputed
14	Lugs for Internal Wiring	01	Lot	Reputed
15	Cable 16Sqmm Red & Black	01	Lot	Polycab/RR
16	4 Sqmm Copper Red And Black Cable	01	Lot	Polycab/RR
17	4 Sqmm Yellow/Green Color Earthing Cable	01	Lot	Polycab/RR
18	Carton Packing Box	01	No	Reputed

MOUNTING ACCESSORIES				
SLNO	DESCRIPTION	QTY	UNIT	MAKE
1	CHEESE HEAD M6X45mm WITH PLAIN,SPRING WASHER AND NUT	04	Nos.	REPUTED
2	4 SQMM EARTHING CABLE CRIMPING WITH 4 PIN AND 4 E-8 RING LUGS	1	MTRS	REPUTED

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.

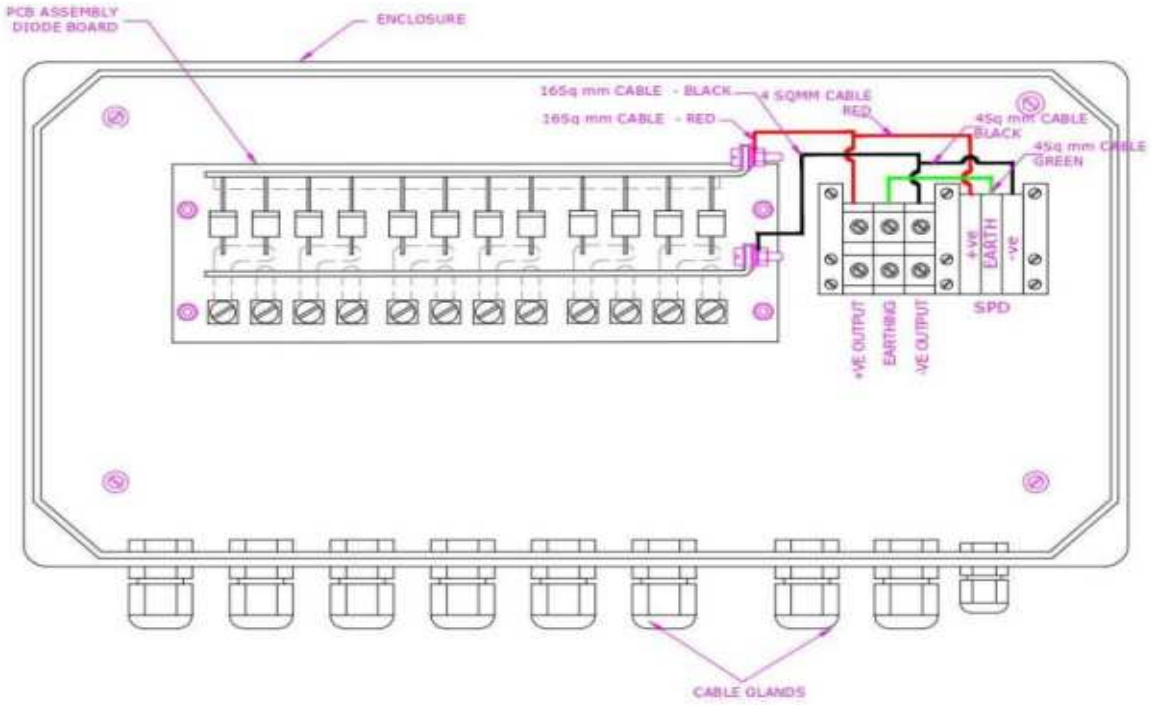
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

AJB 6 INPUT AND 1 OUTPUT WITH SPD

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	RSW	
DATE 27.05.19	DATE 27.05.19	DATE 27.05.19	REV.0
DWG No. F03.03.0231			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	------

AJB 6 INPUT 1 OUTPUT WITH SPD



REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.

CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

AJB 6 INPUT AND 1 OUTPUT WITH SPD

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VIK	RSW	
DATE 27.05.19	DATE 27.05.19	DATE 27.05.19	REV.0
DWG No. F03.03.0231			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	GSR0526

BILL OF MATERIAL 4 INPUT / 1 OUTPUT WITH SPD

SL NO	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	ABS ENCLOSURE WITH TRANSPARENT LID 280X190X130MM	01	NO	TRINITY/FIBOX/REPUTED
2	DIODE PCB BOARD 1000V DC, 20 A REVERSE BLOCKING DIODE WITH NECASSARY BUSBAR ARRANGEMENT	01	NO	REPUTED
3	TERMINAL BLOCK TB10	02	NOS	PHOENIX/REPUTED
4	TERMINAL BLOCK TB6	01	NO	PHOENIX/REPUTED
5	END PLATE	01	NO	PHOENIX/REPUTED
6	END STOPPER	03	NOS	PHOENIX/REPUTED
7	CABLE GLAND PG16	04	NOS	JIGO/ ACTIVE/REPUTED
8	CABLE GLAND PG9	01	NO	JIGO/ ACTIVE/REPUTED
9	CABLE GLAND PG 16	02	NOS	JIGO/ ACTIVE/REPUTED
10	SPD,1000V DC,TYPE II,40kA	01	NO	PHOENIX/REPUTED
11	LUGS FOR INTERNAL WIRING	01	LOT	REPUTED
12	10 SQMM RED & BLACK COLOR CABLE	01	LOT	POLYCAB/RR/REPUTED
13	4 SQMM RED & BLACK COLOR CABLE	01	LOT	POLYCAB/RR/REPUTED
14	4 SQMM YELLOW/GREEN COLOR COPPER CABLE	01	LOT	POLYCAB/RR/REPUTED
15	HYLAM SHEET 3MM THK	01	NO	REPUTED
16	SPACERS 4X35MM	04	NOS	REPUTED
17	MOUNTING HARDWARES AND ACCESSORIES	01	LOT	REPUTED
18	CARTON PACKING BOX	01	NO	REPUTED

MOUNTING ACCESSORIES

SL NO	DESCRIPTION	QTY	UNIT	MAKE
1	CHEESE HEAD M5X45mm WITH PLAIN & SPRING WASHER AND NUT SS304	04	NOS.	REPUTED
1	4SQMM EARTHING YELLOW/GREEN CABLE CRIMPING WITH 4PIN &4-E6 RING LUGES	0.5	MTRS	REPUTED

REV.	DATE	DESCRIPTION	DRAWN	CHDK_1	APPR.

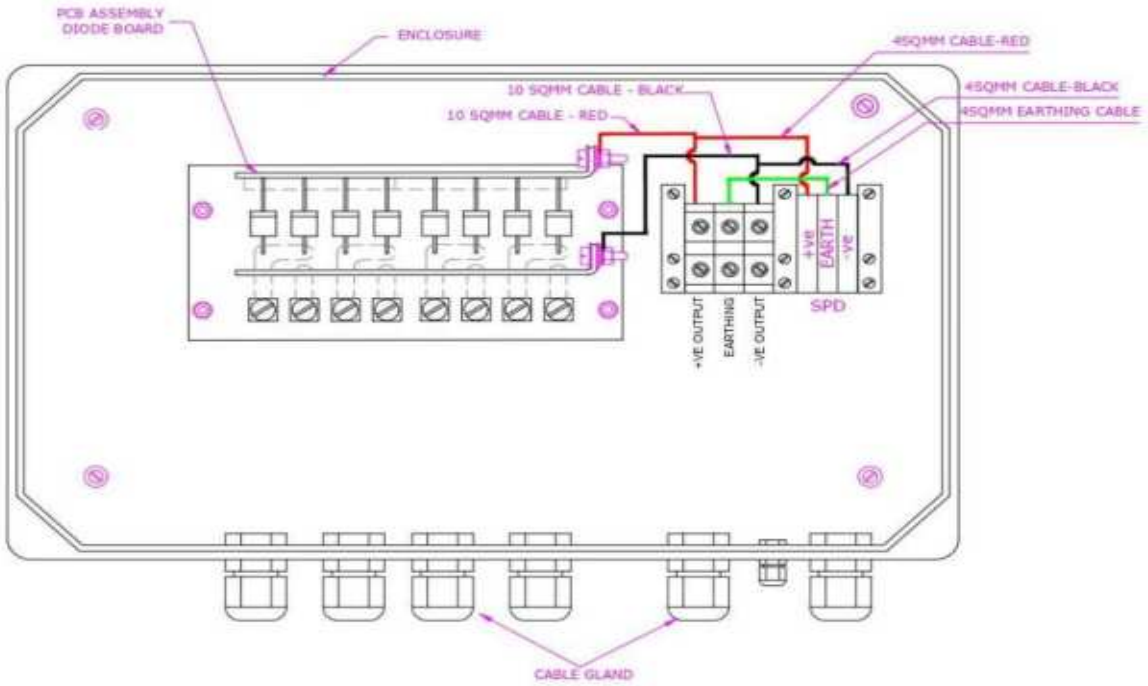
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

AJB 4 INPUT AND 1 OUTPUT WITH SPD

DRAWN	CHKD.	APPR.	SHEET
M.S.S.	RK	RSW	2 OF 2
DATE 22.02.16	DATE 22.02.16	DATE 22.02.16	REV.0
DWG No. GSR-0526			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	GSR0526

AJB 4 INPUT 1 OUTPUT WITH SPD



REV.	DATE	DESCRIPTION	DRAWN	CHDK_1	APPR.

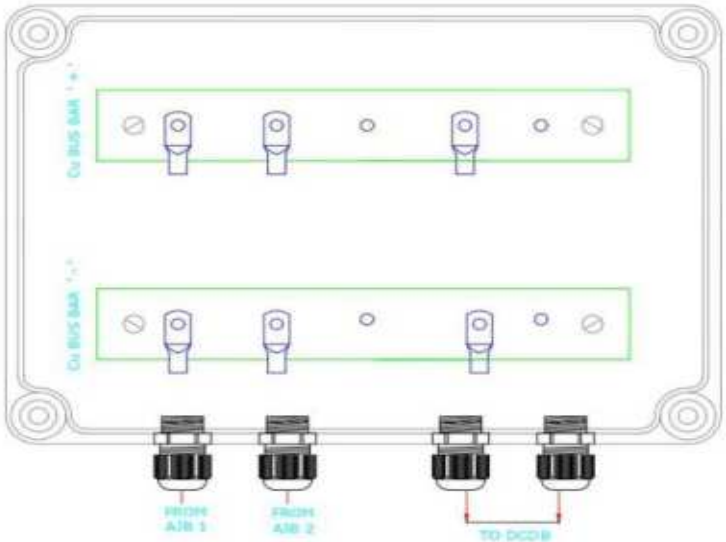
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

AJB 4 INPUT AND 1 OUTPUT WITH SPD

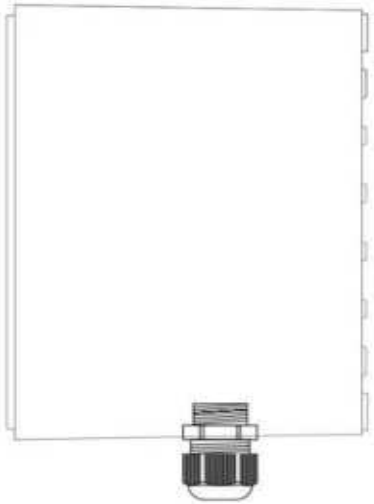
DRAWN	CHKD.	APPR.	SHEET
M.S.S	RK	RSW	1 OF 2
DATE 22.02.16	DATE 22.02.16	DATE 22.02.16	REV 0
DWG No. GSR-0526			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	GSR0530

MJB 2 INPUT 1 OUTPUT



FRONT VIEW



SIDE VIEW

BILL OF MATERIALS

SLNO	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	ABS/PC ENCLOSURE 280x190x130MM	01	NO	FIBOX/TRIBOX
2	TINNED COPPER BUSBAR 200X25x5MM	02	NOS	REPUTED
3	M8X30MM INSULATORS	02	NOS	REPUTED
4	M8X40MM INSULATORS	02	NOS	REPUTED
5	IP65 CABLE GLANDS PG25	04	NOS	JACOB/ ACTIVE/REPUTED
6	RING LUGES 16SQMM E6	04	NOS	REPUTED
7	RING LUGES 25SQMM E6	02	NOS	REPUTED
8	HYLAMSHEET,3MM THCK	01	NO	LAMTUF/REPUTED
9	MOUNTING FASTNERS	01	LOT	REPUTED
10	LABELS	01	LOT	REPUTED
11	PACKING BOX	01	NO	REPUTED

MOUNTING ACCESSORIES

SLNO	DESCRIPTION	QTY	UNIT	MAKE
1	CHEESE HEAD M6x45mm WITH PLAIN WASHER,SPRING WASHER AND NUT SS304	04	Nos.	REPUTED

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPR.

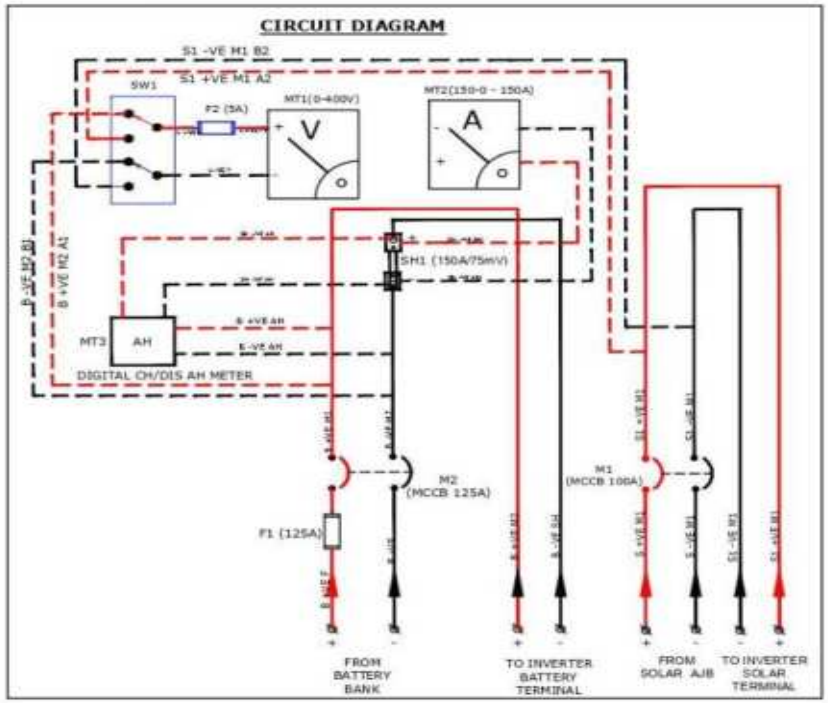
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

MJB 2 INPUT 1 OUTPUT

DRAWN	CHKD.	APPR.	SHEET
M.S.S.	VIK	RSW	1 OF 1
DATE 12.08.15	DATE 12.08.15	DATE 12.08.15	REV.
DWG No. GSR0530			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:

- 15 KW SYSTEM VOLTAGE (240V) :200-400VDC
- —— POWER CABLES
- —— CONTROL CABLES

BILL OF MATERIALS

SL.NO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK 125A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX / REPUTED
4	F2	GLASS FUSELINK 5A, 5X20MM	01	No	PROTECTRON / REPUTED
5	M2	MCB 125A, 2POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
6	M1	MCCB 100A,2/3POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A COS ROTARY SWITCH,2 POLE,2WAY	01	No	SALZER / TELEREGON / REPUTED
8	SH1	SHUNT 150A/75mV	01	No	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-400V, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 150-0-150A, SIZE 96 X96mm	01	No	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 200- 400VDC	01	No	EIC / RISHAB / COUNTRON / REPUTED
12	SOLAR	CABLE GLAND PG19	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 25	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (DPBB) 160A	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	SOLAR & BATTERY	TERMINAL BLOCKS (DPBB) 160A	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
16	---	M8X30MM INSULATOR	01	No	REPUTED
17	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	SD / REPUTED
18	---	CABLES /COPPER BUS BAR • POWER CABLE 25SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
19	---	2.5 SQMM YELLOW/GREEN COLOR EARTHING CABLE	0.2	Mtrs	RR / POLYCAB / REPUTED
20	---	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
21	---	WIRE DUCT,DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
22	---	PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

01	• DIMENSION : 400 X 300 X 175 MM (TYPICAL) • THICKNESS : 1.2 MM • COATING SHADE : RAL 7032(SHADE GREY) • COATING THICKNESS : 60 MICRONS • FINISHING : POWDER COATING • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL :- 1. SITE & CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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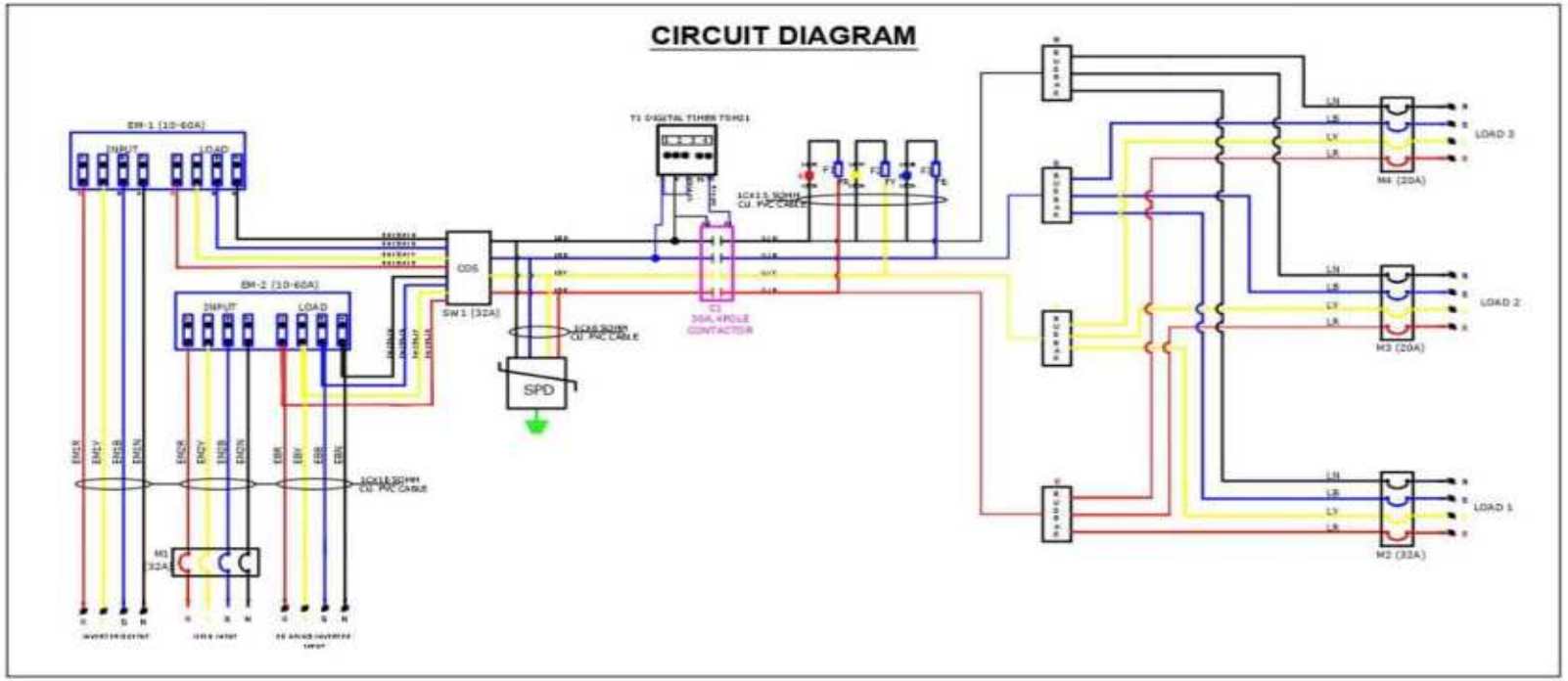
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

DCDB 15KW

DRAWN	CHKD.	APPR.	SHEET
M.S.S	VDK	SRW	1 OF 1
DATE 10.08.21	DATE 10.08.21	DATE 10.08.21	REV.0
DWG No. F03.02.0044			SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	--------

CIRCUIT DIAGRAM



LABEL :- 1. DETAIL CIRCUIT DIAGRAM SHALL BE PASTED ON THE LID
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF BOX OF SUITABLE POWDER COATED METAL CASING. ONE FEEDER PER PHASE SHALL BE PROVIDED IN ACDB WITH MCB OF SUITABLE CAPACITY INSTALLED AT EACH FEEDER IN THE ACDB. ONE ELECTRONIC ENERGY METER, ISI MAKE, SINGLE / THREE PHASE, OF GOOD QUALITY SHALL ALSO BE INSTALLED IN ACDB SUITABLE PLACED TO MEASURE THE CONSUMPTION OF POWER FROM SPV POWER PLANT. PROPER RATING MCB SHALL BE INSTALLED AT EVERY FEEDER (IN CASE OF SINGLE PHASE OUTPUT ALSO, THERE SHALL BE THREE FEEDERS) TO PROTECT FEEDERS FROM THE SHORT CIRCUIT CURRENT AS PER THE REQUIREMENT OF THE SITE & INSTRUCTIONS OF CREDA. A SEPARATE DEDICATED FEEDER FROM CONVENTIONAL/GRID LINE TO PCU AS WELL AS ACDB SHOULD ALSO BE INSTALLED, IF REQUIRED AS PER CREDA'S INSTRUCTION. A SEPARATE CHANGE OVER SWITCH OF PROPER RATING SHOULD ALSO BE SUITABLY INSTALLED IN THE ACDB TO ISOLATE THE EXISTING CONNECTED LOAD FROM THE SOLAR SYSTEM & CATER THE POWER TO THE EXISTING LOAD FROM CONVENTIONAL POWER (GRID), IN CASE OF EMERGENCY. ACDB SHOULD BE CONNECTED BETWEEN PCU & LOAD. SEPARATE ELECTRONIC ENERGY METERS SHOULD BE INSTALLED FOR INCOMING AND OUTGOING CIRCUITS OF ACDB FOR SPVPPS OF CAPACITY MORE THAN 1 KWP.

REV.	DATE	DESCRIPTION	DRAWN	CHKD_1	APPR.
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CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

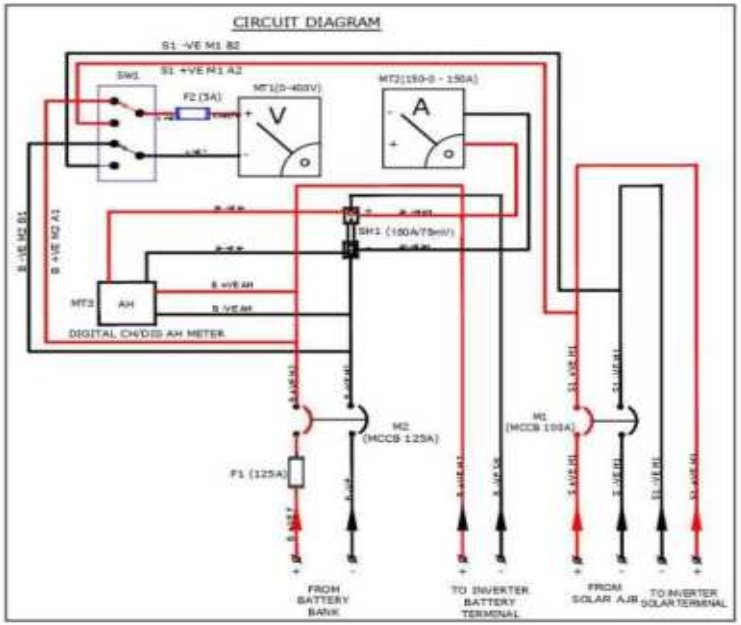
ACDB 20KW WITH DUAL ENERGY METER, TIMER & 3 FEEDERS

DRAWN	CHKD.	APPR.	SHEET
SHARANA	VIK	SRW	1 OF 1
DATE	DATE	DATE	REV.0
12-12-2020	12-12-2020	12-12-2020	

DWG No. F03.01.0679 — SHEET SIZE A4

REFERENCE DRAWINGS	
DWG No.	----------

CIRCUIT DIAGRAM



NOTE:

- 20 KW SYSTEM VOLTAGE (240V) :200-400VDC
- —— POWER CABLES
- ------ CONTROL CABLES

BILL OF MATERIALS

SLNO	CKT REF	ITEM DESCRIPTION	QTY	UNIT	MAKE
1	F1	HRC FUSE BASE 160A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
2	F1	HRC FUSE LINK 125A,DC RATED	01	No	C&S / INDOASIAN / REPUTED
3	F2	FUSE BASE TB-4 WITH END PLATE	01	No	PHOENIX / REPUTED
4	F2	GLASS FUSELINK 5A, 5X20MM	01	No	PROTECTRON / REPUTED
5	M2	MCB 125A, 2POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
6	M1	MCCB 100A,2/3POLE, DC RATED	01	No	C&S / ABB / SCHNEIDER / REPUTED
7	SW1	6A COS ROTARY SWITCH,2 POLE,2WAY	01	No	SALZER / TELERGON / REPUTED
8	SH1	SHUNT 150A/75mV	01	No	EIC / RISHAB / REPUTED
9	MT1	DC ANOLOG VOLT METER 0-400V, SIZE 96 X 96mm	01	No	EIC / RISHAB / REPUTED
10	MT2	DC ANOLOG AMMETER METER 100-0-150A, SIZE 96 X96mm	01	No	EIC / RISHAB / REPUTED
11	MT3	DIGITAL CUMULATIVE CH/DIS AH METER OPERATING VOLTAGE 200 - 400VDC	01	No	EIC / RISHAB / CONTROL / REPUTED
12	SOLAR	CABLE GLAND PG19	04	Nos	JIGO / ACTIVE / REPUTED
13	BATTERY	CABLE GLAND PG 29	04	Nos	JIGO / ACTIVE / REPUTED
14	SOLAR & BATTERY	TERMINAL BLOCKS (DPSB) 150A	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
15	SOLAR & BATTERY	TERMINAL BLOCKS (DPSB) 150A	04	Nos	PHOENIX / ELMEX / WAGO / REPUTED
16	----	MBX30MM INSULATOR	01	No	REPUTED
17	SOLAR & BATTERY	LUGS FOR INTERNAL WIRING	01	LOT	3D / REPUTED
18	----	CABLES /COPPER BUS BAR • POWER CABLE 35 SQMM • CONTROL CABLE 1.5SQMM	01	LOT	RR / POLYCAB / REPUTED
19	----	2.5 SQMM YELLOW/GREEN COLOR EARTHING CABLE	0.2	Mtrs	RR/ POLYCAB / REPUTED
20	----	END CLAMPS	01	LOT	PHOENIX / ELMEX / WAGO / REPUTED
21	----	WIRE DUCT,DIN RAIL CHANNEL,LABELS, MOUNTING ACCESSORIES	01	LOT	REPUTED
22	----	PACKING BOX	01	NO	REPUTED

ENCLOSURE DETAILS

G1	• DIMENSION : 400 (L) X 500 (H) X 175 MM (T) (APPROX.) • THICKNESS : 1.2 MM • COATING (BASE) : RAL 7032(SHADE GREY) • COATING THICKNESS : 60 MICRONS • FINISHING : POWDER COATED • CABLE ENTRY : BOTTOM • MOUNTING : WALL	REPUTED

LABEL : 1. DETAILED CIRCUIT DIAGRAM SHALL BE PASTED ON THE I/D
2. DANGER SYMBOL SHALL BE PASTED ON THE ENCLOSURE

DESCRIPTION

THIS SHALL CONSIST OF SUITABLE POWDER COATED METAL CASING. IN THIS BOX A SEPARATE ARRANGEMENT WHICH SHALL CONSIST OF MCCBS OF SUITABLE SPECIFICATIONS & WHICH CAN WITHSTAND RESPECTIVE FLOW OF CURRENT, WITH THE PURPOSE OF PROVIDING THE OPTION FOR ISOLATING THE BATTERY BANK & SPV ARRAYS SHOULD BE MADE. THERE SHALL BE COPPER BUS BARS OF SUITABLE RATING. PROPER RATING HRC FUSE & MCCB/ISOLATOR FOR DC APPLICATION SHOULD BE SUITABLY INSTALLED IN DCDB AS BATTERY BANK ISOLATOR. BEST QUALITY AH METER HAS TO BE INSTALLED TO MEASURE THE CUMULATIVE CHARGING & DISCHARGING STATUS OF BATTERY BANK.

REV.	DATE	DESCRIPTION
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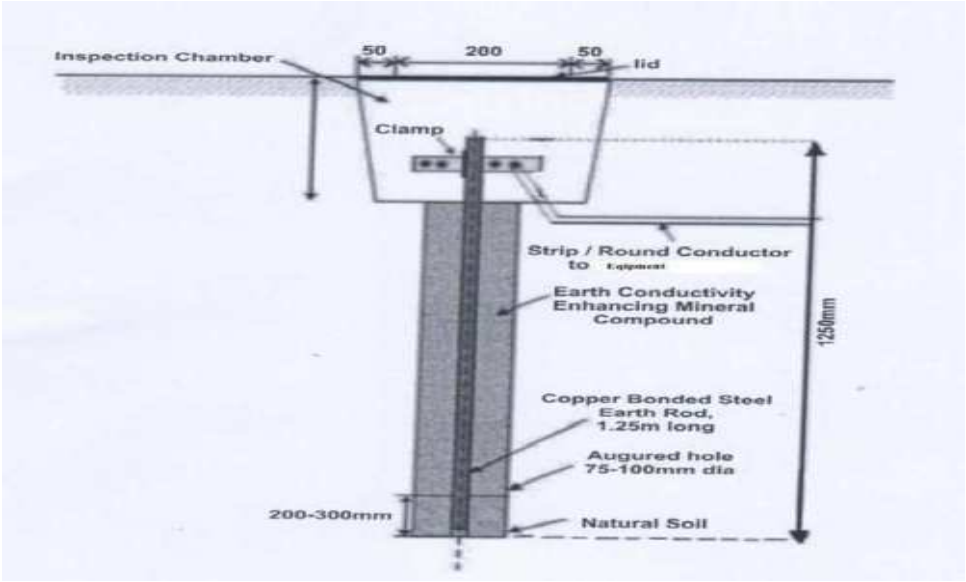
CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)

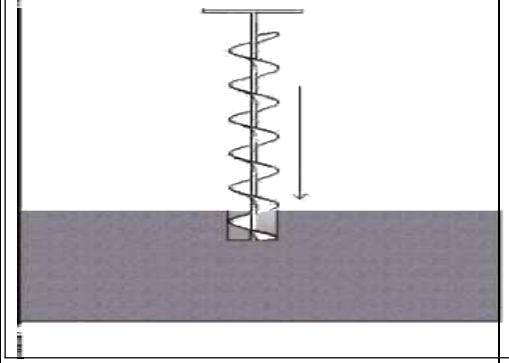
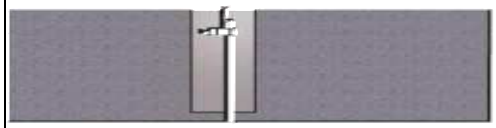
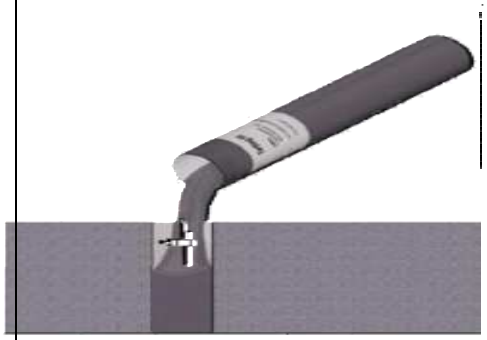
DCDB 20KW CREDA

DRAWN	CHKD.	APPR.	SHEET
SHARANA	M.S.S	SRW	1 OF 2
DATE 12-12-2020	DATE 12-12-2020	DATE 12-12-2020	REV.0
DWG No.F03.02.0092			SHEET SIZE A4

EARTHIG KIT



EARTHING KIT & ISTALLATION DETAILS

STAGE 1	STAGE 2	STAGE 3
		

ANNEXURE – V

Technical BID

e-Tender No:		
S.no	**Description**	**To be furnished by the Contractor/Bidder**
A.	**Solar PV Module**	
1	Type of Module: Crystalline/multi-crystalline	
2	Manufacturer	
3	Max power at STC P_{max} (W)	
4	Voltage at Max power Vmp (V)	
5	Current at Max power Imp(A)	
6	Open circuit voltage Voc (V)	
7	Short circuit current Isc (A)	
8	Module efficiency	
9	Rated capacity of SPV panels at STC	
10	Fill factor	
B.	**Battery**	
1	Manufacturer	
2	Type	
3	Capacity of Battery at C10	
4	Max DOD	
5	Charge efficiency	
C	**Battery Rack/Trolley**	
1	Manufacturer	
2	Material	
D	**AC Off-grid Solar Power Conditioning Unit**	
1	Manufacturer :	
2	Operating voltage (DC)	
3	Operating voltage AC (pure sine wave)	
4	THD	
5	Details of Indicators provided	
6	Details of Protections provided	
	i. Battery Over charge set value	
	ii. Deep discharge set value	
	iii. Short Circuit	
	iv. Open Circuit	
	v. Reverse polarity	
	vi. Reverse current	
	vii. Others	

Seal & Signature of Bidder

Important Note:-

Bidder shall have to submit the technical details for each capacity of systems. In case of the use of component of other make prior approval must be taken by CREDA before supply and installation of systems.

ANNEXURE – VI

e-Price Bid
e-Price Bid (For supply, installation, Commissioning &Testing of SPVPP)

Schedule of Rates for SPV Power Plant
(e-bidding as per Specifications & Scope of Work of
BID DOCUMENT No. 105486/CREDA/ SPV-PP/2022-23 Dated-29.07.2022)

Rates for the Design, Supply, Installation, Commissioning of Solar Photovoltaic power plant with off-grid PCU with five years CMC, unconditional onsite warrantee for anywhere in the State of Chhattisgarh as per scope of work, technical requirement, specifications & terms and conditions etc of the tender.

Price Bid Part A

Item Code	**Category**	**Details of solar power plant with LFP battery bank)**	**Rate for supply of material for solar power plant including Module, battery, off-grid Inverter ,Structure, PCU, Structure Earthing, LA and other complete BOS material (Excluding GST& CMC) (In.Rs)**	**Rate for complete installation and commissioning of solar power plant (Excluding GST) (In Rs.)**	**Total Price (Excluding GST) (In Rs.)**	**Rate of 05 Years' CMC during the warranty period (Excluding GST) (In Rs.)**
		Module cap./Battery Bank Cap./Battery Bank Voltage	A	B	C=A+B	D
A1	Category - I	600W/138AH/24V				
A2		1200W/138AH/48V				
A3		2400W/228AH/48V				
A4		3000W/270AH/48V				
A5		3600W/270AH/48V				
A6		4800W/228AH/96V				
A7		6000W/270AH/96V				
A8		7200W/378AH/96V				
A9		9000W/ 378AH/ 144V				
A10		10500W/ 378AH/ 144V				
A11		12000W/378AH/144V				
A12	Category - II	15000W/228AH/240V				
A13		18000W/270AH/240V				
A14		21000W/300AH/240V				
A15		24000W/378AH/240V				
A16		30000W/378AH/240V				

Certified that rate quoted above are as per the requirement, specification and terms & condition mentioned in the bid document.

Above rates are FOR anywhere in the State of Chhattisgarh inclusive of roadworthy packing,

loading, unloading, all types of incidental expenses, insurance, duties and any other job required to properly execute the work with 5 years warrantee, as mentioned in the Bid document. (Above rates applicable for Solar Power Plant system as per MNRE and CREDA Specifications stated in Bid document (Page 27-41)). The GST payable on the bill produced for payment to CREDA shall be paid in addition to above quoted price as per rate of GST applicable at the time of billing.
(No other cost will be claimed other than above quotes price & the applicable GST)

Signature of the Authorized Signatory:.....

Seal of Company: .....
Date: .....

ANNEXURE – VI

Price Bid Part B

Item Code	Category	Details of solar power plant with LMLA battery bank	Rate for supply of material for solar power plant including Module, battery, off-grid Inverter ,Structure, PCU, Structure Earthing, LA and other complete BOS material (Excluding GST & CMC) (In.Rs)	Rate for complete installation and commissioning of solar power plant (Excluding GST) (In Rs.)	Total Price (Excluding GST) (In Rs.)	Rate of 05 Years' CMC during the warranty period (Excluding GST) (In Rs.)
		Module cap./Battery Bank Cap./Battery Bank Voltage	**A**	**B**	**C=A+B**	**D**
B1	**Category - I**	600W/180AH/24V (12V cell allowed)				
B2		1200W/180AH/48V (12V cell allowed)				
B3		2400W/300AH/48V				
B4		3000W/400AH/48V				
B5		3600W/400AH/48V				
B6		4800W/300AH/96V				
B7		6000W/400AH/96V				
B8		7200W/600AH/96V				
B9		9000W/600AH/120V				
B10		10500W/600AH/120V				
B11		12000W/600AH/120V				
B12	**Category - II**	15000W/300AH/240V				
B13		18000W/400AH/240V				
B14		21000W/400AH/240V				
B15		24000W/600AH/240V				
B16		30000W/600AH/240V				
B17		36000W/900AH/240V				
B18		48000W/1000AH/240V				
B19		51000W/1000AH/240V				

Certified that rate quoted above are as per the requirement, specification and terms & condition mentioned in the bid document.

Above rates are FOR anywhere in the State of Chhattisgarh inclusive of roadworthy packing, loading, unloading, all types of incidental expenses, insurance, duties and any other job required to properly execute the work with 5 years warrantee, as mentioned in the Bid document. (Above rates applicable for Solar Power Plant system as per MNRE and CREDA Specifications stated in Bid document (Page 27-41)). The GST payable on the bill produced for payment to CREDA shall be paid

in addition to above quoted price as per rate of GST applicable at the time of billing.
(No other cost will be claimed other than above quotes price & the applicable GST)

Signature of the Authorized Signatory:.....

Seal of Company: .....
Date: .....

ANNEXURE – VI

Price Bid Part C

Item Code	Category	Details of solar power plant with T-Gel battery bank	Rate for supply of material for solar power plant including Module, battery, off-grid Inverter ,Structure, PCU, Structure Earthing, LA and other complete BOS material (Excluding GST & CMC) (In.Rs)	Rate for complete installation and commissioning of solar power plant (Excluding GST) (In Rs.)	Total Price (Excluding GST) (In Rs.)	Rate of 05 Years' CMC during the warranty period (Excluding GST) (In Rs.)
		Module cap./Battery Bank Cap./Battery Bank Voltage	**A**	**B**	**C=A +B**	**D**
C1	**Category - I**	600W/180AH/24V (12V cell allowed)				
C2		1200W/180AH/48V (12V cell allowed)				
C3		2400W/300AH/48V				
C4		3000W/400AH/48V				
C5		3600W/400AH/48V				
C6		4800W/300AH/96V				
C7		6000W/400AH/96V				
C8		7200W/600AH/96V				
C9		9000W/600AH/120V				
C10		10500W/600AH/120V				
C11		12000W/600AH/120V				
C12	**Category - II**	15000W/300AH/240V				
C13		18000W/400AH/240V				
C14		21000W/400AH/240V				
C15		24000W/600AH/240V				
C16		30000W/600AH/240V				
C17		36000W/900AH/240V				
C18		48000W/1000AH/240V				
C19		51000W/1000AH/240V				

Certified that rate quoted above are as per the requirement, specification and terms &condition mentioned in the bid document.

Above rates are FOR anywhere in the State of Chhattisgarh inclusive of roadworthy packing,

loading, unloading, all types of incidental expenses, insurance, duties and any other job required to properly execute the work with 5 years warrantee, as mentioned in the Bid document. (Above rates applicable for Solar Power Plant system as per MNRE and CREDA Specifications stated in Bid document (Page 27-41)). The GST payable on the bill produced for payment to CREDA shall be paid in addition to above quoted price as per rate of GST applicable at the time of billing.
(No other cost will be claimed other than above quotes price & the applicable GST.)

Signature of the Authorized Signatory:.....

Seal of Company: .....
Date: .....

ANNEXURE – VI

Price Bid Part D

S no	Details	Rate for supply of material for module mounting structure Excluding GST(InRs) Per Kg	Rate for complete installation and commissioning of module mounting structure Excluding GST (In Rs) Per Kg	Total Price (In Rs. Per kg) ExcludingGST
	Module Mounting Structure for SPVPP	**A**	**B**	**C=A+B**
D1	Roof Top Mounted Hot dip Galvanized MMS 80 MIC.			
D2	Parking Shed type Galvanized MMS 80 MIC.			

Above rates are FOR anywhere in the State of Chhattisgarh inclusive of roadworthy packing, loading, unloading, all types of incidental expenses, 5 years warrantee, insurance and COM as mentioned in the Bid document. Above rates applicable for Module Mounting Structure for each category as per MNRE and CREDA Specifications stated in Bid document (Page 27-41). The GST payable on the bill produced for payment to CREDA shall be paid in addition to above quoted price as per rate of GST applicable at the time of billing.

(No other cost will be claimed other than above quotes price & the applicable GST.)

Signature of the Authorized Signatory:.....

Seal of Company: .....

Date: .....

ANNEXURE – VII

CREDA Logo to be pasted on SPV modules of Solar Power Plant System

ANNEXURE – VIII

DRAFT AGREEMENT

CONTRACT AGREEMENT BETWEEN Chief Engineer Chhattisgarh State Renewable Energy Development Agency (**CREDA**) Raipur AND**M/s……..…** Represented by**……..……** THIS CONTRACT AGREEMENT against **Bid DOCUMENT No. 105486/CREDA/SPV-PP/2022-23 Dated-29.07.2022** (also referred to as "Service Contract") is made on the day of ……2022.

BETWEEN

1. Chief Engineer Chhattisgarh State Renewable Energy Development Agency (**CREDA**) Raipur a society incorporated under the laws Society Registration Act 1973 , (1973 , Sr. No. 44) (with amendment from time to time) and having its Registered Office at VIP Road Near Energy Education Park, Village-Fundhar, Raipur and (hereinafter called "The Employer" and also referred to as "CREDA")

And

2. **…….**Represented by **…….**a company incorporated under the laws of Companies Act 1956/2013/ Partnership firm/ Proprietorship firm/Consortium (as applicable**,** with amendment from time to time) and having its Principal place of business at **……**and Registered Office at**……**hereinafter called "The Contractor" and also referred to as "……..**"**

Whereas the contractor has offered to enter into contract with the said CREDA for the Supply, Design, Installation, and Commissioning of Solar Photovoltaic power plant with LMLA, T-GEL& Lithium Ferro Phosphate (LFP) battery bank with off-grid PCU of capacity ranging from 600w to 51kw with five years CMC, unconditional onsite warrantee for anywhere in the State of Chhattisgarh.

Vide **BID DOCUMENT No. 105486/CREDA/ SPV-PP/2022-23 Dated-29.07.2022**on the terms and conditions herein contained and the rates approved by the CREDA (Letter No. …….. dated……. annexed here to)have been duly accepted and where as the necessary security deposit shall be furnished in accordance with the provisions of the Bid document and whereas no interest will be claimed on the security deposits.

Now these presents witness and it is hereby agreed and declared by and between parties to these presents as follows -

1) The Contractor shall during the period of this contract, that is to say from…….To…….or completion there of, until this Contract shall be determined by such notice as is hereinafter mentioned, safely carryout, by means of labours employed at his own expenses and by means of tools, implements and equipment etc. to be supplied by him to his labour at his own expenses, for installation of "**Solar power plant**" as described in Bid documents. (Annexed to the agreement).
2) The NIT (Notice Inviting Bid), Corrigendum to NIT, Notices, Bid documents (Qualifying, Technical and Financial), approved rates annexed hereto and such other additional particulars, undertaking, instructions, general conditions of contract, Scope of work, Technical specifications of Solar SPVPP Systems and Annexure therein, engineering documents, detailed specifications of BOS & drawings, so far they relate to the Bid DOCUMENT No. 105486/CREDA/SPV-PP/2022-23 Dated-29.07.2022 as may be found requisite to be given during execution of the work shall be deemed and taken to be an integral part of the contract and shall also be deemed to be included in the expression "The Agreement or "The Contract "wherever here in used.
3) The contractor shall also supply the requisite number of workmen with means &materials as well as tools, appliances, machines, implements, vehicles for transportation, cartage etc.

required for the proper execution of work within the time prescribed in the work orders and /or as per the Bid conditions.

4) The Engineer in Charge or his authorized representative (s) shall be entitled at all reasonable times to inspect and supervise and test during installation and commissioning. Such inspection will not relieve the eligible SI from their obligations under this contract.

5) Material can be inspected before dispatch or in transit by the authorized representatives of CREDA at the factory at the cost of the eligible SI, if desired by CREDA. CREDA reserves right to inspect the material at Godowns / Temporary Stores before dispatch and also at works sites.

6) CREDA shall deduct TDS for Income Tax, applicable cess on Civil Work etc. under various acts and deposited with the appropriate authority. Costs and taxes before execution of agreement with CREDA so as to ensure tax deposition as per Government Rules accordingly.

7) ELIGIBLE SYSTEM INTEGRATOR'S LIABILITY IN CASE OF DEFAULT-

CREDA may by written notice of default to the eligible SI, terminate the contract in circumstances detailed hereunder -

a. If in the opinion of the CREDA, the eligible SI fails to complete the work within the time specified in the Work Order or within the period for which extension has been granted by CREDA to the eligible SI.

b. If in the opinion of CREDA, the eligible SI fails to comply with any of the provisions of this contract.

c. In the event of CREDA terminating the contract in whole or in part as provided in paragraph (a) above, CREDA reserves the right to engage another eligible SI or agency upon such terms and in such a manner as it may deem appropriate and the eligible SI shall be liable to CREDA for any additional costs or any losses caused to CREDA as may be required for the completion of erection of the SPV Power Plant and or for penalty as defined under this Bid document until such reasonable time as may be required for the final completion of the work. CREDA may debar such a defaulter SI for up to three years from taking participation in taking part in all activities of CREDA.

d. In the event CREDA does not terminate the contract as provided in paragraph (a) the eligible SI shall continue performance of the contract, in which case he shall be liable to CREDA for penalty for delay as set out in clause 16 until the work is completed.

8) FORCE MAJEURE-

The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE such as of God, acts of public, enemy, LWE problems, acts of government, cyclone, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that if SI shall submit delay notice with appropriate cause of delay to the CREDA in writing within **15 days** of force majeure. CREDA shall verify the facts and may grant such extension as facts justify. Delay in supply of any accessories of Solar power plants etc. by the related vendors, to whom the Bidder has placed order, shall also not be treated as force majeure.

9) REJECTION OF WORKS -

In the event of any of the material supplied/work done by the eligible SI is found defective in material or workman ship or otherwise not in conformity with the requirements of this contract specifications, CREDA shall either reject the material and/or work and advise the eligible SI to rectify the same. **CREDA may impose penalty for such rejection up to the 200% cost of the entire system. Habitual/repeated offenders shall be black listed/debarred to participate in the any Bid/ Activity of CREDA till further orders.** The eligible SI on receipt of such notices shall rectify or replace the defective material and rectify the work free of cost. If the eligible SI fails to do so CREDA may-

a. At its option replace or rectify such defective materials and/or work and recover the extra cost so involved from the eligible SI plus **15%** service charges of the cost of such rectification, from the eligible SI and/ or terminate the contract for balance work/ supplies with enforcement of penalty **as stated above**.

b. Defective materials/workmanship will not be accepted under any conditions and shall be rejected outright without compensation. The eligible SI shall be liable for any loss/damage sustained by CREDA due to defective work **with enforcement of penalty as stated above**.

10) EXTENSION OF THE TIME-

If the completion of installation is delayed due to any reason beyond the control of the eligible SI, the eligible SI shall without delay give notice to the CREDA in writing of his claim for an extension of time. CREDA on receipt of such notice may or may not agree to extend the contract/delivery date of the SPV Power Plant as may be reasonable but without prejudice to other terms and conditions of the contract.

Chief Executive Officer, CREDA has full right for unconditional time extension.

11) PENALTY FOR DELAY IN COMPLETION OF CONTRACT-

a. If the eligible SI fails to complete the assigned work within the schedule time specified in the Work Order or any extension granted there to, CREDA will recover from the SI as penalty of upto **Two percent (2%)** per month of the system price excluding GST for every delayed system. For this purpose, the date of taking over shall be reckoned as the date of completion. The total penalty shall not exceed **5% (Five Percent)** of the cost. The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE

b. Review of the progress of installation of Solar Power Plant allocated to SIs shall be done time to time by CREDA and if the progress of installation is found unsatisfactory, the allocation of entire remaining uninstalled system or their part of can be re-allocated to other SI as per discretion of CREDA

12) PENALTY DUE FROM THE ELIGIBLE SI-

All costs of damages and delays for which the eligible SI is liable to the CREDA will be deducted from any money due to the eligible SI including the security deposit of any project under CREDA.

13) RESPONSIBILITY OF ELIGIBLE SI'S -

Notwithstanding anything mentioned in the specifications of subsequent approval or acceptance of the SPV Power Plant by CREDA, if any, the ultimate responsibility for satisfactory performance of the entrusted work shall rest with the eligible SI. If in any case the eligible SI does not complete the work as per the Work Orders issued to them then CREDA may take over the task & complete the project at the risk and cost of eligible SI.

14) RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE-

If any loss or damage occurs to the work or any part thereof or materials/plant/equipment's for incorporation therein the period for which the eligible SI is responsible for the cause thereof or from any cause whatsoever, the eligible SI shall at his own cost rectify/replace such loss or damage, so that the permanent work confirms in every respect with the provision of the contract to the satisfaction of the Engineer. The eligible SI shall also be liable for any loss or damage to the work/equipment's occasioned by him in course of any operation carried out to him during performing the contract.

15) RESPONSIBILITY TOWARDS THE WORKMAN OR OUT SIDERS-

a. The eligible SI shall have to take insurance coverage from any authorized Insurance

Company against Workmen compensation due under Workmen Compensation Act and submit copy of the insurance document before issuance of Work Order.

b. The eligible SI shall ensure all safety measures during execution and repairs of the work. CREDA, will, in no case be responsible for any accident fatal or non-fatal, caused to any workman or outsider in course of transport or execution or repairs of work.

c. All the expenditure including treatment or compensation will be entirely borne by the eligible SIs. The eligible SI shall also be responsible for any claims of the workers including PF, Gratuity, ESI & other legal obligations.

d. CREDA shall have all rights to deduct such claims of payments from SI in case of complaints of such violations.

16) Contractor shall provide 05 years warranty in installed solar SPVPP from the date of commissioning as per the terms & conditions prescribed in the ***BID DOCUMENT No. 105486/CREDA/ SPV-PP/2022-23 Dated-29.07.2022***.

17) **DECLARATION OF CONFLICT OF INTEREST -**

a. Any regular employee working or worked on basis of contract or through placement agency cannot work directly or indirectly in any scheme of CREDA. If such a person is found working with any SI or through sublet then, such SI shall be blacklisted for three years.

b. The bidder shall not be permitted to Bid for the work if the section of HO CREDA (responsible for implementation of work) in which his near relative is posted. Furthermore, the successful bidder shall not be given work in the district in which his near relative is posted. The bidder shall also intimate the names of his near relatives working in CREDA. Bidder shall also intimate the name of persons who are working with him in any capacity and who are near relatives to any employee in CREDA. Any breach of this condition by SI would render himself liable to be blacklisted for three years and removed from approved list of SIs in CREDA.

Note:- By the term near relatives are meant Wife, Husband, Parents and son, Brother, Sister, Brother-in-law, Father-in-law, and Mother-in-law etc.

c. Bidder must produce an affidavit (**Annexure – III**) stating the names of retired/removed employee of CREDA (if any) in his employment who retired /removed within last two years, if in case there is no such person in his employment, his affidavit should clearly state this fact. This affidavit is mandatory, if it is not produced along with the bid, the bid shall be rejected.

18) The contractor shall arrange insurance coverage for the materials and SPV power plants at his/ beneficiary's custody for the work under execution and successful commissioning and subsequent handover to the beneficiary. The contractor shall take up insurance or such other measures for the manpower so as to cover the claim for damage arising under workmen's compensation Act and other applicable State/ Central laws. CREDA shall not bear any responsibility on this account.

Contractor shall arrange for insurance coverage for SPV power plants and module during CMC period i.e. for 05 years from the date of installation. Insurance should cover for damage and theft. In case of such incidence, SI must replace the lost/damaged part within 7 days.

19) The contractor shall abide by the terms and conditions, rules, guidelines, construction practices, safety precautions etc. stipulated in the Bid document including any correspondence between the contractor and the **CREDA** having bearing on execution of work and payments of work to be done under the contract.

20) The contractor shall be responsible to follow all the laws including Workmen Compensation Act and all other laws in force & shall be responsible for all the obligations towards labour including EPF, ESI, etc.

21) All the taxes deductible at source as per Acts in vogue shall be recovered by **CREDA** and deposited with the appropriate authorities

22) Contractor agrees to abide by any decision/instruction passed by the appropriate authority under Anti-profiteering rules notified by the state/central government under GST act.

23) Any dispute arising out of the contract shall be subject to the jurisdiction of Hon'ble High Court of Chhattisgarh.

"Herewith everything and anything contained in Bid document no. 105486/CREDA/SPV-PP/2022-23 dated: 29.07.2022 is part of this agreement which has been dully signed by both bidder and authorized signatory of CREDA".

In witness whereof the parties present today has hereby entered into agreement.

Signed & sealed on behalf of the above

Name of contractor **Signed on behalf of CREDA**

Name: Name:

Designation: Designation:

Witness:

1. Name:-…….. 2.Name:……

Address:-……..… Address:……

ANNEXURE – IX

Ref. Bid Document No.:_____.

DECLARATION FOR USING SAME MAKE OF EQUIPMENTS AS PER THE TEST CERTIFICATE

From:

M/s_____
_____
_____
_____

Sub: Declaration for using same make of equipment's as per the test certificate

We are agreeing to accept that the same make of solar panels, battery, inverter, controller, ACDB, DCDB, AJB, MJB for which the test report is to be submitted under this Bid to CREDA, is as per Guidelines and Procedures mentioned in the bid and will be supplied by us. We declare to procure the components mentioned above only from the Vendors registered with CREDA.
Incase if some different make of panels, battery, inverter, controller, ACDB, DCDB, AJB, MJB will be supplied during the implementation or CMC period, we will submit the test report for that particular make component(s).We also agree that such test reports shall be issued by the National Institute of Solar Energy and any other lab accredited by NABL for testing of solar PV power plant system as per MNRE specifications and testing procedure.

Name of Authorized Signatory

Signature of suppliers
(With stamp)

ANNEXURE – X

CERTIFICATE OF QUARTERLY VISITS

(To be submitted by SI during CMC period)

(From …….. To ……)

This is to certified that we have extended preventive / routine maintenance and breakdown / corrective maintenance services for the solar power plant system installed under SPV POWER PLANT scheme as per beneficiary list attached of District _____ and that the preventive / routine maintenance and breakdown /corrective maintenance work during the period (from _____ to_____) of the year _____ has been done properly to ensure functionality of the systems as specified in the Tender terms & conditions and agreement.
This is also to certify that ..... nos of systems are working satisfactorily out of..... nos of total installed systems. The record of preventive / routine maintenance and breakdown / corrective maintenance work carried out by us is kept in our record at our service station.

Signature, Name, Designation and Seal of System Integrator

Date : ……
Place : ……

Signature, Name, Designation and Seal of District In-charge of CREDA

SCHEDULE - I
PART 'A': GENERAL INFORMATION

(Strike off whichever is not applicable. Separate sheets should be used, wherever necessary)

01. Name & Address of the Bidder :

02. Name & Address of the firm/Company etc. :

a) Registered office :

b) Factory/works address :

c) Fax Nos. :

d) Telephone /Mobile Nos. :

e) Email id :

03. Confirm whether Bidder is Manufacturer : Yes/No

04. Only manufacturer to give following particulars

a) Address of factory :

b) Year of starting manufacture :

c) Whether same/similar materials Manufactured earlier (if yes, give reference) :

d) Yearly/monthly production capacity :

e) Maximum yearly production Achieved so far :

05. Whether the firm is SSI Unit of Chhattisgarh State : Yes/No

a) If yes, write registration No. :

b) Whether documentary evidence Regarding registration enclosed :

c) Items for registration :

d) Period of registration :

e) Whether latest copy Competency/ Certificate furnished : Yes/No

06. Whether the firm is 100% owned by

a) State Government : Yes/No

b) Central Government : Yes/No

If yes, Notification/certificate issued from : Yes/No

The competent authority to this effect is enclosed

a) Whether the bidder is old participant with CREDA : Yes/No

b) If yes, whether documentary Evidence is enclosed. : Yes/No

07. Any other information that bidder may like to give in order to highlight his bid If yes, give details : Yes/No

PLACE: **SIGNATURE OF BIDDER**

NAME IN FULL

DATE: DESIGNATION/STATUS

FIRM/COMPANY SEAL

SCHEDULE - II

PART 'B': COMMERCIAL INFORMATION

(Strike off, whichever is not applicable. Separate sheets should be used. Wherever necessary)

01. i) Earnest Money Details : Bank draft/Bankers cheque payable to "CREDA", Raipur

ii) Amount of E.M.D. & full details : .....

02. Whether the offer is valid for 6months : Yes/No
from the date of opening of commercial/technical bid.

03. Rate of Sales Tax on the date of bid :(exclusive in the rate quoted)

04. **DISCOUNT**:

a) Whether any rebate/discount is offered. : Yes/No

b) If yes, whether the rebate is unconditional/conditional : Yes/No
Rate/amount of rebate/discount

c) If conditional State condition : Yes/No

05. **PAYMENTTERMS**:
Whether CREDA's terms of payment is acceptable to Bidder : Yes/No

06. **COMPLETION PERIOD OF WORK**:
Whether Bidder is agreeing for completion period of work as Specified in the Bid : Yes/No

07. **PENALTY CLAUSE**:
Whether agreeable to CREDA's Penalty Clause : Yes/No

08. Whether agreeable to CREDA's clause of warrantee period : Yes/No

09. **SECURITY DEPOSIT**:
Whether Security Deposit clause is understood : Yes/No

10. Indicate State, Central Sales Tax Registration Number State : Yes/No
Central: (Please Note that in case of non-registration with Commercial Tax, Department Purchase Tax as admissible shall be deducted by the Purchaser from the Bills of the supplier)

11. Please mention whether rates offered are applicable for part quantities. : Yes/No

PLACE:

SIGNATURE OF BIDDER

DATE:

NAME INFULL

DESIGNATION/STATUS

FIRM/COMPANY SEAL

SCHEDULE -III

PART 'C': TECHNICAL INFORMATION

(Strike off whichever is not applicable. Separate sheets should be used. Wherever necessary)

01. Whether material offered is exactly as per technical specification : Yes/No

02. Whether the copies of completion certificate received during last 3 years from other State Nodal Agency or from other Organization for Solar SPVPP systems (if yes, give details) enclosed. : Yes/No

03. Whether pamphlets/technical details literatures along with drawing etc. furnished with the offer (if yes, give details) : Yes/No

04. Whether the Bidder agrees to furnish material test certificates in respect of chemical composition and physical properties from Govt./ Govt. approved lab with each batch of supplies. : Yes/No

05. Whether the Bidder has furnished details of manufacturing equipment and short history of plant (if yes, give details) : Yes/No

06. Whether details of manufacturing process furnished with offer. (if yes, give details) : Yes/No

07. Whether all testing facilities are available. : Yes/No
If so, give details and in case of non-availability of facilities indicate approved lab available in surrounding areas where tests are proposed to be conducted.

PLACE

DATE

SIGNATURE OFBIDDER

NAME INFULL

DESIGNATION/STATUS

FIRM/COMPANY

SEAL

SCHEDULE -IV

TECHNICAL DEVIATIONS

From,

Bidder Name & Address -

To,

The CE,

CREDA, HO,

Raipur

Sub – Technical Deviations.

Dear Sir,

01. The technical deviations & variations to the specifications stipulated in the Bid, for the item quoted are as under -

Sl. No.	Condition	Clause No. of Tender Document	Page No. of Tender Document	Statement of deviations and variations

02. Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and other conditions. Variation/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the Bid.

PLACE **SIGNATURE OFBIDDER**

DATE NAME INFULL

DESIGNATION/STATUS FIRM/COMPANY SEAL

NOTE - Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this schedule.

SITE CLEARANCE CERTIFICATE

FORM - A

1. Name of Site :-…….

2. Name of Beneficiary:-…….

3. Capacity in Watt & Type of Solar Power plant:-…….

4. Layout of site indicating location of SPV modules/ Collector& Control Room :-…….

5. Size of Control Room available :-…….

6. Available shadow free space selected for installation of SPV modules :-…….M^2

7. Load details and comment on connectivity with grid and load :-…….

8. Name of beneficiary's contact person & his mobile no. who shall be responsible for installation & Commissioning of Solar Power Plant :-…….

9. Electricity bill of site of current month is enclosed:-…….

It is hereby certified that site is technically clear for installation.

Beneficiary/Sarpanch Surveyor/Representative of Company

(Signature & Seal) (Signature & Seal)

Assistant Engineer/District Incharge
CREDA, District Office
(Signature & Seal)

Plan of Site

FORM - B

Village/Site:-……

Block:-……

District:-…… Date:-……

PLAN FOR IDENTFIED SITE

Note:-All distance mentioned should be in meters directions of mention for MP.

Assistant Engineer/District Incharge Surveyor/Representative of CREDA, District Office
Company

(Signature & Seal) (Signature & Seal)

END