

भारत सरकार / Government of India  
परमाणु ऊर्जा विभाग / Department of Atomic Energy  
भाभा परमाणु अनुसंधान केन्द्र / Bhabha Atomic Research Centre  
प्रभाग/ Machine Production Division

डाक बैग संख्या-1, येलवाल, मैसूर-571 130/ Post Bag no. 1. Yelwal, Mysore 571 130  
दूरभाष/Telephone : 0821-2406473/6564 फैक्स/Fax : 0821-240 3064

दिनांक/Date: 30/08/2017

निविदा आमंत्रण सूचना/ NOTICE INVITING TENDER

भारत के राष्ट्रपति की ओर से मुख्य / अधीक्षक अभियंता, भापअके, मैसूर, अनुभवी तथा वित्तीय एवं तकनीकी क्षमता संपन्न ठेकेदारों से निम्नलिखित कार्य के लिए मुहरबंद मद दर निविदाएँ आमंत्रित करते हैं :

The Chief Engineer/Superintending Engineer, Bhabha Atomic Research Centre, Mysore invites on behalf of the President of India, Sealed item rate tenders from experienced Class 1 Electrical Contractors with sound financial & technical capacity for the following work(s):

निविदा संदर्भ संख्या/ Tender Reference No.	BARC/MYS/MP/BRS/2017/WT-03
कार्य का नाम Name of work	Installation and Cabling of Power Supply Equipment in AF3, BARC, Mysore
अनुमानित लागत/Estimated Cost	₹. 4,75,000( Rupees Four Lakh Seventy five thousand only)
बयाना जमा/Earnest Money Deposit	₹. 9,500 (Rupees Nine thousand Five Hundred only)
कार्य पूर्ण करने की अवधि/Period of Completion	माह/ 6 Months (Six Months)
प्रतिभूति जमा/Security Deposit	निविदा किये गये मूल्य का 2.5% 2.5% of tendered value
निष्पादन गारंटी Performance Guarantee	निविदा किये गये मूल्य का 5.0% 5.0% of tendered value
निविदा दस्तावेज की कीमत Cost of Tender Document	₹. (Rupees Five hundred only) Rs. 500/- अप्रतिदेय / Non-Refundable
निविदा बिक्री की अवधि/Tender Sale Period	11/09/2017 to 20/09/2017

निविदा जमा करने की निर्धारित तिथि तथा समय/Due date & time for submission of Tender	25/09/2017 - 16.00 Hours.
निविदा खोलने की तिथि तथा समय Date & time of opening of Tender	25/09/2017 - 16.05 Hours
निविदा जमा करने का स्थान Place of Tender Submission	Tender Box No 3,(Mech. & Elect) Building No. 2, BARC, Mysore
निविदा खोलने का स्थान Place of Tender opening	Building No. 2, BARC, Mysore
सम्पर्क हेतु दूरभाष संख्या Contact Nos.	अनुभाग प्रमुख/प्रभारी अधिकारी Head of Division/EIC : 0821- 2406622 कार्यालय/Office : 0821- 2406564/2406473

1) निविदा दस्तावेज केवल व्यक्तियों को ही जारी किए जाएंगे तथा डाक या कोरिअर द्वारा नहीं भेजे जाएंगे। अंग्रेजी भाषा में तैयार निविदा दस्तावेजों का एक पूर्ण सेट कम्पनी के पत्रशीर्ष पर प्राधिकृत हस्ताक्षरकर्ता के लिखित अनुरोध पर तथा संबंधित अनुभाग प्रमुख या प्रभारी अभियंता द्वारा अनुमोदित किए जाने पर जारी किया जाएगा। निविदा दस्तावेज खरीदने और जमा करने के लिए भापअर्क के परिसर में प्रवेश हेतु संभावित निविदाकार या उसके प्राधिकृत प्रतिनिधि को फोटो पहचान के लिए अपने साथ पासपोर्ट, मतदाता पहचान पत्र, ड्राइविंग लाइसेंस, नियोक्ता द्वारा जारी पहचान पत्र में से एक लाना होगा। बिडर द्वारा, सम्पर्क हेतु ऊपर दिए गए दूरभाष नम्बर पर, पूर्व अनुमति लेनी होगी ताकि भापअर्क में उनके प्रवेश की व्यवस्था की जा सके एवं उनके दस्तावेजों की समीक्षा की जा सके।

Tender documents will be issued only in person and not by post or Courier. A complete set of Tender documents in English will be issued against written request by authorized signatory on company letter head and as approved by the Head of Section or Engineer-In-Charge concerned. Prospective bidder or his authorized representative shall bring photo identification (in original) like Passport, Voter's Identity Card, Driving License, Identity Card issued by the Employer for entry into BARC premises for purchase of tender documents as well as their submission. Prior confirmation on the contact numbers given above shall have to be taken by the bidder so as to arrange entry to BARC and review of documents.

2) भुगतान एवं लेखा अधिकारी, भापअर्क, मैसूर के नाम मैसूर में देय भारतीय रिज़र्व बैंक द्वारा प्रत्याभूत किसी भी अनुसूचित/राष्ट्रीयकृत बैंक के आदाता डिमांड ड्राफ्ट/ माँग जमा रसीद/सावधि जमा रसीद के रूप में "बयाना जमा" निविदा के साथ एक अलग मुहरबंद लिफाफे में प्रस्तुत करना होगा। बयाना जमा का एक भाग बैंक गारंटी के रूप में भी स्वीकार्य होगा। ऐसे मामलों में बयाना जमा का न्यूनतम 50% या रूपए 20 लाख, जो भी कम हो, ऊपर दर्शाए गए रूप में होगा तथा शेष संलग्न प्रपत्र के अनुसार किसी अनुसूचित बैंक द्वारा जारी बैंक गारंटी के रूप में स्वीकार किया जा सकता है। ऐसी प्राप्त निविदाएं जिनके साथ बयाना जमा नहीं होगा उन्हें सरसरी तौर पर अस्वीकार कर दिया जाएगा। निविदा दस्तावेज किसी भी कार्य दिवस में भुगतान एवं लेखा अधिकारी, भापअर्क, येलवाल, मैसूर-571130 से व्यक्तिगत

रूप से प्राप्त किए जा सकते हैं। निविदा की कीमत का नगद द्वारा रोकड़ पटल पर भुगतान किया जाएगा। निविदा की कीमत अप्रतिदेय है।

Earnest Money Deposit in the form of Account Payee Demand Draft/ Deposit at Call receipt/Fixed deposit receipt on any Scheduled/nationalized bank guaranteed by Reserve Bank of India payable at Mysore in favour of Pay and Accounts Officer, BARC, Mysore shall be submitted with tender in separate sealed cover. A part of EMD is acceptable in the form of BG also. In such case minimum 50% of the EMD or Rs. 20 Lakhs whichever is less shall be in the form prescribed above and balance can be accepted in the form of BG issued by a scheduled Bank as per enclosed form. Tenders received without EMD will be summarily rejected. Tender documents can be obtained on working days from Pay and Accounts Officer, BARC, Yelwal, Mysore - 571130. Tender cost shall be paid in Cash at cash counter. Tender cost is non- refundable.

3) निविदा से संबंधित तकनीकी स्पष्टीकरण ऊपर सम्पर्क हेतु दिए गए दूरभाष नम्बर पर प्रभारी अभियंता या संबंधित अनुभाग के कार्यालय से प्राप्त किए जा सकते हैं।

Technical Clarifications regarding the tender can be obtained from the EIC or the Office of the Division concerned on the contact numbers given above.

4) निविदा दस्तावेज जारी करने के लिए पात्रता मापदण्ड/Criteria of Eligibility for issue of Tender Documents:

4.1 तकनीकी मानदंड/TECHNICAL CRITERIA

4.1.1. ठेकेदार के उपयुक्त श्रेणी का होने का वैध पंजीकरण प्रमाण- पत्र।

Proof of valid registration Certificate in appropriate class of contractor.

4.1.2. किसी भी सरकारी लाइसेंस प्राप्त बोर्ड/विभाग (केवल इलेक्ट्रिकल कार्यों के लिए) द्वारा जारी उपयुक्त श्रेणी का वैध इलेक्ट्रिकल ठेकेदार का लाइसेंस।

Valid electrical contractor license for the appropriate class, issued by any Govt. Licensed Board/dept (for electrical jobs only).

4.1.3. आवेदन पत्र आमंत्रित किये जाने के पिछले महीने की अंतिम तिथि को समाप्त हो रहे विगत सात वर्षों के दौरान निविदा मूल्य में दी गई अनुमानित लागत के कम से कम 40% की लागत के तीन समरूप पूर्ण कार्य या 60% की लागत के दो समरूप पूर्ण कार्य या 80% की लागत का एक समरूप पूर्ण कार्य संतोषजनक रूप से पूर्ण किए होने का उपयुक्त प्राधिकारी द्वारा जारी दस्तावेजी प्रमाण।

समरूप कार्य का अभिप्राय आवेदन पत्र आमंत्रित किये जाने के पिछले महीने की अंतिम तिथि को समाप्त हो रहे विगत सात वर्षों के दौरान पूर्ण किये गये कार्य से है।

कार्य समापन की तिथि से निविदा दस्तावेज खरीदने की अंतिम तिथि तक गणना करके प्रति वर्ष 7% की सामान्य दर से कार्य की वास्तविक लागत को किए गए कार्य की लागत वर्तमान लागत स्तर तक लायी जाएगी।

Documentary evidence from appropriate authority of having satisfactorily completed at least three similar works each costing not less than 40% of the estimated value or two similar works each costing not less than 60% of the estimated value or one similar completed work costing not less than 80% of the estimated value during the last Seven years ending last day of the month previous to the one in which applications are invited. Similar work means Installation and Cabling of Medium Voltage Power Supply Equipment, Battery banks etc.,

The value of executed works shall be brought to the current costing level by enhancing the actual value of work at simple rate of 7% per annum calculated from the date of completion to last date for request for purchase of tender document.

#### 4.2 वित्तीय मानदंड/ FINANCIAL RESOURCES

- 4.2.1. 31 मार्च, \_\_\_\_\_ को समाप्त हो रहे विगत 03 वर्षों में औसतन वार्षिक वित्तीय लेन-देन रु. \_\_\_\_\_ होना चाहिये। (अनुमानित लागत का 30% / विनिर्माण कार्य हेतु 100%)

Should have had average Annual, Financial Turn-over of Rs. 1.425 lakh during the last 3 years ending 31<sup>st</sup> March 2016 (30% of the estimated cost / 100% for construction work.

- 4.2.2. अनुमानित लागत की कम से कम 40% की रकम के बराबर की धनराशि का नवीनतम शोधन क्षमता प्रमाण-पत्र ।

Possessing latest solvency certificate of value not less than 40% of the estimated cost.

- 4.2.3. लाभ एवं नुकसान : 31 मार्च \_\_\_\_\_ को समाप्त वर्ष से विगत 05 वर्षों के दौरान, दो से अधिक वर्षों में किसी प्रकार का नुकसान नहीं होना चाहिए।

Profit & Loss- should not have incurred any loss in more than two years during the

last 5 years ending 31<sup>st</sup> March 2016,

- 4.2.4. स्थाई खाता संख्या की अभिप्रमाणित प्रति।

Attested copy of permanent Account Number (PAN).

#### 4.3 परियोजना संसाधन/PROJECT RESOURCES

- 4.3.1. ठेकेदार को यह घोषणा करनी होगी कि उसको किसी प्राधिकारी/अभिकरण द्वारा निविदा डालने से वंचित नहीं किया गया है।

Contractor shall furnish declaration that he has not been debarred from tendering by any authority /Agency.

- 4.3.2. सरकारी /अर्द्ध सरकारी संगठन के साथ पंजीकृत होने का प्रमाण, यदि कोई हो।

Proof of registration with Government/Semi government Organization, if any.

- 4.3.3. चल रहे समरूप किस्म के कार्यों तथा पिछले 5 वर्षों में पूर्ण किए गए कार्यों के प्रमाण (कार्य आदेशों तथा कार्य समापन एवं निष्पादन प्रमाण-पत्रों आदि की प्रतियां) की सूची।

List with evidence (like copy of work orders and completion, Performance Certificates etc) of similar works in hand and completed in last 5 years.

- 4.3.4. निर्माण संयंत्र तथा मशीनरी की सूची/List of constructional plant and machinery.

- 4.3.5. योग्यता तथा अनुभव सहित तकनीकी स्टाफ की सूची।

List of technical staff with their qualification and experience.

उपर्युक्त दस्तावेजों की जांच करने के बाद प्रथम दृष्टि में निविदा में दिए गए कार्य को करने के लिए सक्षम पायी गई फर्मों को ही निरंक (ब्लैंक) निविदा दस्तावेज जारी किए जाएंगे। निविदा बिक्री/निविदा खुलने का अर्थ उसे स्वीकार कर लेना/अनुमोदित कर देना नहीं है।

After examining these documents, blank tender documents will be issued only to the firm prima-facie found competent to carry out the tendered job. Sale of Tender /Opening of Tender does not imply acceptance/approval.

- 5) दर्शाई गई कार्य की अनुमानित लागत केवल लगभग में है तथा ठेकेदार को वास्तविक आंकड़ों के आधार पर लागत को निकालना होगा।

The estimated cost of work indicated is only approximate and the contractor shall work out the rates based on the actual data.

- 6) निविदा प्रपत्र अहस्तांतरणीय हैं। सभी दरों को निविदा के उपयुक्त प्रपत्र पर ही कोट करना होगा/Tender form is non-transferable. All rates shall be quoted on the proper form of the tender alone.

- 7) दर को अंकों तथा शब्दों में लिखने में विशेष सावधानी रखनी चाहिए। रकम को अंकों में इस प्रकार लिखा जाना चाहिए कि उनको समझना आसान हो। कुल रकम को अंकों एवं शब्दों दोनों में लिखा जाना चाहिए।

Special care should be taken to write the rate in figures as well as in words and the amounts in figures only, in such a way that interpretation is possible. The Total Amount should be written both in figures and in words.

- 8) निविदा में कुछ भी शामिल करने, बाद में लिखने, जोड़ने तथा परिवर्तन करने को तब तक स्वीकार नहीं किया जाएगा जब तक कि निविदाकार के हस्ताक्षर तथा मुहर द्वारा प्रमाणित न किया जाए।

Insertion, post-script, addition and alteration will not be recognized unless confirmed by tenderers signature and stamp.

- 9) कोट की गई दरों में सभी कर, इयूटी तथा सरकार के लागू उद्ग्रहण शामिल होंगे/Quoted rates shall be inclusive of all taxes, duties and other Government levies including GST and shall be payable by the contractor & Department will not entertain any claim whatsoever in this respect.

- 10) किसी भी शर्त जिसमें सशर्त घटौती भी शामिल है के साथ प्राप्त निविदाएं अस्वीकृत कर दी जाएंगी। तथापि, बिना शर्त घटौती के साथ प्राप्त निविदाएं स्वीकार की जाएंगी।

Tenders with any condition including conditional rebate will be rejected. However, tenders with unconditional rebate will be accepted.

- 11) निविदा तथा बयाना जमा अलग-अलग मुहरबंद लिफाफों में रखे जाएंगे जिन पर क्रमशः "निविदा" तथा "बयाना जमा" लिखा होना चाहिए। दोनों लिफाफों को एक अन्य मुहरबंद लिफाफे में रख कर तथा उस पर निविदा संख्या, निर्धारित तिथि तथा कार्य का नाम लिख कर प्रस्तुत करना होगा। निविदा लिखा लिफाफा तभी खोला जाएगा जब बयाना जमा ठीक पायी जाएगी। बयाना जमा के लिए नगदी तथा चेक स्वीकार नहीं किए जाएंगे। निविदाकार का पूरा पता स्पष्ट अक्षरों में मुहर बंद लिफाफों पर अवश्य लिखा होना चाहिए।

The Tender and EMD shall be placed in separate sealed envelopes each marked "Tender" and "Earnest money" respectively. Both the envelopes shall be submitted together in another sealed envelope, super scribing the Tender No, Due date and Name of work. The envelope marked Tender will be opened only if the EMD is in order. Cash and Cheque for earnest money deposit will not be accepted. Full Address of the Tenderer must be written on the sealed envelopes.

- 12) प्रतिभूति जमा की राशि ठेकेदार के प्रत्येक चालू बिल से बिल की कुल रकम के 5% के हिसाब से कटौती कर तब तक एकत्रित की जाएगी जब तक कि पहले से जमा बयाना राशि सहित उक्त प्रतिभूति जमा राशि कार्य के ठेके के मूल्य के 2.5% की राशि के बराबर नहीं हो जाती। इसके अतिरिक्त ठेकेदार को ठेका प्रदान किए जाने हेतु जारी पत्र में निर्धारित तिथि के अंदर निष्पादन गारंटी के रूप में ठेके के मूल्य की 5% के बराबर रकम जमा करनी होगी। ऐसा न करने पर भारत सरकार की ओर से बयाना जमा जब्त कर ली जाएगी। 5% की प्रतिभूति जमा राष्ट्रीयकृत बैंकों के डिमांड ड्राफ्ट/सावधि जमा रसीद या बैंक गारंटी के रूप में स्वीकार की जा सकती है।

The Security Deposit at the rate of 2.5% of gross amount of the bill shall be deducted from each running bill of the contractor till final bill. The EMD of the successful tenderer shall be returned on receipt of Performance Guarantee/PSBG. In case of performance guarantee amount is more than 1.0 lakh, it shall be accepted in the form of bank guarantee also & in such cases EMD shall be released after getting confirmation from the issuing bank.

**Performance Guarantee:** In addition, the contractor shall be required to deposit an amount equal to 5% of the tendered value of the contract as performance guarantee within the period prescribed in the letter of award issued to him, failing which the EMD will be forfeited to the Government of India. Performance guarantee of 5% can also be accepted in the form of Demand draft/Fixed deposit receipts or Bank guarantee from Nationalized Banks. This period can be further extended at the written request of the contractor by the Engineer-In-Charge for a maximum period ranging from 1 to 15 days with late fee @0.1% per day, of performance guarantee amount. If the contractor fails to furnish the performance guarantee within the period prescribed for

commencement of the work, the EMD furnished by the contractor shall be fully forfeited to the Government of India. Performance Guarantee shall be initially valid up to the stipulated date of completion and in case the time for completion for work gets enlarged, the contractor shall get the validity of performance guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor without any interest. In the event of the contract being determined or rescinded under provision of any of the clause / condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of President of India.

- 13) निविदाएं विनिर्दिष्ट तिथि तथा समय पर वेतन तथा लेखा अधिकारी के कार्यालय में खोली जाएंगी। यदि ठेकेदार या उनके प्राधिकृत प्रतिनिधि चाहें तो वे निविदाएं खुलने के समय उपस्थित रह सकते हैं।

The tenders will be opened in the Office of the Pay and Accounts Officer on the specified date & time. If desired, the contractor or his authorized representative can be present at the time of opening of tenders.

- 14) यदि निविदा जमा करने की तिथि तथा निविदा खुलने की तिथि को बाद में छुट्टी घोषित हो जाती है तो ये प्रक्रियाएं अगले कार्य दिवस तक स्थगित कर दी जाएंगी।

If the date for submission of tender and opening of tender happens to be a declared holiday at a later date, the same will be postponed to the next working day.

- 15) निविदाकार को निविदा दस्तावेज के सभी पृष्ठों/शीटों पर हस्ताक्षर करना अनिवार्य होगा।

It will be obligatory on the part of the tenderer to sign the tender document for all the pages/sheets.

- 16) निविदा खुलने के समय सभी निविदाकारों को ड्राइंग के साथ निविदा दस्तावेज लौटाना बाध्यकारी होगा, चाहे वे बिड लगा रहे हों या नहीं।

It will be obligatory on all tenderers to return tender document along with drawings at the time of opening the tender whether they are making the bid or not.

- 17) भापअर्के के पास बिना कोई कारण दर्शाए किसी या सभी निविदाओं को अस्वीकार करने या कार्य के हिस्सों को अलग-अलग अभिकरणों को आबंटित करने का अधिकार सुरक्षित है।

BARC reserves the right to reject any or all tenders or to allot parts of the work to different agencies without assigning any reasons whatsoever.

- 18) कार्य की निविदा, निविदा खुलने की तिथि से 120 दिनों की अवधि तक स्वीकार करने हेतु खुली रहेगी।

The tender for the works shall remain open for acceptance for a period of 120 days from the date of opening of tender.

- 19) If any tenderer withdraws his tender within the validity period or makes any modifications in the terms and conditions of the tender which are not acceptable, then without prejudice to any right or remedy, the department shall be at liberty to forfeit 50% of the Earnest Money Deposit. Further, the contractor shall not be allowed to participate in the re-tendering process of the work.
- 20) Department will not provide any type of transportation and accommodation to the contractor's staff.
- 21) GST as applicable as per Govt. Orders shall be deducted. The contractor shall be registered under Goods and Service Tax and GST as applicable as per the extent order on the work shall be paid by the contractor to concerned tax authorities.
- 22) यह निविदा आमंत्रण सूचना ठेका दस्तावेज का हिस्सा होगी/This Notice Inviting Tender shall form the part of the contract document.  
यह निविदा आमंत्रण सूचना हमारी वेब साइट [www.barc.gov.in](http://www.barc.gov.in) पर भी उपलब्ध है/This NIT is also available in our web site [www.barc.gov.in](http://www.barc.gov.in).

मुख्य अधीक्षण अभियंता/  
Superintending Engineer  
भाभा परमाणु अनुसंधान केन्द्र  
Bhabha Atomic Research Centre  
भारत के राष्ट्रपति के लिए और  
उनकी ओर से  
For & on behalf of the President of  
India



## SECTION - III TECHNICAL SPECIFICATIONS

**Tender No:** BARC/MYS/MP/BRS/WT-03/2017 dt. 11/04/2017  
**Name of work:** Installation and Cabling of Power Supply Equipments in AF3, BARC, Mysore

### 1. Scope

This specification covers the requirements of Erection and installation of following systems in AF3, BARC, Mysore.

- 1.1. Installation of Power Supply Equipments
- 1.2. Installation of VRLA SMF Battery banks
- 1.3. Installation of Cable trays
- 1.4. Laying of power cables
- 1.5. Glanding and Termination (Supply and Erection)
- 1.6. Equipment Earthing Work
- 1.7. MS Fabrication (Supply & Erection)
- 1.8. Covering cable trenches with MS Chequered plates(Fabrication only)

### 2. Technical Description

#### 2.1. Erection of Power Supply Equipments

The job involves unloading from Material Handling Equipment, unpacking, shifting to ground/first/second floor, positioning as per the directions of the BARC representative, assembly of panel sections including busbar assembly & Erection including grouting. The entire installation is for industrial type indoor equipment, Installation shall be carried out with a view to provide facilities for easy operations, access and future maintenance of the complete system. At no place the installation shall either interfere or obstruct with other activities / equipments in the neighboring areas. Manufacturer's recommendations as per manuals / guidelines shall be followed for installation, testing and commissioning.

All equipments covered under this contract have to be erected over floor/on trenches in ground/first /second floor of plant building as mentioned in the schedule of quantities. Sufficient care shall be observed while shifting the equipment and during installation.

Approximate overall lead length for which each equipments have to be moved horizontally in different floors is 75 metres.

- 2.1.1. MCCB PCC Panels: Shifting to second floor(+9.5m). Panel size 5m(L)\*2m(H)\*0.6m(D) weight app 500Kg, Installation on concrete floor with necessary grouting with anchor fasteners. Panel is required to be shipped in sections of not more than 2 meters wide, keeping them horizontally in lifts while lifting them to the intended floor of erection and assembly, including Busbar assembly has to be carried out to form a single panel.
- 2.1.2. AC UPS Systems: Shifting from ground floor corridor and installation in the Second floor (+9.5 mtr). Panel size 2mx0.75mx2m (app). Weight 1250 Kgs
- 2.1.3. Switching panel: Shifting to second floor(+9.5m). Panel size 4m(L)\*2m(H)\*0.6m(D) weight app 500Kg. Installation on concrete floor with necessary grouting with anchor fasteners. Panel is required to be shipped in sections of not more than 2 meters wide, keeping them horizontally in lifts while lifting them to the intended floor of erection and assembly, including Busbar assembly has to be carried out to form a single panel.

- 2.1.4. FCBC SYSTEMS(6KW&2KW): Installation at ground floor on cable trenches by welding MS channels to existing MS supports across trench and fastening onto MS channels by bolts/nuts/washers. Size 1.2M(L)\*1.8m(H)\*0.6m(D)(app), weight 6KW: 800kg(app) & 2KW: 400Kg(app),
- 2.1.5. MCBDBs: Installation at ground floor on cable trenches by welding MS channels to existing MS supports across trench and fastening on MS channels with bolt-nuts. MCBDB Panel Size 1m(L)\*1.8m(H)\*0.6m(D) (app) weight 200 Kg
- 2.1.6. Battery Switch boxes, Shifting of Battery switch boxes with 4P, 200A Switch Fuse Unit of size 0.4m(L)\*0.5m(H)\*0.3m(D) app, weight 50 Kg(app) to first floor (+5.5m) and mounting on wall/concrete column by grouting using MS fabricated Wall supports /anchor fasteners as the case may be, including supply of cement concrete for filling of pockets dug in wall for erecting MS bracket.

## 2.2. Installation of Battery Banks

The job involves unloading from Material Handling Equipment, unpacking, shifting to ground/first floor (+5.5m level), positioning as per the directions of the BARC Engineer, Erection including intercell/intermodule/ intertier connections and grouting of Amara raja/ Exide / equivalent make VRLA/SMF battery Banks. Shifting of Battery banks to first floor shall be by using manual labor as no lift arrangement is available. Battery banks will be in stackable type modules with each module having 6 cells of 2V/200Ah

Approximate overall lead length for which each battery bank have to be moved horizontally in different floors is 75 metres.

- 2.2.1. Battery bank comprising 180 cells of 200Ah, 2V at First floor(+5.5m)
- 2.2.2. Battery bank comprising 24 cells of 200Ah, 2V at ground floor
- 2.2.3. Battery bank comprising 12 cells of 200Ah, 2V at ground floor

## 2.3. Installation of Cable Trays

Perforated/Ladder type GI Cable trays- 450 X 100 mm size, including required coupler plates, etc., as mentioned in the schedule of quantities, shall be installed in cable trenches, along side walls, overhead in single tier or multi tier formation with necessary supports. The supports shall be fabricated out of MS sections. The contractor shall do necessary cuttings, drillings, welding / bolting to assemble the complete support structure and install them in places Bolts, nuts and washers required for cable tray assembly and installation shall be arranged by the contractor free of cost.

## 2.4. Laying of power cables

The contractor's scope shall include installation, termination and commissioning of power and control cables as detailed in schedule of quantities. Cable will be supplied as free issue material by the department. Installation shall be carried out to the best of industrial practice by skilled, experienced and competent technicians in accordance with the approved practices.

- Proper care shall be taken in handling the cable to avoid formation of nicks etc. The cables shall be bent to a radius not less than 10 - 12 times the OD of the cables. Free ends of cables shall be properly sealed to prevent ingress of moisture.
- Cables shall be laid on cable trays, floor trenches, walls, pipes, etc; as the case may be with proper clamping and identification arrangement wherever required.
- Method of installation routing of cables etc., shall in every case be subject to approval of Engineer-in-charge and the contractor shall modify/rectify at no extra cost to BARC.
- Each run of cable will be cut after actual measurement of route length at site and after approval of the site engineer. Fixing materials like clamps, supports, saddles, screws and anchor

bolts etc., shall be supplied by the contractor under this item. Each cable run will be identified at either end with suitable aluminum tags to be supplied by the contractor.

- Wherever cables are run on walls, they shall be run on GI spacers properly clamped with GI clamps at each spacer. Wherever cables are not pulled in pipes, buried in ground or laid on trays, they shall be clamped with 3 mm thick GI clamps of adequate width and 6 mm thick. GI spacers shall be at 600 to 700 mm intervals in the horizontal run and 700 to 1000 mm in the vertical run based on the size of the cable as directed by the Engineer-in-charge. Spacers shall be grouted to wall or fixed with one or more wood screws and clamps screwed to the spacers.
- Wherever cables are pulled through embedded pipe, the pipe ends shall be sealed by approved means as required.
- Cable markers shall be installed in required places at 25 to 50 meter intervals along straight length and at every inclination, branching point and wherever direction changes. Marker will not be measured separately.
- While pulling from the cable drums, cable shall be taken on rollers and shall be coordinated so that phases match at location of straight joints.
- Cable will be made available at BARC stores, Yelwal, Mysore, for items specified in the schedule. The contractor's scope of work includes transporting the same to work spot and returning the balance cable in drums and empty drums to the stores.
- The cable shall be tested for its healthiness before cutting and laying, and also shall be tested before termination.
- During testing if the IR value of the cable is less than 2 Mega ohms such cables shall not be used and has to be intimated to the engineer-in-charge.

#### **2.5. Glanding & Termination including supply:**

The contractor shall supply all the materials necessary for the jointing like Dowells/HEX /HMI/Comet compression type cable glands and lugs. All cable terminations shall be carried out by Dowells/HEX make solder less crimping terminal lugs. The terminal lugs shall be made of electrolytic copper for copper-to-copper, aluminum for aluminum to aluminium. Normally lugs / terminal materials shall be the same as the cable. The crimping tool to be used should be provided with double ring compression type dies. Terminations shall be made with good workmanship and approved manner by men specialized in this class of work. Cable glands shall be separately earthed with connection from main earth bus, PVC sleeves, ferrules; metallic identification tags on either end of feeders shall be employed. After laying and termination, all cables shall be tested for following:

- a. Continuity.
- b. Absence of cross phasing.
- c. Insulation resistance to earth.

Contractor shall provide all the materials, all testing kits and instruments required for field-testing. Necessary tools required for the work shall be in the scope of contractor.

#### **2.6. Equipment Earthing**

The work includes connection of earth terminals of installed UPS system/Panels/DBs to the existing earth grid by laying of electrolytic grade copper flats of size, 25 x 3 mm in trench/wall/overhead tray and cable alley etc. Supply of dressing material is in the scope supplier

#### **2.7. Supply and Fabrication MS Supports**

Fabrication of MS channel/angle supports for erection of Cable trays, Power Supply Equipments, Battery switchboxes and any other miscellaneous use. Installation of the same suitably fastened to embedded parts/existing MS/concrete structures by welding/grouting / anchoring using fasteners as per site requirements and painting of MS supports with 2 coats of red oxide primer and final epoxy grey painting as per Quantity schedule.

Supply of MS channels and Angles is in the scope of contractor.

Welding, cutting & drilling equipment, safety gear required for the work shall be arranged by the contractor.

### 2.8. Covering of trench openings by MS chequered plates (Fabrication only)

Part of trench will be left uncovered after installation of Power Equipments over trenches. These Trench openings shall be covered with existing 6 mm thick MS chequered plates by suitably cutting them to sizes. Chequered plates will be issued as free issue material. Painting of MS supports with 2 coats of red oxide primer and final epoxy grey painting as per Quantity schedule.

### 3. Consumables

Scope of contract includes procurement of MS Angle/Channel required for fabrication work, Cable clamps /GI wire/MS Flat required for cable installation, material like, Cotton waste, cotton cloth, Painting brushes, Emery Paper, insulation tape. Red-oxide primer, paint etc., in sufficient quantity required for contract. Sufficient quantity shall be stored so that servicing is not hampered during any time of the contract period due to shortage.

### 4. Free issue materials

a) Following items will be supplied to the contractor as free issue materials;

Sl No	Description	Qty
1	MCCB PCC Panels	02 Nos
2	AC UPS Systems	05 Nos
3	Switching Panel	01 No
4	FCBC 6 KW, 48V	01 No
5	FCBC 2 KW, 24V	01 No
6	MCB DBS	05 Nos
7	Battery Switchbox with 200A Switch Fuse Unit	05 Nos
8	Battery Banks 200Ah/2V/180Cells	05 Nos
9	Battery Banks 200Ah/2V/24Cells	01 No
10	Battery Banks 200Ah/2V/12Cells	01 No
11	Cable Trays 450mm x 100 mm GI	100 m
12	Cables-3 <sup>1</sup> / <sub>2</sub> C*240Sq.mm Al PVC/XLPE	250 m
13	Cables-3 <sup>1</sup> / <sub>2</sub> C* 35Sq.mm Cu PVC/XLPE	230 m
14	Cables-2C*50 Sq.mm Cu PVC/XLPE	820 m
15	Cables-4C*2.5Sq.mm Cu PVC/XLPE	862 m
16	MS Chequered Plates 6mm thick 7 Sq.m	450Kg
17	25*3 mm copper flat	60 m

b) Electric Power required for fabrication work will be made available free of cost to the contractor. However, Contractor's electric equipment required for the work shall invariably have necessary protective devices.

### 5. Contractor's scope of supply:

Following items are in the contractor's scope of supply:

MS angles and Channels, Cable clamps, Copper/Aluminium Cable lugs - Dowells/Hex/3D make, Cable Glands - Comet/reputed make, Bolts and nuts required for cable tray erection and panel erection, Anchor fasteners, Red oxide primer and Grey Paint

All the items in the scope of supply of contractor shall be new and of current manufacture. They must be of reputed make only like SAIL/JSW for MS items, Old/ recycled materials and products of non-reputed(lesser known, non standard) manufacturers shall not be accepted.

**6. Standards & Codes to be practiced during the contract**

- 6.1. IS 732: 1989 Code of practice for electrical wiring installations not exceeding 650 Volts;
- 6.2. IS 732: 1989 Code of practice for electrical wiring installations not exceeding volts
- 6.3. IS 5216 (part I & 2);1982, Safety procedures and practices in electrical work
- 6.4. Statutory rules of state, local municipality, explosive department
- 6.5. Indian electricity act and regulations
- 6.6. Factory act and regulations
- 6.7. Fire Insurance regulations
- 6.8. IS-3043 - Code of Practice for Earthing
- 6.9. IS:5216 Guide for safety procedures and practices in electrical work.
- 6.10. IS:732 Code of practice for electrical wiring installation (system voltage not exceeding 650 Volts.)
- 6.11. IS: 13573 For Cable jointing & Termination kits
- 6.12. IS: 191: 1980 Specification for Copper
- 6.13. IS: 732 Code of Practice for Electrical Wiring Installations
- 6.14. IS: 10118 (Part3): Code of practice for selection, Installation and Maintenance of Switchgear and control gear (Installation)

**7. Contract period:**

The contract will be for a period of Six Months. Work shall be completed withing 6 (Six) months from the date of award of Work Order.

**8. Payment:**

Payment will be made after satisfactorily completion of work.

**9. Termination clause:**

The contract may be terminated by giving one month notice without assigning any reasons either from BARC or from contractor.

**10. Special instructions to the contractors.**

- 10.1. Only Class 1 electrical contract license holder need to quote.
- 10.2. The contractor shall commence the work within 15 days of receipt of work order.
- 10.3. Compulsorily, the technician attending the job must wear -Dust Mask, Helmet, Protective clothing & Electric shock proof shoes and Safety belt wherever required.
- 10.4. All the consumables and the material required for the execution of the contract shall be procured, verified at CISF counter (attested) and shown to Engineer/Supervisor-in-charge.
- 10.5. Contractor can store Consumables procured by him.
- 10.6. The contractor shall bear entire responsibility, liability and risk relating to coverage of his workforce under different statutory regulations including workmen's compensation act, factory act, etc.
- 10.7. The contractor shall ensure that all safety precautions are invariably taken to safeguard accidents and injuries to his workmen. Work has to be carried out in accordance with Indian Electricity Act.
- 10.8. The contractor shall take all necessary precautions so as to avoid any damage / breakage of the components of accessories and equipments. If something is broken because of the negligence of the contractor, the same has to be made alright at his own cost, failing which an amount deemed fit by Engineer -in charge will be deducted from contractor's bill.

- 10.9. Contractor shall depute his full time qualified engineer / supervisor to look after the work from commencement to the completion of entire job. The contractor shall deploy the requisite number of personnel for the day-to-day work
- 10.10. Contractor shall abide by the security rules and regulations of the department and co-operate with departmental staffs.
- 10.11. Contractor shall ensure safe custody of his tools, machinery and materials at site.
- 10.12. Contractor shall ensure that their employees are covered under ESI / Proper Medical Insurance.
- 10.13. Group Insurance is mandatory for the staff deputed for above work.
- 10.14. The contractor personnel shall not have any indefeasible right to claim for any regular appointment under BARC, Mysuru or any other DAE units under any circumstances.
- 10.15. The contractor shall adhere to AERB guide lines as follows
  - 10.15.1. No person below the age of 18 shall be employed for work involving radiation
  - 10.15.2. The literacy level of the workers shall be such that they should be able to read the Caution Boards and understand the training imparted to them.
  - 10.15.3. The Contractor who provides the workers shall submit a list of his workers along with their particulars in the prescribed format (Annexure-1) to the officer-in-charge of the facility.
  - 10.15.4. Contractor shall produce a certificate of fitness for each worker to be assigned work in the facility. The format of the medical certificate is given in the Annexure - II. The record of the medical examination shall be retained by the installation. The validity of medical certificate should be one year from the date of issue.
  - 10.15.5. The OIC of the facility shall brief the contractor and his worker about the work methods/procedures, hazards associated and safety procedures.
  - 10.15.6. The contractor along with the workers shall attend for radiological protection training of Health Physics Unit, which includes a session of approximately 3 hours. Officials from safety section shall also give training in conventional safety and emergency procedures particular to the work.
  - 10.15.7. The contractor and his workers shall follow all emergency procedure as trained by Safety section/concerned plant personnel.
- 10.16. Special Note: It is mandatory on contractor to pay minimum wages with varied DA as per guidelines issued time and again by Chief Labour Commissioner (C), Ministry of Labour and Employment, New Delhi. And is confirmed by departmental representative during disbursement of wages to Contract Labourers on payment day.
- 10.17. Any damage/loss caused by Contractor/subcontractor due to defective or ill-timed work shall be borne by the Contractor;
- 10.18. The Contractor shall arrange, free of cost, all the tools and tackles.
- 10.19. Liquidated Damages Clause: In case contractor is not completing the assigned work during the completion period, contractor shall pay to the department liquidated damages and not by way of penalty, a sum calculated at the rate of 1.5% of the total contract price per month or part thereof the delay, to be computed on per day basis. The total liability on this account shall be limited to 10% of the contract price.
- 10.20. The contractor's personnel shall not have any indefeasible right to claim for any regular appointment under BARC, Mysore or any other DAE Units under any circumstances.

**11. Schedule of Quantity & rate.**

Contractor shall submit their rates as per schedule of Quantity inclusive of all cost and taxes.

The quantities set out in the Bill of Quantities are the estimated quantities for the works, and they are not to be taken as the actual and correct quantities of the works to be executed by the Contractor in fulfillment of his obligations under the Contract. The Employer reserves the right to increase or decrease any of the quantities to any extent or to totally omit any item of work and the Contractor shall not claim any extras or damages on these grounds.

Sl. No.	Particulars	Unit	Qty	Rate (Rs)	Amount(Rs)
<b>1.00</b>	<b>Installation of Power Supply Equipments:</b>				
	Unloading, Unpacking, shifting to ground/first/second floor including an approximate overal horizontal lead length of 75 m, positioning, assembly of panel sections including busbar assembly & installation of following Power supply equipments:				
1.1	MCCB PCC panels of size 5m(L)*2m(H)*0.6m(D), weight app 500Kg at second floor (+9.5m height) on concrete floor with necessary grouting with anchor fasteners.	Nos	2		
1.2	AC UPS Panel of size 2m(L)x2m(W)x.75m(D)(app). Weight 1250 Kgs(app) : at second floor (+9.5 mtr) with necessary grouting with anchor fasteners.	Nos	5		
1.3	Switching panel size 4m(L)*2m(H)*0.6m(D) (app) weight app 500Kg at second floor(+9.5m height) on concrete floor with necessary grouting with anchor fasteners.	No	1		
1.4	FCBC SYSTEM-6KW, 1.2m(L)*1.8m(H)*0.6m(D)(app), weight 800kg (app), at ground floor on cable trenches by fastening with bolts/nuts/washers onto MS channels welded across trench	No	1		
1.5	FCBC SYSTEM-2KW, 1.2m(L)*1.8m(H)*0.6m(D)(app), weight 400kg (app), at ground floor on cable trenches by fastening with bolts/nuts/washers onto MS channels welded across trench	No	1		
1.6	MCCBDB Panel Size 1m(L)*1.8m(H)*0.6m(D) (app) weight 200 Kg at ground floor on cable trenches by fastening with bolts/nuts/washers onto MS channels welded across trench	No	5		
1.7	Battery SWITCH BOXES with 4P,200A Switch Fuse Unit , Size 0.4m(L)*0.5m(H)*0.3m(D) app, weight 50 Kg(app) at first floor (+5.5m) on wall/concrete coulmn by grouting	No	5		

<b>2.00</b>	<b>Installation of Battery Banks :</b>				
	Unloading, unpacking, shifting to ground/first floor, including an approximate overall horizontal lead length of 75m, positioning, Erection including intercell/intermodule/ intertier connections & grouting on concrete floor of following Battery banks,				
2.1	360V (2V x 180Cells), 200Ah,VRLA SMF Battery Banks, in stackable 6-cell modules, at First floor(+5.5m)	No	5		
2.2	48V(2V x 24 cells), 200Ah,VRLA SMF, Battery Banks, in stackable 6-cell modules at ground floor	No	1		
2.3	24V(12 Cells), 200Ah,VRLA SMF, Battery Banks, in stackable 6-cell modules at ground floor	no	1		
<b>3.00</b>	<b>Installation Cable tray</b>				
3.1	Erection of 450mm(W)x100mm(H) Ladder type GI Cable trays with bends(made out of straight sections), coupler plates etc., in concrete trench/wall/ceiling with MS supports welded to existing supports, securing with bolts, nuts and washers at suitable locations.	mtr	100		
<b>4.00</b>	<b>Laying of Power Cables</b>				
	Only erection of following of 1.1 KV grade, copper/aluminium conductor, steel wire armoured Power/Control Cables including supply and fixing of accessories like cable clamps, saddles, bolts nuts, cable markers etc., of suitable sizes at a distance of 0.5m in cable trays erected in cable trenches and in air vertically and horizontally.				
4.1	3 1/2C * 240 Sq.mm Al PVC/XLPE cable	mtr	250		
4.2	3 1/2C*35 Sq.mm Cu PVC/XLPE cable	mtr	230		
4.3	2C*70 Sq.mm Cu PVC/XLPE cable	mtr	820		
4.4	4C*2.5 Sq.mm Cu PVC/XLPE cable	mtr	862		
<b>5.00</b>	<b>Glanding and termination</b>				
	Glanding and termination of following sizes of 1.1kv grade round steel wire armoured PVC/XLPE cables including supply of Dowells/Hex make tinned Cu lugs and HMI/Hex Make Single Compression cable Glands.				
5.1	3 1/2C * 240 Sq.mm Al PVC/XLPE cable	Nos	8		
5.2	3 1/2C*35 Sq.mm Cu PVC/XLPE cable	Nos	20		
5.3	2C*50 Sq.mm/3C*70 Sq.mm Cu PVC/XLPE cable	Nos	50		
5.4	4C*2.5 Sq.mm Cu PVC/XLPE cable	Nos	50		



<b>6.00</b>	<b>Equipment Earthing</b>				
6.1	Laying of electrolytic grade copper earth flat in trench/cable trays etc and termination of one end at Electrical panel and another at existing earth flats by using suitable bolt/nut/washers	Mtr	60		
<b>7.00</b>	<b>Supply and Fabrication of MS Angles and Channels</b>				
	Supply, Fabrication, erection of MS supports for erection of MCBDBs, Cable trays, Switchboxes, cable trench cover supports and any other miscellaneous use by suitably welding/grouting/anchoring to existing Cement/MS structures with fasteners etc., as per site requirements and painting of MS supports with 2 coats of red oxide primer and final epoxy grey painting				
7.1	MS Channels of 100X50X6 mm	Kg	70		
7.2	MS Angles of 50X50X6 mm	Kg	270		
<b>8.00</b>	<b>Covering of Trench openings (Only Fabrication)</b>				
8.1	Covering of trench openings with existing 6 mm thick MS chequered plates by suitably cutting/welding them to sizes and painting of MS supports with 2 coats of red oxide primer and final epoxy grey painting	Kg	450 Kg		
	TOTAL COST (in Figures)				

TOTAL COST( in Words) \_\_\_\_\_  
(The above rate is inclusive of all taxes)

Signature and Seal of the Bidder

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