

I/29553/2023



भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

सं. उक्षेविस/ वाणिज्यिक/ 209/ आर पी सी (68 वीं)/2023/

दिनांक: 08.08.2023

सेवा में / To,

उ.क्षे.वि.स. के सभी सदस्य एवं विशेष आमंत्रित (संलग्न सूचीनुसार)

Members of NRPC &amp; Special Invitees (As per List)

विषय: उत्तर क्षेत्रीय विद्युत समिति की 68<sup>वीं</sup> बैठक की कार्यसूची।**Subject: Agenda for 68<sup>th</sup> meeting of Northern Regional Power Committee-reg**

महोदय / महोदया,

उत्तर क्षेत्रीय विद्युत समिति की 68<sup>वीं</sup> बैठक दिनांक **18.08.2023 (10:30 AM)** को होटल औकीरा, उदयपुर, राजस्थान में आयोजित की जाएगी। बैठक की कार्यसूची संलग्न है। कृपया उपस्थिति सुनिश्चित करें। मेल में संलग्न एक्सेल शीट में यात्रा विवरण भरने का भी अनुरोध किया जाता है।

The 68<sup>th</sup> meeting of Northern Regional Power Committee (NRPC) will be held on **18.08.2023 (10:30 AM)** at Hotel Aukira, Udaipur, Rajasthan. Agenda for the same is attached.

It is requested to attend the same. It is also requested to fill the journey details in the excel sheet attached in mail.

भवदीय

Yours faithfully,

Signed by Vijay Kumar Singh

Date: 08-08-2023 18:36:23

Reason: Approved

(वी. के. सिंह)

(V. K. Singh)

सदस्य सचिव

Member Secretary

प्रतिलिपि: मोहम्मद शायिन, एमडी, एचवीपीएनएल एवं अध्यक्ष, एनआरपीसी ([md@hvnpn.org.in](mailto:md@hvnpn.org.in))

List of addressee (via mail)				
NRPC Members for FY 2023-24				
S. No.	NRPC Member	Category	Nominated/ Notified/Delegated Member	E-mail
1	Member (GO&D), CEA	Member (Grid Operation & Distribution), Central Electricity Authority (CEA)	Member (GO&D), CEA	<a href="mailto:member_god@cea.nic.in">member_god@cea.nic.in</a>
2	Member (PS), CEA	Nodal Agency appointed by the Government of India for coordinating cross-border power transactions	Member (PS), CEA	<a href="mailto:memberscea@nic.in">memberscea@nic.in</a>
3	CTUIL	Central Transmission Utility	Chief Operating Officer	<a href="mailto:pcgarg@powergrid.in">pcgarg@powergrid.in</a>
4	PGCIL	Central Government owned Transmission Company	Director (Operations)	<a href="mailto:tyagir@powergrid.in">tyagir@powergrid.in</a>
5	NLDC	National Load Despatch Centre	Executive Director	<a href="mailto:scsaxena@grid-india.in">scsaxena@grid-india.in</a>
6	NRLDC	Northern Regional Load Despatch Centre	Executive Director	<a href="mailto:rk_porwal@grid-india.in">rk_porwal@grid-india.in</a>
7	NTPC	Central Generating Company	Director (Finance)	<a href="mailto:jaikumar@ntpc.co.in">jaikumar@ntpc.co.in</a>
8	BBMB		Chairman	<a href="mailto:cman@bbmb.nic.in">cman@bbmb.nic.in</a>
9	THDC		ED (PSP&APP)	<a href="mailto:lpjoshi@thdc.co.in">lpjoshi@thdc.co.in</a>
10	SJVN		CMD	<a href="mailto:sectt.cmd@sivn.nic.in">sectt.cmd@sivn.nic.in</a>
11	NHPC		Director (Technical)	<a href="mailto:ykchaubey@nhpc.nic.in">ykchaubey@nhpc.nic.in</a>
12	NPCIL		Director (Finance)	<a href="mailto:df@npcil.co.in">df@npcil.co.in</a>
13	Delhi SLDC		General Manager	<a href="mailto:gmsldc@delhisldc.org">gmsldc@delhisldc.org</a>
14	Haryana SLDC		Chief Engineer (SO&C)	<a href="mailto:cesocomm@hvpn.org.in">cesocomm@hvpn.org.in</a>
15	Rajasthan SLDC		Chief Engineer (LD)	<a href="mailto:ce.ld@rvpn.co.in">ce.ld@rvpn.co.in</a>
16	Uttar Pradesh SLDC		Director	<a href="mailto:directorsldc@upsldc.org">directorsldc@upsldc.org</a>
17	Uttarakhand SLDC	Chief Engineer	<a href="mailto:anupam_singh@ptcul.org">anupam_singh@ptcul.org</a>	
18	Punjab SLDC	Chief Engineer	<a href="mailto:ce-sldc@punjabisldc.org">ce-sldc@punjabisldc.org</a>	
19	Himachal Pradesh SLDC	Chief Engineer	<a href="mailto:cehpsldc@gmail.com">cehpsldc@gmail.com</a>	
20	DTL	State Transmission Utility	CMD	<a href="mailto:cmd@dtl.gov.in">cmd@dtl.gov.in</a>
21	HVPNL		Managing Director	<a href="mailto:md@hvpn.org.in">md@hvpn.org.in</a>
22	RRVNL		CMD	<a href="mailto:cmd.rvpn@rvpn.co.in">cmd.rvpn@rvpn.co.in</a>
23	UPPTCL		Managing Director	<a href="mailto:md@upptcl.org">md@upptcl.org</a>
24	PTCUL		Managing Director	<a href="mailto:md@ptcul.org">md@ptcul.org</a>
25	PSTCL		CMD	<a href="mailto:cmd@pstcl.org">cmd@pstcl.org</a>
26	HPPPTCL		Managing Director	<a href="mailto:md.tcl@hppmail.in">md.tcl@hppmail.in</a>
27	IPGCL		Managing Director	<a href="mailto:md.ipgpp@nic.in">md.ipgpp@nic.in</a>
28	HPGCL		Managing Director	<a href="mailto:md@hpgcl.org.in">md@hpgcl.org.in</a>
29	RRVUNL		CMD	<a href="mailto:cmd@rrvun.com">cmd@rrvun.com</a>
30	UPRVUNL	Managing Director	<a href="mailto:md@uprvunl.org">md@uprvunl.org</a>	
31	UJVNL	Managing Director	<a href="mailto:md@ujvnl.com">md@ujvnl.com</a>	
32	HPPCL	Managing Director	<a href="mailto:md@hppcl.in">md@hppcl.in</a>	
33	PSPCL	State Generating Company & State owned Distribution Company	CMD	<a href="mailto:cmd-pspcl@pspcl.in">cmd-pspcl@pspcl.in</a>
34	DHBVN	State owned Distribution Company (alphabetical rotational basis/nominated by state govt.)	Director (Projects)	<a href="mailto:directorprojects@dhbvn.org.in">directorprojects@dhbvn.org.in</a>
35	Jaipur Vidyut Vitran Nigam Ltd.		Managing Director	<a href="mailto:md@jvvnl.org">md@jvvnl.org</a>
36	Madhyanchal Vidyut Vitaran Nigam Ltd.		Managing Director	<a href="mailto:mdmvnl@gmail.com">mdmvnl@gmail.com</a>
37	UPCL		Managing Director	<a href="mailto:md@upcl.org">md@upcl.org</a>
38	HPSEB		Managing Director	<a href="mailto:md@hpseb.in">md@hpseb.in</a>
39	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	Head (Commercial & Regulatory)	<a href="mailto:sanjay_bhargava@tatapower.com">sanjay_bhargava@tatapower.com</a>
40	Aravali Power Company Pvt. Ltd.		CEO	<a href="mailto:SRBODANKI@NTPC.CO.IN">SRBODANKI@NTPC.CO.IN</a>
41	CLP Jhajjar Power Ltd.,		CEO	<a href="mailto:rajneesh.setia@apraava.com">rajneesh.setia@apraava.com</a>
42	Talwandi Sabo Power Ltd.		COO	<a href="mailto:Vibhav.Agarwal@vedanta.co.in">Vibhav.Agarwal@vedanta.co.in</a>
43	Nabha Power Limited		CEO	<a href="mailto:sk.narang@larsentoubro.com">sk.narang@larsentoubro.com</a>
44	Lanco Anpara Power Ltd		President	<a href="mailto:sudheer.kothapalli@lancogroup.com">sudheer.kothapalli@lancogroup.com</a>
45	Rosa Power Supply Company Ltd		Station Director	<a href="mailto:Hirday.tomar@relianceada.com">Hirday.tomar@relianceada.com</a>
46	Lalitpur Power Generation Company Ltd		Managing Director	<a href="mailto:vksbankoti@bajajenergy.com">vksbankoti@bajajenergy.com</a>
47	MEJA Urja Nigam Ltd.		CEO	<a href="mailto:hopmeja@ntpc.co.in">hopmeja@ntpc.co.in</a>
48	Adani Power Rajasthan Limited		COO, Thermal, O&M	<a href="mailto:jayadeb.nanda@adani.com">jayadeb.nanda@adani.com</a>
49	JSW Energy Ltd. (KWHEP)		Head Regulatory & Power Sales	<a href="mailto:jyotiprakash.panda@jsw.in">jyotiprakash.panda@jsw.in</a>
50	RENEW POWER	IPP having less than 1000 MW installed capacity (alphabetical rotational basis)	CEO	<a href="mailto:sumant@renew.com">sumant@renew.com</a>
51	UT of J&K	From each of the Union Territories in the region, a representative nominated by the administration of the Union Territory concerned out of the entities engaged in generation/ transmission/ distribution of electricity in the Union Territory.	Chief Engineer, JKPTCL	<a href="mailto:sojppd@gmail.com">sojppd@gmail.com</a>
52	UT of Ladakh		Chief Engineer, LPDD	<a href="mailto:cepladakh@gmail.com">cepladakh@gmail.com</a>
53	UT of Chandigarh		Executive Engineer, EWEDC	<a href="mailto:elop2-chd@nic.in">elop2-chd@nic.in</a>
54	BYPL	Private Distribution Company in region (alphabetical rotational basis)	CEO	<a href="mailto:Amarjeet.Sheoran@relianceada.com">Amarjeet.Sheoran@relianceada.com</a>
55	Bikaner Khetri Transmission Limited	Private transmission licensee (nominated by central govt.)	Vice-President	<a href="mailto:nihar.raj@adani.com">nihar.raj@adani.com</a>
56	Adani Enterprises	Electricity Trader (nominated by central govt.)	Head Power Sales & Trading	<a href="mailto:anshul.garg@adani.com">anshul.garg@adani.com</a>
57	Ajmer Vidyut Vitran Nigam Ltd.	Special Invitee	Managing Director	<a href="mailto:md.avvnl@rajasthan.gov.in">md.avvnl@rajasthan.gov.in</a>
Special Invitees:				
RE Holding companies in NR with installed capacity of more than 1000 MW (provisional members as decided in 59th NRPC meeting)				

## **Special Invitees:**

1. Shri. Chowna Mein, Hon'ble Dy. Chief Minister and I/C Power, Govt. of Arunachal Pradesh, Block No.2, 5<sup>th</sup> Floor, A.P. Civil Secretariat, Itangar-791111. [Email: [chowna.mein@gov.in](mailto:chowna.mein@gov.in)]Tel -03602212671
2. Shri Ginko Lingi, Chairman, TCC, NERPC & Chief Engineer (P), TPMZ , Department of Power, Govt. of Arunachal Pradesh, Vidyut Bhawan, zero Point, Itanagar-791111. [Email: [ginko.lingi@gmail.com](mailto:ginko.lingi@gmail.com)] Tel -9612153184
3. Shri K Vijayanand, Chairperson, SRPC, Chairman & Managing Director , Transmission Corporation of Andhra Pradesh Limited, Vidyut Soudha, Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh 520004. [Email: [cmd.aptransco@aptrandco.in](mailto:cmd.aptransco@aptrandco.in) ; [vjanand@nic.in](mailto:vjanand@nic.in) ] Tel -08662429201
4. Shri AKV Bhaskar, Chairperson TCC, SRPC, Director (Transmission & Grid Management), Transmission Corporation of Andhra Pradesh Limited, Vidyut Soudha, Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh 520004. [ Email: [kannanvenkatabhaskar.angulabharanam@aptransco.co.in](mailto:kannanvenkatabhaskar.angulabharanam@aptransco.co.in)] Tel -.08662429209
5. Sri Nikunja Bihari Dhal, IAS, Chairman, ERPC, Additional Chief Secretary to Govt., Department of Energy, Govt. of Odisha, Bhubaneswar. [Email-[chairman@gridco.co.in](mailto:chairman@gridco.co.in) ] Tel -06742540098
6. Shri Trilochan Panda, Managing Director, GRIDCO, Chairperson TCC, ERPC, GRIDCO Limited, Regd. Office: Janpath, Bhubaneswar – 751022. Tel -06742540877 [Email- [md@gridco.co.in](mailto:md@gridco.co.in) ]
7. Shri Sanjay Dubey, Chairman, WRPC & Principal Secretary(Energy), GoMP, VB-2, Vallabh Bhawan Annex, Mantralay, Bhopal: 462 001 (M.P.), Email: [psenergyn@gmail.com](mailto:psenergyn@gmail.com), Tel. 0755-2708031
8. Shri Raghuraj Rajendran, Chairman-TCC, WRPC & Managing Director MPPMCL, Block No-15, Shakti Bhawan, Vidyut Nagar, Rampur, Jabalpur-482008. [Email-[mdofmppmcl@gmail.com](mailto:mdofmppmcl@gmail.com)]
9. Smt. Rishika Saran, Member Secretary, NPC, Sewa Bhawan, R. K. Puram, New Delhi-66 [Email-[cenpc-cea@gov.in](mailto:cenpc-cea@gov.in)]
10. Shri Deepak Kumar, Member Secretary, WRPC, Plot No- F-3, MIDC Area, Marol, Opp. SEEPZ, Central Road, Andheri (East), Mumbai-40093.[ email: [ms-wrpc@nic.in](mailto:ms-wrpc@nic.in)] Tel - 02228221636
11. Shri Asit Singh, Member Secretary, SRPC, No.29, Race Course Cross Road, Bengaluru-560009. [Email: [mssrpc-ka@nic.in](mailto:mssrpc-ka@nic.in)] Tel -08022287205/9449047107
12. Shri N.S. Mondal, Member Secretary, ERPC,14,Golf Club Road, ERPC Building, Tollygunje,Kolkata-700033. [Email: [mserpc-power@nic.in](mailto:mserpc-power@nic.in) ]- Tel 03324239651/9958389967
13. Shri K B Jagtap, Member Secretary, NERPC, NERPC Complex, Dong Parmaw, Lapalang, Shillong-793006. [Email: [ms-nerpc@gov.in](mailto:ms-nerpc@gov.in) ] Tel [-03642534077/8652776033](tel:-03642534077/8652776033)

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**उत्तर क्षेत्रीय विद्युत समिति**  
**NORTHERN REGIONAL POWER COMMITTEE**



**Agenda for**  
**68<sup>th</sup> meeting of**  
**Northern Regional Power Committee**

**Date: 18<sup>th</sup> August 2023**

**Time: 10:30 AM**

**Venue:**

**Aukira Resort**

**01, Kala Rohi,**

**Sisarma, Udaipur,**

**Rajasthan - 313001, India**

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## **A.1 Approval of MoM of the 67<sup>th</sup> NRPC meeting**

A.1.1 The Minutes of the 67<sup>th</sup> NRPC meeting (held on 30.06.2023) was issued vide letter dtd. 21.07.2023. No Comment from any utilities received till date. In view of above, the Minutes of the 67<sup>th</sup> NRPC meeting may be approved.

### ***Decision required from the Members of the Committee:***

*NRPC Members may consider to approve the above MoM.*

## **A.2 Requirement of No-objection Certificate (NOC) for auxiliary power consumption for STATCOM at 765/400/220kV Bhadla-2 substation (agenda by POWERGRID)**

A.2.1 POWERGRID has submitted that Grid-India vide its order ref.no. NLDC/FTC dated 03.06.2020 has issued consolidated procedure for first time charging /energization (FTC) and integration of new or modified power system element. Section 4 of this FTC procedure provides the details of requirement for integration of a STATCOM/SVC and issue of certificate of successful trial operation by Regional Load Dispatch Centres (RLDCs).

Under para 1 of section 4, pre-charging activities are defined and as per 1(e), the following is mentioned:

*“The auxiliary consumption of STATCOM is generally drawn from the tertiary of the 400/220/33kV Transformer at the substation. The meter reading of this transformer would include the auxiliary consumption of STATCOM as well. Therefore, a No Objection Certificate (NOC) from the local DISCOM and SLDC would also be provided by the owner of STATCOM.”*

A.2.2 POWERGRID has installed 2 x  $\pm$ 300MVar STATCOM at Bhadla-2 substation in Rajasthan and similar installations are under commissioning at other pooling stations in Rajasthan i.e., Fatehgarh-2 & Bikaner-2 stations. With reference to STATCOM at Bhadla-2 substation, SE/JDVVNL (local DISCOM), vide letter dated 28.03.2023 was requested for issuance of NOC for auxiliary power consumption of STATCOM from the tertiary of the 400/220/33kV Transformer, as a part of compliance of requirement for FTC procedure. Subsequently JDVVNL representative visited Bhadla-2 substation and jointly verified the energy meters (SEM) for metering of auxiliary power consumption. Further Executive Engineer/Phalodi has forwarded a letter to SE/O&M, Jodhpur in this matter.

A.2.3 However even after several visits and communications (chronology of events tabled below), JDVVNL is yet to issue the NOC. POWERGRID has been communicated by

JDVVNL officials that there are no clear instructions to JDVVNL for issuing any type of no-objection certificate.

A.2.4 The chronology of events in case of STATCOM of Bhadla-2 substation are as follows:

S.N.	Particulars	Date
1	Superintending Engineer (JDVVNL-Jodhpur) was requested for NOC of $\pm 300$ MVAR STATCOM at Bhadla-2 S/s	28-03-2023
2	Visit of JDVVNL officials (AE & JE) at POWERGRID Bhadla-2 SS for joint verification of metering system for auxiliary power consumption in STATCOM	15-05-2023
3	Letter from AE to Executive Engineer and further letter written by Executive Engineer to SE for issuance of NOC	05-06-2023
4	Letter submitted by POWERGRID to Additional Chief Engineer-JDVVNL for issuance of NOC	28-06-2023
5	Visits of POWERGRID Bhadla-2 representative to JDVVNL Jodhpur office for NOC	1 <sup>st</sup> visit- 28-06-23 2 <sup>nd</sup> visit- 11-07-23 3 <sup>rd</sup> visit- 21-07-23
6	Submission of undertaking by POWERGRID to NRLDC towards submission of NOC	13-04-2023 29-06-2023

A.2.5 The STATCOM at Bhadla-2 has been commissioned on 02.06.2023 (STATCOM station-1) and 03.07.2023 (STATCOM station-2), however, trial run completion certificate is yet to be issued for the same.

A.2.6 Forum is requested to facilitate issuance of No-objection certificate from local DISCOM for auxiliary consumption of STATCOM. Further, Grid-India is requested to issue certificate for completion of trial run operation for STATCOM at Bhadla-2 as the delay in submission of NOC is due to reasons, which are beyond reasonable control of POWERGRID.

***Decision required from the Members of the Committee:***

*NRPC Members may take appropriate decision for facilitating NOC to POWERGRID.*

### **A.3 Upgradation of remote Gateways at HVDC Bhiwadi and Ballia terminals for improved reliability of telemetered data (agenda by POWERGRID)**

A.3.1 During 22<sup>nd</sup> Telecommunication, SCADA, and telemetry sub-committee (TEST) meeting held on dated 24.05.2023, agenda for telemetry related issues from POWERGRID stations was brought by NRLDC. NRLDC informed that letter regarding Telecommunication, SCADA & Telemetry issues from POWERGRID Sub-stations was given by NRLDC vide NRLDC/Telemetry/dated 15<sup>th</sup> Dec 2021. It has also been informed by NRLDC that although there is improvement with respect to other issues raised but data from Ballia HVDC and Bhiwadi HVDC stations is still unreliable. NRLDC has further issued a letter NRLDC/SCADA/2023 dated 18<sup>th</sup> April 2023 for telemetry issues related to HVDC Ballia and Bhiwadi terminals.

A.3.2 During discussion in 22<sup>nd</sup> TEST meeting, NRLDC informed that “real-time data availability from Ballia and Bhiwadi HVDC is very poor, unreliable, and requested POWERGRID for rectification of the same”.

A.3.3 POWERGRID informed that being a proprietary product, M/s Siemens, OEM for Ballia-Bhiwadi Bi-pole link, was consulted for rectification of the same and M/s SIEMENS has informed that the present device (i.e. Remote control Interface-RCI) installed for data communication from HVDC Bhiwadi to NRLDC was installed in 2010, which is now obsolete and there is no hardware/software support available for this product.

A.3.4 Further, OEM, M/s SIEMENS has suggested as follows:

*“The existing DC SCADA and HMI system at Ballia and Bhiwadi HVDC station is running on Windows XP system from almost last 10 years. The existing hardwares spare parts for windows PC and windows XP software are obsolete and it is really tough to repair since the spare parts are no more available. Furthermore, windows XP system is also vulnerable in respect to cyber security since its news windows patches are no more available. We strongly recommend to upgrade the HMI PC's to Windows 10 and Terminal Server (Active directory server) to Windows 16 server along with spare hardwares to run the DC SCADA system smoothly at both the HVDC stations.”*

A.3.5 Further, as per existing communication architecture, telemetry data of HVDC Ballia is routed through HVDC Bhiwadi gateway to NRLDC. Therefore, a requirement for direct communication between HVDC Ballia and NRLDC exists to avoid dependence of HVDC Ballia on Bhiwadi end's RCI gateway. NRLDC further requires additional datapoints for individual branches of filter banks, which is presently not available in existing SAS architecture.

A.3.6 As OEM, M/s SIEMENS has declared the product as obsolete and has recommended for upgradation of RCI system, it is proposed to upgrade the existing remote gateways



(RCI) along with old XP based SAS system at HVDC Ballia and Bhiwadi terminals for improved reliability of telemetry. This shall also take care of additional data points for filter banks, shunt filter reactors etc. as per requirement of NRLDC.

A.3.7 The total estimated cost for upgradation of HVDC SAS system (including RCI gateways) at HVDC Ballia and Bhiwadi terminals shall be Rs. 5.10 Cr (including GST).

A.3.8 In view of above, POWEGRID has proposed to upgrade the existing SAS system (including RCI gateways) at HVDC Ballia & Bhiwadi terminals in order to achieve improved reliability of telemetry data, direct communication of HVDC Ballia to NRLDC and for including additional data points as per requirement of NRLDC.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on above proposal and approve accordingly.*

**A.4 Upgradation of 220KV CTs in line feeders, Bus Coupler and TBC Bays at 400/220KV Wagoora Substation due to change in rating of the Line (agenda by POWERGRID)**

A.4.1 Executive Engineer, JKPTCL vide letter no.: TLMD-IV/669-72 dated 20-09-2022 informed that they are going to carryout re-conductoring of 220KV Wagoora Zainakot-1 with HTLS conductor including strengthening of bays at Zainakot end and mentioned that after reconductoring, thermal rating of 220KV Wagoora Zainakot Ckt-1 will be 1550 Amp. He further informed that CTs of Wagoora-Pampore Ckt-I & II have been upgraded from 900A to 1600A at Pampore end and he advised to strengthen 220kV Bays accordingly at Wagoora end.

A.4.2 220KV Pampore 1, 2 and Zainakot 1 & 2, Bus coupler and TBC bays at Wagoora Substation were commissioned in the year 1996 and equipment in these bays had already completed 27 years of useful life. Ratio of CTs at Wagoora substation are 1000:1

A.4.3 In line with JKPTCL requirements, it is required to upgrade the Current Transformer in 220KV Wagoora Zainakot 1&2 Bays, 220KV Wagoora Pampore 1&2 Bays, 220KV Bus Coupler Bay and 220KV TBC Bay from 1000:1 to 1600:1.

A.4.4 Apart from the above, Jack Bus, Bay jumpers, equipment connectors are also required to be replaced with higher rating in these bays.

A.4.5 The estimated cost for replacement of CTs, Jack bus, bay jumpers and equipment connectors shall be Rs. 1.4 Cr. including GST.

- A.4.6 In view of above, it is proposed to upgrade above elements in 220kV bays at Wagoora Substation under ADDCAP as proposed above to meet increasing load requirement of JKPTCL.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on above proposal and approve accordingly.*

**A.5 Communication System for LILO lines of 400kV Jalandhar (PG) – Kurukshetra (PG) line at Nakodar Sub-station of PSTCL (agenda by POWERGRID)**

- A.5.1 OPGW along with Communication equipment implementation on 400kV Jalandhar (PG) – Kurukshetra (PG) line (229km) was approved in 57th NRPC meeting & concurred by 11th NCT for extending data & voice connectivity of upcoming PSTCL station at Dhanansu. Length of sections at Dhanansu is as below:

Line In at Dhanansu = 3.880km

Line Out at Dhanansu = 3.880km

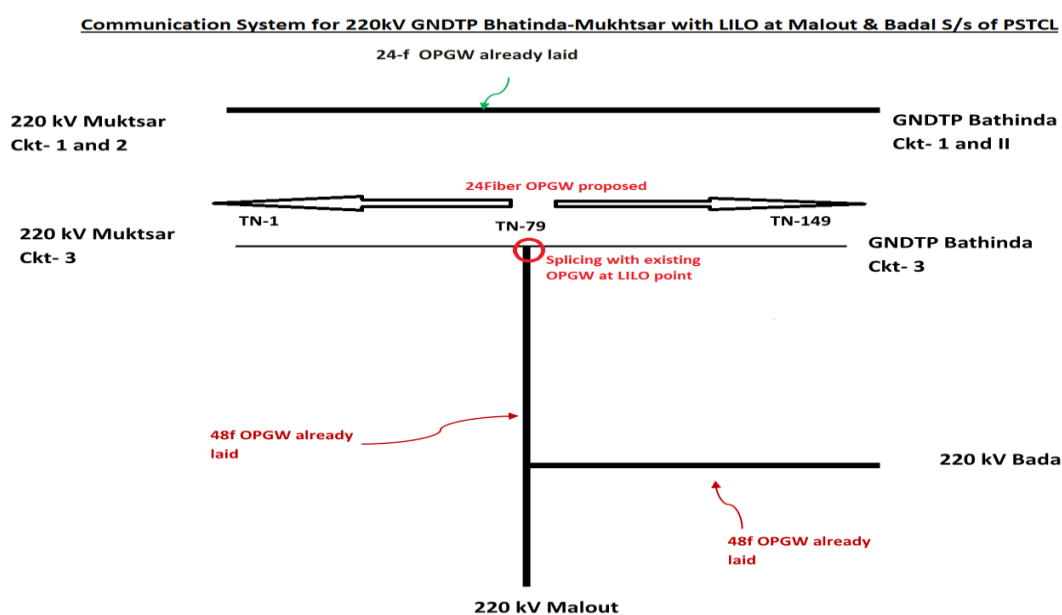
- A.5.2 During 57th NRPC meeting, PSTCL has agreed to pay cost incurred by POWERGRID for communication system in LILO sections of PSTCL at upcoming Dhanansu through bilateral tariff mechanism and shall be shared by PSTCL as per CERC notification.
- A.5.3 POWERGRID has accordingly sought inputs from PSTCL. PSTCL vide email dated 23.02.2023 has proposed communication system implementation on LILO of 400kV Jalandhar-Kurukshetra at Nakodar substation (Line In 3.047km & Line Out 3.047km) in addition to upcoming LILO of Jalandhar-Kurukshetra at Dhanansu s/s.
- A.5.4 Forum may approve implementation of OPGW along with communication equipment by POWERGRID on LILO sections of Jalandhar-Kurukshetra line at Nakodar substation of PSTCL. Investment made by POWERGRID for communication system in LILO at Nakodar shall be recovered through bilateral tariff mechanism and shall be shared by PSTCL as per CERC notification.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on above proposal and approve accordingly.*

**A.6 Communication system for 220kV GNDTP Bhatinda-Mukhtsar line (circuit-3 on Single circuit towers) (Length:51km) to provide data & voice connectivity to LILO sub-stations at Badal & Malout recommended in 58th NRPC (agenda by POWERGRID)**

- A.6.1 OPGW along with communication equipment implementation on 220kV single circuit GNDTP Bhatinda-Mukhtsar line (circuit-3) (Length:51km) was technically concurred in 58th NRPC meeting.
- A.6.2 58th NRPC forum had advised POWERGRID and PSTCL to discuss bilaterally for implementation of Communication System on Bhatinda – Mukhtsar line as same not being ISTS.
- A.6.3 PSTCL vide email dated 02.03.2023 has accepted POWERGRID proposal for implementation of OPGW on 3rd Circuit of 220kV GNDTP Bhatinda-Mukhtsar line and splicing with existing OPGW in LILO section at Badal & Malout (as in single line diagram).



- A.6.4 NRPC may approve implementation of OPGW along with communication equipment by POWERGRID on 3rd circuit of 220kV GNDTP Bhatinda-Mukhtsar line through bilateral tariff mechanism which shall be shared by PSTCL as per CERC notification.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on above proposal and approve accordingly.*

**A.7 Non-opening of Letter of Credit by JKPCCL (formally PDD, J & K) for power supplied from NJHPS & RHPS (agenda by SJVN)**

- A.7.1 As per mutually signed Power Purchase Agreement and order dated 28.06.2019 issued by Ministry of Power, Beneficiary is to submit a confirmed, revolving, irrevocable Letter of Credit in favour of SJVN for an amount equivalent to 105% of average monthly billing of preceding 12 months with appropriate bank as mutually acceptable to parties. The LC shall be kept valid at all the time during the validity of the Power Purchase Agreement.

A.7.2 In spite of repeated reminders, Power Development Department of J&K had not renewed their Letter of Credit after 13.11.2019 for power supplied from NJHPS and RHPS. As such Power Development Department of J&K may be advised to submit Letter of Credit in favour of SJVN.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on issue and decide for appropriate action accordingly.*

**A.8 Delay in payment of Arrear Bills by PSPCL and interest on refund of arrear bills (agenda by SJVN)**

A.8.1 SJVN had to file petitions before CERC for recovery of the Expenditures incurred by SJVN over the years as per CERC regulations for Tariff Determination. If the information furnished in the petition is in accordance with the regulations and is adequate for carrying out prudence check of the claims made, the Commission shall consider the suggestions and objections, if any, received from the respondents, within one month from the date of filing of the petition, and any other person including the consumers or consumer associations. The Commission shall issue the tariff order after hearing the petitioner, the respondents and any other person specifically permitted by the Commission. We are Considering the Tariff regulation issued by CERC for the period 2014-19.

***Point 11 to 13 of Clause 8 Chapter 13 of Tariff Regulation 2014-19 is reiterated below:***

***(11) Where after the truing up, the tariff recovered exceeds the tariff approved by the Commission under these regulations, the generating company or the transmission licensee, shall refund to the beneficiaries or the long term transmission customers /DICs, as the case may be, the excess amount so recovered as specified in the Clause 13 of this regulation.***

***(12) Where after the truing up, the tariff recovered is less than the tariff approved by the Commission under these regulations, the generating company or the transmission licensee shall recover from the beneficiaries or the long term transmission customers /DICs, as the case may be, the under-recovered amount as specified in the Clause 13 of this regulation.***

***(13) The amount under-recovered or over-recovered, along with simple interest at the rate equal to the bank rate as on 1st April of the respective year, shall be recovered or refunded by the generating company or the transmission licensee,***

***as the case may be, in six equal monthly instalments starting within three months from the date of the tariff order issued by the Commission.***

As per Clause 8(13) of CERC regulation, Generators have to raise Arrear Bills within three months from the receipt of Tariff Order from CERC.

- A.8.2 Based on above clauses, SJVN is raising arrear bills to its beneficiaries of NJHPS and RHPS after receipt of CERC orders from time to time. The Arrear bills are to be recovered or refunded as per CERC order in single instalments or multiple instalments.
- A.8.3 PSPCL had unilaterally taken the repayment date on 90th day from the date of issue of Tariff order instead of SJVN bill issue date.
- A.8.4 The Clause 8(13) of CERC regulation is very clear arrear bills can be issued within three months from the date of tariff order rather than payment of Energy Bills from the date of Tariff order.
- A.8.5 Further, PSPCL had deducted interest on negative arrear bills. This had resulted into accumulation of Late Payment Surcharge (LPS).
- A.8.6 PSPCL may be directed to treat the bill date when the bills had been issued and not to charge any interest negative bills which is contrary to any CERC regulation. Further, PSPCL may be directed to pay the LPS on delayed payments to avoid any penal action provided in CERC regulation.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on issue to resolve the same.*

**A.9 Issues arising due to non-availability of sufficient ERS (agenda by NRLDC)**

- A.9.1 The measures required for tower strengthening and availability of Emergency Restoration System are being regularly discussed in NRPC meetings. There have been many past events of tower collapse especially during summer and monsoon season and accordingly all utilities were requested to take necessary actions.

Extract from 62<sup>nd</sup> NRPC Meeting (31<sup>st</sup> January 2023)

***“B. Tower strengthening activities:***

*A.11.6 NRLDC representative stated that there have been number of instances of tower collapse & damage in the past during thunder storms which resulted in constraints in supply power for extended duration of time. Number of tower collapse incidents occurred during last summer also in May/June 2021 & 2022 in which many EHV lines including 765kV lines were out on tower collapse.*

A.11.7 All utilities were requested to ensure availability of Emergency Restoration System (ERS) for early restoration of supply. Each utility shall work on plan for tower repairing work before April. Extra precautions need to be taken care for important lines which have history of tripping during thunderstorm/ windstorm.

A.11.8 NRPC advised all utilities to ensure availability of ERS and take necessary actions for tower repairing work before April 2023.”

A.9.2 Even after actions taken by utilities, it was observed that following lines were out due to tower collapse during last few months:

Sl. No.	Line Name	Owner	Outage Time	Impact on Grid
			Days	
1	765 KV Phagi(RS)-Bhiwani(PG) (PG) Ckt-1	PGCIL	7	Issue of Jhajjar evacuation under N-1 contingency of remaining lines, generation restriction during high demand season
2	765 KV Phagi(RS)-Bhiwani(PG) (PG) Ckt-1	PGCIL	11	
3	400 kV Jhajjar(APCL)-Daulatabad(HV) (HV) Ckt-2	HVPNL	18	
4	400 KV Bikaner-Bhadla (RS) Ckt-1	RRVPNL	78*	
5	400 KV Bikaner-Bhadla (RS) Ckt-2	RRVPNL	78*	
6	400 KV Bhadla-Merta (RS) Ckt-1	RRVPNL	18, 25*	
7	400 KV Bhadla-Jodhpur (RS) Ckt-1	RRVPNL	69*	
8	765 kV Bikaner(PG)-Khetri (PKTSL) (BKTL) Ckt-1	BKTL	1	
9	400 kV Jaisalmer-Barmer (RS) Ckt-2	RRVPNL	43	
10	400 kV Jaisalmer-	RRVPNL	43	

	Barmer (RS) Ckt-1			Bikaner(RS) lines for commissioning of 400kV Bikaner-II.
11	400 kV Akal-Jodhpur (RS) ckt-1	RRVPNL	40	
12	400 KV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) Ckt-1	UPPTCL	2	Evacuation of Vishnuprayag generation through only single 400kV line (400kV Vishnuprayag- Alakhnanda)
13	220 KV Chamera_3(NH)-Chamba(PG) (PG) Ckt-1	PGCIL	24*	
14	221 KV Chamera_3(NH)-Chamba(PG) (PG) Ckt-2	PGCIL	24*	
* these lines are still under outage				

A.9.3 It can be clearly seen from the above table that the outage of lines on tower collapse has led to major issues in grid operation as well as for safe evacuation of generation.

A.9.4 During this period, shutdown of 400kV Bikaner (PG)-Bikaner(RJ) lines were also availed by POWERGRID for commissioning of 400kV Bikaner-II S/s. During the shutdown period, POWERGRID had implemented Quad Moose ERS which helped in minimising the RE curtailment during the shutdown period.

A.9.5 All other utilities are also requested to ensure that they have availability of ERS, trained manpower and also gangs which could complete such tasks swiftly, in case of requirement.

A.9.6 It may be noted that MoP, Govt of India had already issued instructions for procurement of ERS by all transmission utilities (attached as **Annexure-I**) which was discussed in 150<sup>th</sup> OCC meeting (held on 21.08.2018) and CEA (Grid Standards) Regulations, 2010 also suggests keeping necessary arrangement for ERS. The instructions also suggest strategy to determine ERS requirement by utilities:

- *“For any transmission utility, one set of ERS has been planned to cater to failure of towers for transmission line lengths of up to 5000 Ckt. Kms. Accordingly, two (2) sets of ERS have been planned for transmission line lengths of about 5000 to 10,000 Ckt. Kms, and three (3) sets for more than 10,000 Ckt. Kms and so on.*
- *The transmission Utility with line length less than 500 ckt kms (of 400kV lines) may be given option either to procure ERS or have agreement with other*

*transmission utilities for providing ERS on mutually agreed terms, when need arises.”*

Given the increase in line length under jurisdiction of different utilities over the years, it is suggested that the nos of ERS requirement may be reviewed and regularly monitored at OCC level.

It is once again requested to all transmission utilities to ensure that tower strengthening works are carried out on priority before summer season and availability of sufficient ERS may be ensured especially for areas that are more prone to such tower collapse incidents. Further, as agreed in 63<sup>rd</sup> NRPC meeting (held on 24.02.2023), ERS availability monitoring may be included in follow up agenda by NRPC for discussion in monthly OCC meetings.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on issue and may take necessary decision.*

**A.10 Issues related to J&K (agenda by NRLDC)**

A.10.1 The issues related to J&K U/T power system have been under discussion since long time in NRPC forum (most recently discussed in 57<sup>th</sup> NRPC Meeting held on 31<sup>st</sup> August'22), however, the progress is very slow in this regard. Several issues have been persisting in J&K control area which have impact on reliable grid operation in their control area. Various pending issues are listed below:

**i. J&K Telemetry Issues**

A.10.2 The matter was most recently discussed in 64<sup>th</sup> NRPC meeting. Extract of MoM are shown below:

*“A.19.3 Representative from Jammu & Kashmir informed that 47 OPGW links out of 73 links have been commissioned by POWERGRID and remaining links are expected to be completed by June 2023. He further informed that 68 crores funds for OPGW installation has already been given to POWERGRID and they are in process of approval of additional 21 crores fund.*

*A.19.4 NRLDC representative informed that although OPGW links are getting commissioned but RTU data integration is still pending and requested J&K and POWERGRID to expedite integration of RTU data so that visibility of J&K area can be improved.*



*A.19.5 Representative from POWERGRID informed that RTU were commissioned in 2015 by M/s Siemens without communication link. Now when the links are available there are issues in RTU reporting which needs to be addressed. Also at some of the location during Sub-station, retrofitting CT& PT cables were disconnected and new cabling needs to be done.*

*A.19.6 MS NRPC expressed serious concern and requested that a joint meeting may be conducted including members from POWERGRID, NRLDC, J&K and M/s Siemens to finalise the work needed to integrate the RTUs and for further action by J&K.*

*A.19.7 Forum concurred on views of MS, NRPC.”*

A.10.3 No update has been received from J&K till the date.

**ii. Ufr and df/dt status**

A.10.4 As per the agreed quantum relief for NR, total target in respect of J&K for UFR and df/dt are 336 MW and 270 MW respectively. Confirmation on relief quantum is yet to be received from J&K. Moreover, in compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.

A.10.5 Status is still pending from J&K end.

**iii. Long outage of 220kV Kishenpur-Mirbazar line**

A.10.6 220kV Kishenpur-Mirbazar line is under long outage since 19.02.2023 due to tower collapse. It is to be noted that significant time (much higher than time specified in CEA regulations) has passed since line outage and still the line has not been revived yet.

A.10.7 In 57<sup>th</sup> NRPC meeting, J&K representative stated that revival of 220kV Kishenpur-Mirbazar line would be completed in nearly 2-3 months. However, it is still pending.

**iv. Mock black start exercise of URI-I & URI-II HEP, Lower Jhelum HEP**

A.10.8 Mock black start exercise are necessary to make sure that generating units are able to start in case of requirement/ blackout of grid. Mock black start exercise of URI-I & URI-II HEP, Lower Jhelum HEP is yet to be conducted. In 198 OCC meeting, JKPTCL representative agreed that the issue is well known and important and the same would be taken up with SLDC.

A.10.9 As per latest discussion held with J&K & NHPC officers on 27.07.2023, the blackstart exercise for Uri-I & Uri-II are planned in Oct-Nov this year. As the blackstart exercise has not been carried out since number of years, it is requested to plan and adhere to the dates for black start exercise as number of agencies are involved in the exercise.

**v. Reactive compensation details**

A.10.10 J&K grid being weakly connected from the rest of the grid and due to its isolated location suffers from issues of severe low voltage. During winter months when hydro generation is not available and demand in J&K control area is high due to heating load requirements, the issue of low voltage gets aggravated. J&K also has to pay large amounts as reactive energy charges to pool due to high MVA<sub>r</sub> drawl from ISTS grid at the time of low voltage.

A.10.11 It has been discussed and suggested to J&K to plan & expedite commissioning of reactive power devices especially capacitors at lower voltage level to improve the voltage profile in valley area and also avoid large sums payable as reactive energy charges. J&K is requested to furnish latest status of their reactive energy management plan.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on issue of J&K and may take necessary decision.*

**A.11 PMU Data of RVPN substations (agenda by NRLDC)**

A.11.1 Integration of PMU installed under Smart Transmission Network & Asset Management System (STNAMS) was discussed in detail in 64<sup>th</sup> NRPC Meeting held on 24<sup>th</sup> March 2023 wherein it was recorded that work would be completed by 30<sup>th</sup> April 2023.

A.11.2 PMU data is very important to analyse transient/dynamic behaviour on fault/switching. Moreover, it is also important to analyse the recent oscillations observed in RE complex. However, data of PMUs installed in RVPN stations is still not reporting to Rajasthan SLDC/ NRLDC control room.

A.11.3 In 66<sup>th</sup> NRPC meeting, RVPN representative stated that the work would be completed by 15<sup>th</sup> June 2023. However, the work is still pending.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on above issue of RVPN and may take necessary decision.*

## **A.12 Transmission System for evacuation of power from Shongtong Karchham HEP (STKHEP) and Tidong HEP in Himachal Pradesh (agenda by HPPCL)**

A.12.1 The issue regarding evacuation of power from Shongtong Karchham HEP (450MW) was discussed and deliberated during 65<sup>th</sup> NRPC meeting held on 21.04.2023 wherein the following interim arrangements was agreed subject to approval of NCT:

### **(i) Interim Part (Shongtong HEP):**

- Generation switchyard of Shongtong HEP to Wangtoo (HPPTCL) 400Kv D/c [Quad] line (about 18 kms)
- 2 nos. of 400kV bays (GIS) at Wangtoo S/s (HPPTCL).

### **(ii) Final System (To be matching with generation schedule i.e. with time frame of 1<sup>st</sup> July 2026).**

- Establishment of 2x315 MVA (7x105 MVA 1-ph units including one spare unit) 400/220kV GIS Pooling Station at Jhangi.
- Extension of Wangtoo (HPPTCL)- Shongtong HEP 400Kv D/c [Quad] line upto Jhangi PS with one Circuit through Shongtong HEP generation switchyard.
- Wangtoo (HPPTCL)-Panchkula (PG) 400Kv D/c line (Twin HTLS)
- 80 MVAR swchable line reactor at Panchkula end on each circuit of 400kV Wangtoo (HPPTCL)- Panchkula (PG D/c)line.
- 400kV bays at Wangtoo S/s (2 nos.) and Panchkula S/s (2nos.) for termination of 400kV Wangtoo (HPPTCL)- Panchkula (PG) D/c line.
- 125 MVAR, 420kV Bus reactor at Jhangi PS (1-ph units along with one spare unit).

A.12.2 Based on the above decision, the issue was also deliberated and agreed in principle in the 18<sup>th</sup> Consultation Meeting for Evolving Transmission Scheme in Northern Region held on 28.04.2023.

A.12.3 Subsequently, the matter was discussed in the meeting of National Committee on Transmission (NCT) held on 09.06.2023 wherein CTUIL informed that based on the preliminary survey report for 400 kV Wangtoo – Panchkula D/c line, conductor in certain portion of the transmission line may need to be different configuration (due to very high altitude encountered in certain sections) in order to avoid Corona inception gradient. The cost of the transmission scheme may also increase.

- A.12.4 Accordingly, CTUIL was requested to confirm change in conductor configuration, if any, along with revised cost of the scheme based on the survey report and submit the same within two weeks. It is gathered that the details are still under finalization.
- A.12.5 It is further informed that the construction activities of project are in full swing, to achieve the commissioning target of Mid July, 2025 for which power evacuation system needs to be in place before by mid July 2025.
- A.12.6 It is therefore, requested that the approval of proposal for the interim arrangement for evacuation of power from Shongtong Karchham HEP and subsequent award of work may please be expedited in order to ensure that Transmission System is available before Mid July 2025 matching with commissioning schedule of Shongtong Karchham HEP.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on above issue and may take necessary decision.*

**A.13 Implementation of Islanding Scheme in Delhi (Agenda by DTL)**

- A.13.1 A meeting was held on 14.07.2023 with DTL, Delhi SLDC and NRLDC under the chairmanship of MS, NRPC wherein DTL was asked to incorporate the suggestions/observations and put up a revised proposal of the scheme.
- A.13.2 The scheme was again discussed in the 209<sup>th</sup> OCC meeting held on 19.07.2023. After deliberation, the OCC forum concurred the revised Delhi islanding scheme and asked DTL to bring the scheme in upcoming NRPC meeting for final approval of the NRPC Board.
- A.13.3 DTL has submitted the proposal for revised islanding scheme (**Annexure-II**) of Delhi for final approval of the NRPC Committee.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on revised scheme and may approve accordingly.*

**A.14 Installation of capacitor banks at various substations of RVPN and DISCOMs (Agenda by RVPN)**

- A.14.1 As per the deliberations & discussions held during 77<sup>th</sup> TESS meeting of PSDF, RVPN had performed a combined study optimizing the locations for better placement of 33 KV and 11 KV capacitor banks and removing those capacitor banks which are causing over compensation. The study was submitted to NRPC on 12.06.2023 and was discussed with NRLDC and CTUIL in meeting held on 21.06.2023 at NRPC Secretariat.

A.14.2 NRLDC in the meeting held on 21.06.2023 has suggested inclusion of some substations which had been otherwise dropped in the optimization on the basis of the load fluctuations. The same were incorporated in the revised DPRs/BOQ (**Annexure-III**).

A.14.3 Brief of the revised DPR/BoQ is as follows-

S. No.	Entity	Voltage level of Capacitor banks	Capacitor banks proposed earlier	Capacitor banks proposed after optimization by STU- Rev. 1	Capacitor banks proposed after optimization by STU- Rev. 2
1.	RVPN	33 kV	101	100	100
2.	JVVNL	11 kV	578	509	511
3.	AVVNL	11 kV	732	644	650
4.	JdVVNL	11 kV	911	730	730
Total			2322	1983	1991

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on above proposal and may approve accordingly.*

**A.15 Sensitization for use of PushP Portal (agenda by NRPC Secretariat)**

A.15.1 PUSHP portal (<https://nationalsurpluspower.in/>) has been launched on 09th March, 2023 by Hon'ble Minister of Power and NRE. He stated that Portal would be a single window system providing services to diverse domains of all the entities involved and to reallocate and transfer the power in minimum time from one surplus entity to deficit entity.

A.15.2 The agenda was discussed in 64th NRPC meeting (held on 24.03.2023) wherein utilities were sensitized for use of PushP portal for Optimal Utilisation of Resources & Reduction in cost of Power for Consumers.

A.15.3 13<sup>th</sup> NPC meeting (held on 05.07.2023), has highlighted that currently, 17 States are utilizing the portal. However, there is a lack of participation from the states of NR. It was also discussed that State Generating Stations (SGS) units with sufficient coal storage, under RSD, may participate on this portal for meeting the peak demand of other states and national grid.

A.15.4 A meeting was taken by Chairperson, CEA on 08.08.2023 and he highlighted that thermal generating units may leverage the facility of PushP portal. It will ensure capacity utilization of plants and at the same time may provide cheaper power to consumers as PushP portal facilitates power at regulated tariff. Further, the State will also be benefitted as corresponding fixed charge shall be transferred to the beneficiary.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on avenues available at PushP portal and may sensitize utilities of NR.*

**A.16 Notification of CERC Regulations (agenda by NRPC Secretariat)**

A.16.1 CERC has notified following regulations w.e.f 01.10.2023:

- Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023
- Central Electricity Regulatory Commission (Connectivity and General Network Access to the inter-State Transmission System) (First Amendment) Regulations, 2023

A.16.2 It is necessary for utilities to go through changes notified by Hon'ble CERC in above regulations.

***Decision required from the Members of the Committee:***

*NRPC Members may deliberate on major changes notified by Hon'ble CERC.*

**A.17 Reimbursement of Expenditure of NRPC Sectt. for FY 2023-24 by the Members of NRPC (agenda by NRPC Secretariat)**

A.17.1 RPCs are fully financed by the constituent members as per Ministry of Power, Govt. of India letter dated 23.02.2006. Therefore, constituent members are required to pay annual contribution as decided in NRPC meetings from time to time. Annual contribution is decided on the basis of estimated expenditure of next financial year and balance amount in the NRPC fund (if any).

A.17.2 As per SOP issued by CEA vide letter dated 01.05.2023, all expenditures other than salary shall be met by RPC fund. Expenditure of Salary head shall be met from budget provided by CEA and will get reimbursed from RPC fund to CEA on quarterly basis.

A.17.3 Annual Budget for FY 2023-24 has been estimated (**Annexure-IV**) in accordance with expenditure planned for FY 2023-24 pertaining to employee compensation, NRPC office and colony maintenance, AMCs for various services etc.

- A.17.4 So far, annual contribution from members of NRPC has been kept Rs 10, 00,000/- (Rs Ten Lakhs only) since FY 2018-19 to FY 2022-23. During the year 2023-24 additional expenditure is required due to replacement of the lift, one hired EV vehicle for NRPC office, maintenance/painting of NRPC office & colony building, renewal of various AMCs and procurement of laptop/desktop computers etc.
- A.17.5 Keeping in view the budget estimates for the financial year 2023-24 and balance amount available in the NRPC Fund, it is estimated that expenditure for additional works shall be met from the existing savings and there is no need for the enhancement of the existing membership fee.
- A.17.6 In view of above, following proposal is put up for the approval:
- (i) Membership contribution for the year 2023-24 is proposed to be Rs.10 lakh.
  - (ii) It is also proposed that members may complete above reimbursement in NRPC fund by 31.10.2023. As already decided in earlier NRPC meeting, 1% simple interest per month on late payment shall be payable. NRPC would issue demand letters by 01.09.2023 and interest for current FY 2023-24 would be levied from November, 2023 onwards. Payment made during month would also invite 1% interest.

***Decision required from the Members of the Committee***

*NRPC Members may approve the above proposal.*

**A.18 Outstanding Contribution by the Constituent Members**

- A.18.1 NRPC Secretariat has been receiving contribution from most of the constituents in a timely manner except few members. Since FY 2021-22, there has also been provision of penalty of 1% simple interest per month on late payment as decided in NRPC meeting.
- A.18.2 It is informed that till date JKPDCL, JKPDD and DVVNL have pending membership payments of 32 lakhs, 21.8 lakhs and 10.5 lakhs respectively, details of which are mentioned below:

S. No.	Name of Constituent	Financial Year	Outstanding amount (Rs)	Penalty (Rs)
1	JKPDCL/JKPDD	2014-15	11,00,000	-
2	JKPDCL/JKPDD	2015-16	11,00,000	-
3	JKPDCL/JKPDD	2018-19	10,00,000	-
4	JKPDCL/JKPDD	2019-20	10,00,000	-

5	JKPDCL/JKPDD	2021-22	10,00,000	1,80,000
6	Dakshinanchal Vidyut Vitran Nigam Limited	2022-23	10,00,000	50,000
		<b>Total</b>	64,53,000 Rs	

A.18.3 In this regard, pending payment status was discussed in various meetings and several reminders and D.O. letters have also been communicated by NRPC Secretariat (copy enclosed as **Annexure-V**), however above payment is pending till date. Members may appreciate that the timely payment of contribution fee is required for smooth functioning of NRPC secretariat.

***Decision required from the Members of the Committee***

*Members may kindly deliberate the above issue and decide the appropriate action in the matter.*

\*\*\*\*\*



प्रदीप कुमार सिन्हा  
सचिव  
भारत सरकार  
PRADEEP K. SINHA  
Secretary  
Government of India



एनपवर शक्ति  
Ministry of Power  
Shram Shakti Bhawan  
New Delhi - 110001

विद्युत मंत्रालय  
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D.O. No.20/6/2014-OM

05.12.2014

Dear *Shri Negi,*

As you are aware, India has one of the largest A.C. Synchronous Transmission Grids in the world with more than 3 lakhs circuit kms of 220kV and above lines which form the backbone of the Indian Power System.

2. However, this huge network needs to be operated in a sustained and secure manner, particularly, during the time of natural disasters. Failure to do so leads to severe constraints not only in meeting the power demand but also poses serious problems in maintaining safety and security of the Grid. Difficult situations came to light in the wake of recent natural disasters, such as, floods in J&K and Phailin as well as Hud-Hud cyclone in Odisha and Andhra Pradesh. These disasters caused extensive damage to transmission networks resulting in wide spread disruption of many important transmission links and substations affecting power supply for long periods due to the time taken in restoration.

3. You would appreciate that under such adverse situation, the availability of an effective mechanism for emergent restoration of transmission lines in the shortest possible time is of utmost importance. Immediate and temporary restoration of transmission networks is possible by deploying the "Emergency Restoration Systems (ERS)." Grid Standards notified by the Central Electricity Authority(CEA) stipulate that every Transmission Licensee shall have an arrangement for restoration of transmission lines of at least 220kV and above through the use of ERS. However, presently the States do not possess such ERS infrastructure. Consequently, POWERGRID becomes the last resort whose ERS infrastructure is also limited.

4. Therefore, deployment of adequate ERS infrastructure with the States is necessary. In this connection, CEA had recently convened a meeting of the representatives from State Utilities, CTUs and RPCs to deliberate and review their preparedness to effectively restore transmission networks in times of emergency. Based on the inputs received, an Indicative requirement of ERS for States has been assessed which is at Annex-I. Further, CEA has also formulated guidelines for planning, deployment and procurement of such ERS infrastructure (Annex-II).

5. I would, therefore, request you to please issue necessary directives to Transmission Utilities/ Transmission licensees operating in your State to take stock, procure appropriate number of ERS infrastructure and place them at strategic locations. Action taken by the Utilities in this regard may be informed to the CEA and the Ministry of Power, at the earliest.

With regards,

Yours sincerely,

*(Pradeep K. Sinha)*  
( Pradeep K. Sinha )

Encl : as above

Shri Ramesh Negi  
Chief Secretary  
Govt of Arunachal Pradesh  
Itanagar

*Dist:- As per list attached.*



RIGHT TO  
INFORMATION



एक कदम स्वच्छता की ओर

## Availability and Proposed Plan for deployment of ERS

Sl. No.	Region	State Utilities / PGCIL	Availability of ERS sets	Additional ERS set to be procured	Remark
I	Northern Region				
	PGCIL	NR1	3	1	
		NR2	1		
	1	Haryana	-	1	
	2	HP	-	1	Hilly terrain
	3	J&K	-	1	-do-
	4	Punjab	-	2	
	5	Rajsthan	-	3	
	6	Uttar Pradesh	-	3	
	7	Uttarakhand	-	1	
	8	Chandigarh	-	-	
	9	Delhi	-	1	DTL is procuring 2 ERS sets
	10	POWERLINKS	2		1 set each is located in NR and ER; each setting <sup>is</sup> having 14 towers of 400 kV
	Total		6	14	
II	Western Region				
	PGCIL	WR1	2	1	
		WR2	2		
	10	Gujarat	-	3	

	11	MP	1	2	
	12	Chhattisgarh	-	-	
	13	Maharashtra	2	2	
	14	Goa	-	1	
	15	D&NH	-	-	
	16	Daman & Diu	-	-	
	Total		7	9	
III	Southern Region				
	PGCIL	SR1	1	2	
		SR2	1		
	17	AP	-	3	(To be located at Vishakhapatnam, Vijawada, Nellore)
	18	Telengana	-	1	
	19	Karnataka	-	2	
	20	Kerala	-	1	
	21	Tamil Nadu	-	2	
	22	Lakshadweep	-	-	
	23	Puducherry	-	-	
	Total		2	11	
IV	Eastern Region				
	PGCIL	ER1	1	-	
		ER2	2		
	24	Bihar	2	2	
	25	Jharkhand	-	1	
	26	Orissa	3	2 (comprising of 12 nos. of 400kV towers which is in the process of procurement)	Existing ERS located at Bhubaneswar, Chatrapur and Budhipada (each with 14 ERS towers)
	27	West Bengal	-	2	
	28	DVC	-	1	

	29	A&N Island	-	-	
	30	Sikkim	-	-	
	Total		8	8	
V	North Eastern Region		-		
	PGCIL	NER	1		
	31	Assam	4	2	
	32	Manipur	-		
	33	Meghalaya	-		
	34	Nagaland	-		
	35	Tripura	-		
	36	Ar. Pradesh	-		
	37	Mizoram	-		
	Total		5	2	
	Total All India		28	44	

Note: POWERGRID has informed that they are procuring 6 additional sets of ERS for different regions.

Strategy adopted

- The primary criterion for deciding number of ERS to be arranged by a transmission utility has to be the length of transmission line (ckt-kms) at different voltage levels (e.g 220 kV, 400 kV, 765 kV and +/- 500kV HVDC). Other factors to be taken into account while deciding the number of ERS are
  - Importance of the line considering security of Grid
  - Areas prone to tower failure and failure pattern in different areas
  - Command area of the transmission utility and transportability across the command area
- For any transmission utility, one set of ERS has been planned to cater to failure of towers for transmission line lengths of up to 5000 Ckt. Kms.. Accordingly, two (2) sets of ERS have been planned for transmission line lengths of about 5000 to 10,000 Ckt. Kms. and three (3) sets for more than 10,000 Ckt. Kms and so on.
- The transmission Utility with line length less than 500 ckt kms (of 400kV lines) may be given option either to procure ERS or have agreement with other transmission utilities for providing ERS on mutually agreed terms, when need arises.

GUIDELINES FOR PLANNING, PROCUREMENT AND DEPLOYMENT OF EMERGENCY RESTORATION SYSTEM (ERS)

1. One set of ERS should include all accessories [structures (Aluminum Alloy), polymer insulators & hardware, anchor assembly, guy wires, foundation plates, guy plate, other equipment & fittings, special Tools & Plants required for erection & stringing of ERS and trailer mounted detachable containers (without engine) for storage & transportation of ERS hardware / material etc.] and associated software.
2. One set of ERS shall be capable of restoring few numbers of suspension towers and tension towers of the transmission line corresponding to the highest transmission voltage in operation in the utility with required type of conductors. The same ERS can be used for lower voltage lines as well. The number of suspension, tension towers, insulators and associated hardware etc., to be included under one set of ERS, may be decided by the utilities at the time of procurement depending on their requirement.
3. Proper management of ERS and training of personnel for erection of towers on ERS and use of associated software is essential. A dedicated and specialized erection & commissioning gang, which is properly trained to execute such work, would be required.
4. ERS should be utilized only for emergency purposes and the line should be restored on normal towers as early as possible. It should not be a practice to run transmission line on ERS for a long time instead of shifting to normal towers. Moreover, ERS should not be used in new lines under construction. Otherwise, the very purpose of ERS will be defeated.
5. The deployment of ERS by any transmission utility / licensee should be reported to concerned RLDC and RPC.
6. The transmission utilities may approach Appropriate Commission for approval and initiate procurement process on urgent basis to comply with Grid Standards. Utilities may also approach State Disaster Management Authorities for funding.
7. The funding for procurement of ERS could be considered from PSDF for North Eastern States and a proposal be submitted by Member Secretary, NERPC.

**Revised**  
**Delhi Islanding**  
**Scheme-2023**  
**(Agenda for 68th NRPC meeting)**

## CONTENTS

<b>S.No.</b>	<b>Description</b>
<b>1</b>	<b>Chapter 1: Introduction</b>
<b>2</b>	<b>Chapter 2: Overview of the Delhi Power System</b>
<b>3</b>	<b>Chapter 3: Proposed Islanding scheme for Delhi</b>
<b>4</b>	<b>Chapter 4: List of feeders to be disconnected for Island Formation</b>
<b>5</b>	<b>Chapter 5: Details of Generation considered in Delhi Island</b>
<b>6</b>	<b>Chapter 6: List of designated Load considered in Delhi Island</b>
<b>7</b>	<b>Chapter7: List of Designated Feeders and df/dt settings for post Islanding Load-Generation Balancing</b>
<b>8</b>	<b>Annexures</b>

## CHAPTER-1

### INTRODUCTION

There were two major grid disturbances, one at 02.33 hrs on 30-07-2012 and second at 13.00 hrs on 31-07-2012. The first grid disturbance affected mainly Northern Region and the second disturbance resulted in collapse of Northern, Eastern, and North-Eastern regional grids.

The Enquiry Committee constituted by Ministry of Power, Govt. of India to look into the detailed causes of these disturbances and to suggest remedial measures, has also inter-alia made the following recommendation:

#### **“9.12 Implementation of islanding schemes**

Efforts should be made to design islanding scheme based on frequency sensing relays so that in case of imminent grid failure, electrical islands can be formed. These electrical islands can not only help in maintaining supply to essential services but would also help in faster restoration of grid.

In order to design/ review and to bring out the broad frame work of the islanding scheme for Delhi, a study group was constituted by CEA. This study group comprised representatives from Delhi SLDC, DTL, NRLDC, PGCIL (CTU), NTPC, NRPC, CEA and an expert from IIT. The islanding scheme was prepared based on the deliberations by the study group.

Based on the deliberations by the study group, DTL has prepared and finalized the Islanding scheme in consultation with CEA, PGCIL and NRPC.

As suggested by the study group, initially 4 islands were envisaged for the Delhi system namely:

1. Dadri Island
2. BTPS – Pragati
3. CCGT – Bawana
4. Jhajjar



As per the directions of NRPC, the 4 Islands were merged and a single island was implemented in the year 2016. Since then, lots of changes have taken place in the Delhi Power System and during the last 10 years, Rajghat & BTPS Power House has been de-commissioned and these Generating Stations are no longer operational. Moreover, Dadri State 2, 3 in the Dadri Complex are no longer scheduled by Delhi DISCOMs. Similarly, the DISCOMs are not scheduling from Jhajjar Thermal Power Station and the Pragati Power Station is also not generating as on date due to DISCOMs not scheduling from the station. Currently, Gas Turbine Stations are generating approximately 30MW Power and CCGT Bawana is generating approximately 270MW depending on the availability of Gas.

The Delhi Island implemented currently is a deficit island and there is severe shortage of generators in the island and the DISCOMs are not scheduling the power from the Jhajjar-Pragati – Dadri Generating stations and therefore the chances of the survival of the existing island are very less due to the non-availability of generators which is leading to severe load generation mismatch.

The issue of Delhi Islanding Scheme is regularly discussed in the NRPC OCC Meetings and over a period of time it emerged that the non availability of generation and non scheduling from the Dadri – Pragati – Jhajjar Generating stations by Delhi DISCOMs is a major issue. The issue was discussed in the 198<sup>th</sup> OCC Meeting held on 22.07.2022 and it was suggested that in view of the allocation of Dadri – II to Haryana and non scheduling of Jhajjar –Dadri-II due to high cost, the Delhi Island may not survive and that it would be better to have two small islands, one for GTs and the other with Bawana since mostly these plants are in operation and therefore survival chances for island would be more. Moreover, these islands could be controlled at 220KV level of DTL by STU and not 33KV level by DISCOM.

It was suggested that DTL may bring out proposal for further discussion at NRPC, Secretariat and NRLDC level. Considering the network availability of generation of CCGT Bawana and IP GT, scheme of a single island was formed and discussed in NRPC Secretariat on 11.11.2022 and the scheme was further modified and the same is detailed in the subsequent chapters.

## CHAPTER-2

### **OVERVIEW OF DELHI POWER SYSTEM**

The Generation & Transmission functions in Delhi power system are performed by Indraprastha Power Generation Company Limited/ Pragati Power Company Limited and Delhi Transco Ltd respectively. The distribution functions have been entrusted upon three private companies; BSES Rajdhani Power Limited distributes power in South and West part of Delhi; BSES Yamuna Power Limited distributes power in Central and East part of Delhi; and Tata Power Distribution Co. Ltd. distributes power in North and North-West part of Delhi. Besides these three private distribution companies, the power supply in New Delhi and Delhi Cantonment areas is being managed by New Delhi Municipal Council (NDMC) and Military Engineering Services (MES) respectively.

The transmission network of Delhi consists of a 400 kV ring around the periphery of Delhi inter-linked with the 220 kV network spread all over the city. Delhi meets power requirement from its own generation resources and imports at 400kV Mandola, Maharani Bagh, Bawana, Bamnauli, Ballabgarh, Dwarka & Tughlakabad and 765 kV Jhatikara sub-stations. The power map of Delhi is attached as Annexure-C.

There has been considerable improvement in the power supply position. The peak demand is increasing every year and DTL has met a highest ever peak demand of 7695MW on 29<sup>th</sup> June,2022.

Delhi being the Capital city of the country, the importance of maintaining the uninterrupted power supply to VVIP areas like President House, Parliament House including VIP areas of NDMC is of utmost importance and driving force for an efficient islanding scheme.

Delhi meets its power requirement mainly from the following resources:

- Through own Generation,
- From its share in Central Generating Units, and
- Through bilateral agreements

The power is injected in the Delhi transmission system through 765kV, 400kV and 220kV network or in the sub-transmission network at 66kV and 33kV levels. Power injection at 765kV has also started in the NCR region from 765kV grid substation at Jhatikara being managed by PGCIL providing 400kV supply, through 765/400kV transformers, to Mundka and Bamnauli substations of DTL and newly commissioned 400kV Substations Dwarka & Tughlakabad of PGCIL.

The power received at various interconnection points on Delhi ring is directly fed into the 220kV network of DTL. The main transmission system for importing and carrying bulk power in Delhi is the 400kV Double Circuit quad Bersimis Ring which is capable of carrying 4000 MW power through it.

## CHAPTER-3

### **PROPOSED ISLANDING SCHEME FOR DELHI-2023**

As suggested by NRPC, the Islanding Scheme is to be prepared considering the available generation of Gas Turbine (GT) and CCGT Bawana in Delhi which is approximately 30MW and 270MW respectively.

Prior to the existing Islanding Scheme as discussed earlier, there was an islanding scheme for IP and Badarpur Complex of Delhi system. The scheme was implemented in 2001 and now has undergone changes from time to time after addition & deletion of generation and load, depending upon prevailing operational philosophy.

Now, the revised islanding scheme is designed for survival of GT and CCGT Bawana to meet the load of Parliament, Central Secretariat, Rashtrapati Bhawan, AIIMS, RML Hospital, Safdarjung Hospital, Sucheta Kriplani Hospital, GB Pant Hospital etc. As per this scheme, when the frequency falls to 47.9 Hz, the proposed Delhi System comprising CCGT Bawana, 400kV Bawana, 400kV Maharani Bagh and associated 220kV system will separate from Northern Grid at Bawana, Maharani Bagh, Sarita Vihar, IP Station to form a Single Island to feed the important load of VVIP establishments/ hospitals.

The load of Railways, Metro, Delhi International Airport Limited (DIAL) and Defense /MES establishment have not been included in the present islanding proposal due to limited generation of only 300MW, involvement of higher no. of elements to be tripped and high reactive power generation due to presence of large no of 220kV Underground Cables Ckts which will decrease the probability of formation of Island. All the VVIP establishments/ hospitals including Delhi International Airport are supposed to have their own back-up power supply arrangement to deal with any emergency condition and Delhi International Airport is already maintaining emergency backup system of 42MVA (14 DG Sets of 3MVA capacity each) apart from UPS for sensitive electronic equipment.

The following elements will be disconnected for formation of Island:

- All 400kV lines except 400kV Bawana-Maharani Bagh ckt- I & II at 400kV Bawana.
- All 400kV lines except 400kV Bawana-Maharani Bagh ckt- I & II at 400kV Maharani Bagh sub-station.

- 220kV BTPS Circuits-I & II will be disconnected at Sarita Vihar.
- All 220kV elements except 100MVA Transformer and 220kV Rohini-II Ckts I & II will be disconnected at Bawana.
- Both Circuits of 220kV Gazipur, Masjid Moth and Lodhi Road will be disconnected at Maharani Bagh.
- 220kV Rajghat Circuits-I&II and 220kV Patparganj Circuits-I&II will be disconnected at IP.
- All Generator Transformers will be disconnected at 220kV Pragati Station
- 220kV Dev Nagar Ckt will be disconnected at Electric Lane (HCML).
- All the Incomers from transformers will be disconnected at Sarita Vihar.
- All the 66kV and 33kV Feeders except those feeders considered for Islanding will be disconnected at IP, Park Street, Electric Lane (HCML), Trauma Center, Rohini-II and GT stations.

The Network for Islanding formation is attached as **Annexure A**.

The important points for creation of island are as under:

- i. The field breaker at CCGT Bawana opens at 47.4Hz with 2 second time delay.
- ii. The field breaker at GT opens at 47.5Hz with 500 mili second time delay.
- iii. The proposed islanding frequency for separation of the above Delhi Network from Northern Grid will be 47.9Hz. The decision will be taken by under-frequency function enabled in two different relays. DT signal will also be sent to the remote end to ensure isolation.
- iv. The Under Frequency Load Shedding scheme mandated as defense mechanism for Northern Region will remain intact as 49.4Hz, 49.2Hz, 49.0Hz, 48.8Hz.
- v. The df/dt Load Shedding scheme mandated as defense mechanism for Northern Region will remain intact as 49.9Hz with slope of 0.1Hz/Sec, 0.2Hz/sec and 0.3Hz/sec.
- vi. The 66kV, 33kV and 11kV feeders which are not to be considered in the Island, will be disconnected at the frequency of 48.4Hz at Park Street, IP, GT Station, Electric Lane (HCML) and Trauma Center.
- vii. 220kV Bus-Coupler at 220kV S/Stn Pragati shall be closed at 48.2Hz.
- viii. The bus configuration of 220kV level at 400kV S/Stn Bawana shall be such that ICTs nos 1,3 & 5 are parallel on one Bus System (Bus 1,3,5) and similarly ICTs nos 2,4 & 6 are parallel on another Bus System. The configuration is depicted in the layout of 400kV S/Stn Bawana as Annexure B.

## **Post islanding load-generation balancing Philosophy**

For post islanding load-generation balancing, first of all, non-essential load at 400kV Bawana & 220kV S/Stn Rohini-II will be disconnected with the negative slope of 1.0 Hz/Sec to take care of the generation deficit island scenario.

Further, the selected feeders will be allocated for disconnection at Park Street, GT Station, IP, with negative slope of 0.3Hz/Sec, 0.2Hz/Sec and 0.1Hz/Sec and with additional time delay to take care of the generation deficit island scenario to make sure that the above slopes of 0.3Hz/Sec, 0.2Hz/Sec and 0.1Hz/Sec of df/dt relays operate only after formation of Island. The output will be configured with AND gate of the above slopes of df/dt and triggering of Islanding frequency of 47.9Hz.

The Delhi Island is expected to survive when the available generation is 300MW and in case of excess generation, generating units at Pragati and CCGT Bawana will act as per droop characteristics of governor.

After the formation of Island, the restoration of the Delhi system will be done as per the Standard Operating Procedure. The supply to DIAL will be restored by energizing DTLs AIIMS-R. K Puram-Vasant Kunj-Mehrauli-DIAL circuits, while keeping the 220/66kV and 220/33kV transformers at these stations in OFF condition. The supply to Defense feeders will be restored through energizing AIIMS-R.K Puram-Ridge Valley-Naraina circuits, keeping other loads in OFF condition.

## CHAPTER-4

### LIST OF FEEDERS TO BE DISCONNECTED DURING ISLAND FORMATION

S.No.	Name of the Substation	Name of the Bay/feeder (s) to be disconnected at 47.9Hz for Delhi Island Formation
		400kV Bahadurgarh
		400kV Bhiwani
		400kV Abdullapur
		400kV Dipalpur
		400kV Mundka Ckts-1 & 2
		220kV Rohini-1 Ckts-1 & 2
		220kV Kanjhawala Ckts-1 & 2
		220kV Shalimar Bagh Ckts-1 & 2
		220kV DSIDC Bawana Ckts-1 & 2
		400kV Ballabgarh
		400kV Dadri
		400kV Mandola Ckts-1 & 2
		220kV Masjid Moth Ckts-1 & 2
		220kV Lodhi Road Ckts-1 & 2
		220kV Gazipur Ckts-1 & 2
		220kV BTPS Ckts-1 & 2
		All Incomers from 160MVA/100MVA Transformers
		220kV RPH Ckts-1 & 2
		220kV Patparganj Ckts-1 & 2
		All 33kV feeders other than designated load
		220kV Dev Nagar
		All 66kV & 33kV feeders other than designated load
		220kV RK Puram Ckts-1 & 2
		All 33kV feeders other than designated load
		220kV Dev Nagar Ckt
		All 33kV feeders other than designated load
9	220kV Pragati	All Generator Transformers

## CHAPTER-5

### DETAILS OF GENERATION CONSIDERED IN DELHI ISLAND

<b>S.No.</b>	<b>Generating Station</b>	<b>Generation (MW)</b>
1	CCGT-Bawana	270
2	GTPS	30
	<b>Total Generation (MW):</b>	<b>300</b>

**Total Generation considered in Delhi Island is 300MW.**



**CHAPTER-6**

**LIST OF DESIGNATED ESSENTIAL LOAD CONSIDERED IN DELHI ISLAND**

S. No.	Name of the Substation	Designated essential load/feeders in Revised Delhi Island	Max demand (7695 MW)	Min demand (2527 MW)	Max demand (5245 MW)	Min demand (1318 MW)
			Date-29.06.2022	Date-23.05.2022	Date-31.12.2019	Date-08.01.2022
			Time-15:10:41	Time-08:30:00	Time-10:45:48	Time-04:00:00
		33kV Bay 19, G.B Pant	19	8	10	6
		33kV Bay 34, Minto Road	16	9	10	6
		33kV Bay-29 & 33kV IG Stadium	19	6	8	4
		33kV Supreme Court	2	1.25	1	0.75
		33kV Bay-2, Nirman Bhawan	8	1	4	1
		33kV Bay-16, Nirman Bhawan	11	2	7	1
		66kV BD Marg- I & II	26	10	20	7
		66kV State Guest House	26	4	14	2
		33kV Hanuman Road	7	2	0	1
		33kV Nirman Bhawan	0	1	4	1
		66kV School Lane-I	17	4	19	1
		66kV School Lane-II	8	3	9	6
		66kV Vidyut Bhawan-I	10	18	17	10
		66kV Vidyut Bhawan-II	34	5	24	0
		33kV AIIMS- I,II&III	18	7	13	4
		33kV Trauma Centre-I & II	8.1	3	8.8	1.6
		33kV Safdarjung Hospital	1.6	1.6	-	1.6
		33kV Raisina I & II	18	5	3	2
		33kV Raja Bazar	10	3	2	1
<b>Total Load (MW):</b>			<b>258.7</b>	<b>94.1</b>	<b>173.8</b>	<b>56.95</b>

**Feeder wise details of Essential Load considered for Islanding**

S. No.	220kV DTL S/stn	66kV / 33kV Discoms feeders	Essential Load Feeder/ Connected Grid
			Delhi Gate Booster Pump
			EDP Cellplant Hospital
			LNJP-1
			LNJP-2
			MAMC
			New LNJP Hospital
			DDU Marg Court Complex
			DJB, Ramlila Ground
			SLDC
			GB Pant Hospital
			LNJP Hospital- 110 Beds
			Maulana Azad Dental College
			CPWD-1
			CPWD-2
			DJB STP Delhi Gate
			33 KV MCD Civic Centre
		33kV Supreme court	Supreme Court
		33kV Bay-2 , Nirman Bhawan	
		33kV Bay-16 , Nirman Bhawan	
		66kV BD Marg I & II	
		66kV State Guest House	
		33kV Hanuman Road	
		33kV Nirman Bhawan	
		66kV School Lane-I	
		66kV School Lane-II	
		66kV Vidyut Bhawan-I	
		66kV Vidyut Bhawan-II	
		33kV AIIMS-I,II &III	AIIMS Hospital
		33kV Trauma Centre-I & II	AIIMS Trauma Centre
		33kV Safdarjung Hospital	Safdarjung Hospital
		33kV Raisina I & II	Parliament Annexe
		33kV Raja Bazar	Sucheta Kriplani Hospital

**LIST OF DESIGNATED NON-ESSENTIAL LOAD CONSIDERED IN DELHI ISLAND FOR STABILITY OF ISLAND IN CASE OF EXCESS GENERATION**

S. No.	Name of the Substation	Designated non-essential load/feeders in Revised Delhi Island	Max demand (7695 MW)	Min demand (2527 MW)	Max demand (5245 MW)	Min demand (1318 MW)
			Date-29.06.2022	Date-23.05.2022	Date-31.12.2019	Date-08.01.2022
			Time-15:10:41	Time-08:30:00	Time-10:45:48	Time-04:00:00
1	400kV Bawana	100MVA Transformer	63	15	45	25
2	220kV Rohini-II	66kV RG-28 Ckt-1	45	18	31	8
		66kV RG-28 Ckt-2	45	18	31	8
		66kV RG-30 Ckt-1	35	8	0	8
		66kV RG-30 Ckt-2	35	8	30	8
		<b>Total Load (MW):</b>	<b>235</b>	<b>67</b>	<b>137</b>	<b>57</b>

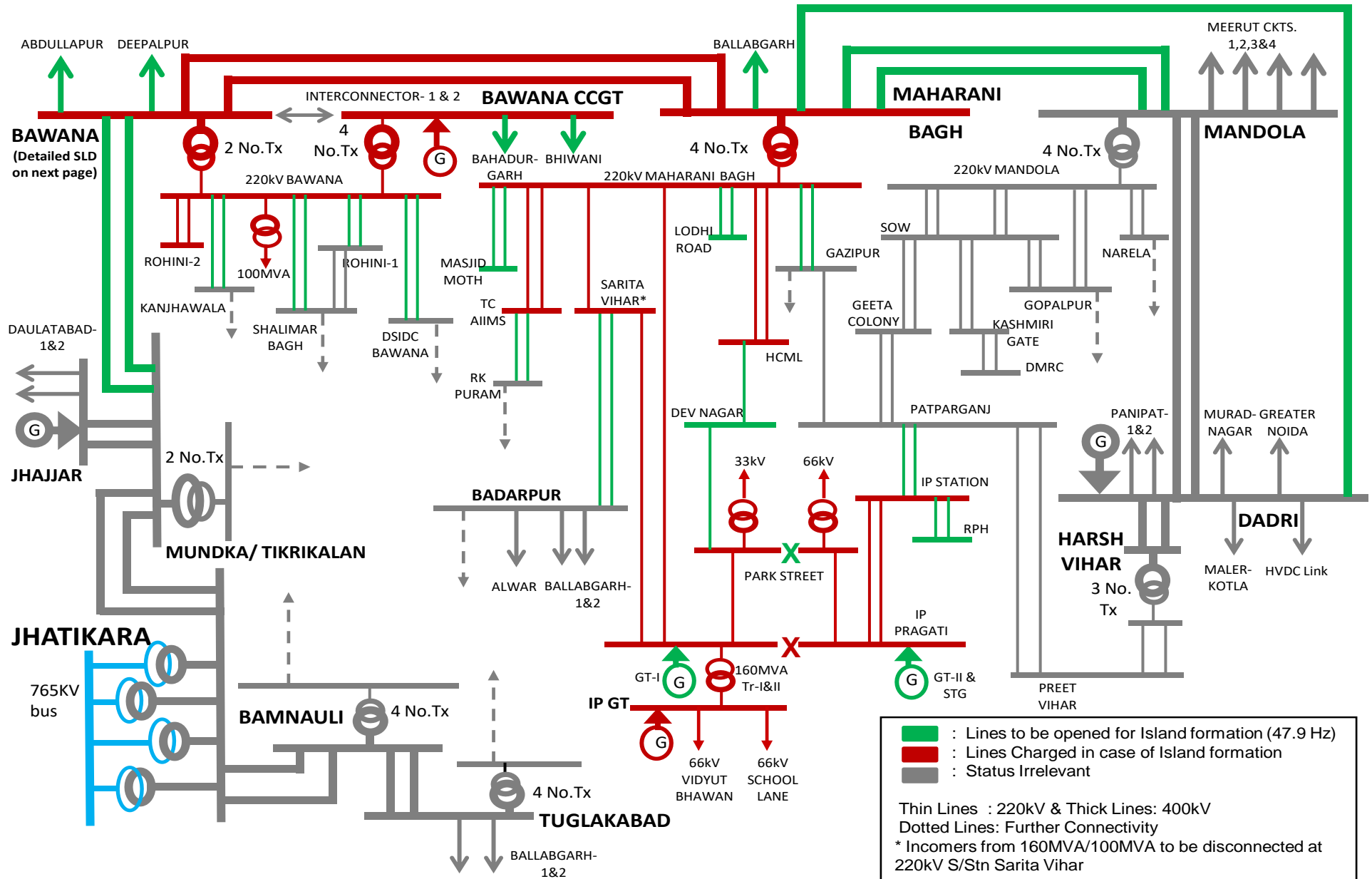
**CHAPTER-7**

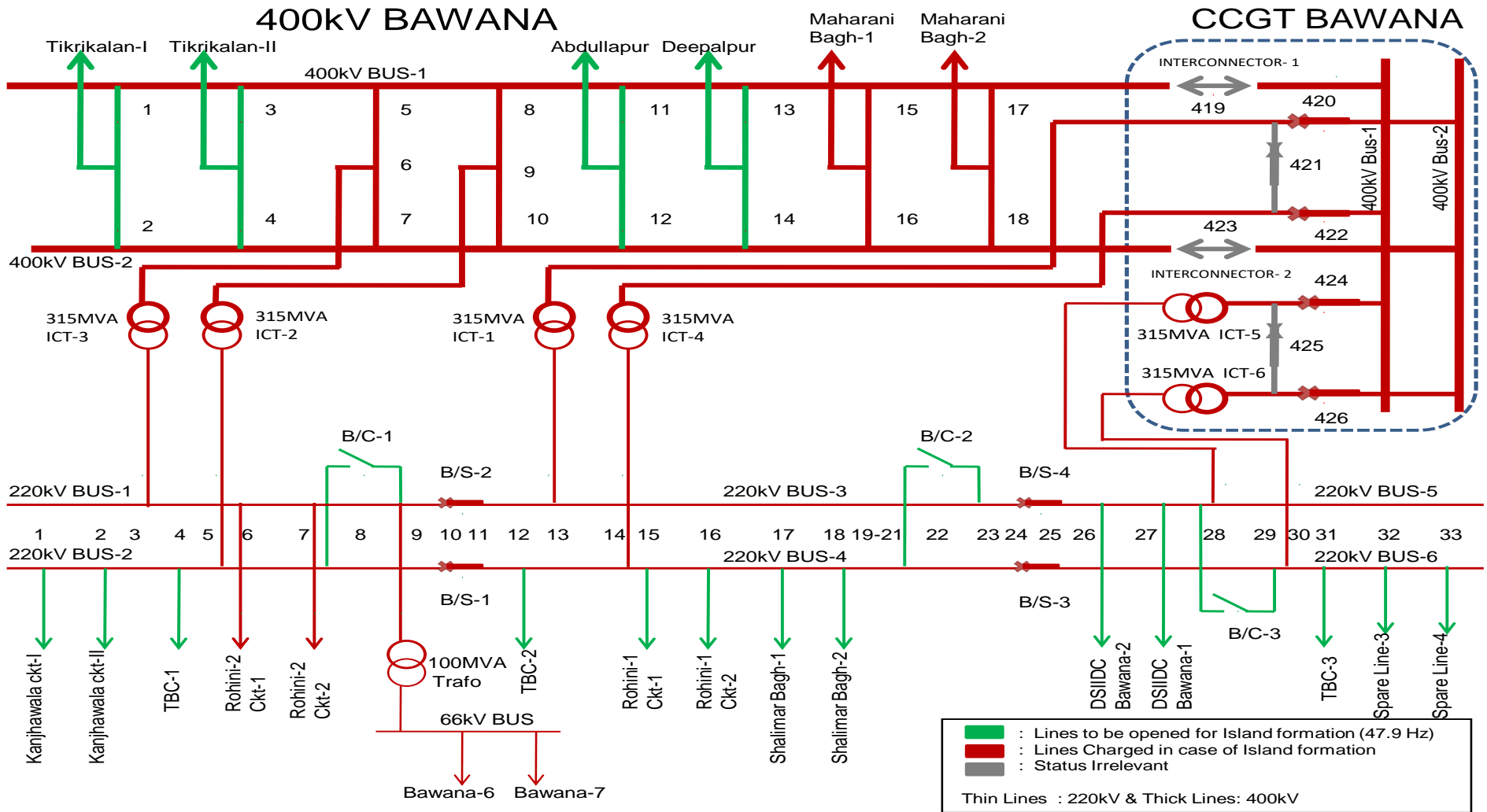
**LIST OF DESIGNATED FEEDERS AND df/dt SETTINGS FOR POST ISLANDING  
LOAD-GENERATION BALANCING**

S. No.	Name of the Substation	Designated load/feeders in Revised Delhi Island	Max demand (7695 MW)	df/dt Setting	Time Delay
			Date-29.06.2022		
			Time-15:10:41		
1	220kV I.P	33kV Bay 19, G.B Pant	19	0.2hz/sec	1000ms
		33kV Bay 34, Minto Road	16	0.1hz/sec	4000ms
		33kV Bay-29 & 33kV IG Stadium	19	0.3hz/sec	400ms
		33kV Supreme Court	2	0.2hz/sec	3000ms
		33kV Bay-2, Nirman Bhawan	8		
		33kV Bay-16, Nirman Bhawan	11		
2	220kV Park Street	66kV BD Marg- I & II	26	0.2hz/sec	2000ms
		66kV State Guest House	26	0.3hz/sec	-
		33kV Hanuman Road	7	0.2hz/sec	3000ms
		33kV Nirman Bhawan	0	No tripping envisaged. Feeder will always be kept ON	
		66kV School Lane-I	17	0.3hz/sec	300ms
		66kV School Lane-II	8	0.3hz/sec	300ms
		66kV Vidyut Bhawan-I	10	0.1hz/sec	5000ms
		66kV Vidyut Bhawan-II	34	0.1hz/sec	5000ms
		33kV AIIMS- I,II&III	18		
		33kV Trauma Centre-I & II	8.1		
		33kV Safdarjung Hospital	1.6		
		33kV Raisina I & II	18		
		33kV Raja Bazar	10		
6	400kV Bawana	100MVA Transformer	63	1hz/sec	0ms
		66kV RG-28 Ckt-1	45	1hz/sec	100ms
		66kV RG-28 Ckt-2	45	1hz/sec	100ms
		66kV RG-30 Ckt-1	35	1hz/sec	200ms
		66kV RG-30 Ckt-2	35	1hz/sec	200ms

REVISED DELHI ISLAND - JULY 2023

ANNEXURE-A





Note: 220kV feeders and 100MVA transformer can be kept on any of the buses as per requirement.





**RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED.**  
 [Corporate Identity Number (CIN):U40109RJ2000SGC016485]  
 (Regd. Office: Vidyut Bhawan, Jan Path, Jyoti Nagar, Jaipur - 302 005)  
**OFFICE OF THE SUPERINTENDING ENGINEER (PROJECT & PLANNING)**  
 ☎ +91-141-2740623, Fax:+91-141-2740794;  
 e-mail: [se\\_pp@rvpn.co.in](mailto:se_pp@rvpn.co.in); [website:www.rvpn.co.in](http://www.rvpn.co.in)



No. RVPN/SE(P&P)/XEN -2/AE-III/ F. 51 /D Jaipur, Dt.

**The Member Secretary (NRPC),**  
 Northern Regional Power Committee,  
 A-18, Shaheed Jeet Singh Marg, Katwaria Sarai,  
 New Delhi-110016

**Sub:** Submission of the revised DPR (R-2) along with cost for proposal of installation of 33 kV & 11 kV capacitor banks in Rajasthan

- Ref:** 1. This office letter with RajKaj reference No. 4133888 dated 26.06.2023 regarding submission of revised DPRs (R-1).  
 2. Combined study performed by RVPN optimizing the locations for placement of capacitor banks submitted by RVPN vide email on 12.06.2023 with letter RajKaj reference No. 3986454.  
 3. NRPC e-mail dated 14.07.2023 regarding incorporating comments of NRLDC on proposed study

**Area Covered:** Jaipur, Ajmer & Jodhpur Zone

- Proposals:** 1. RRVNPL (Proposal No. 320 of PSDF)  
 2. JVVNL (Proposal No. 349 of PSDF)  
 3. AVVNL (Proposal No. 351 of PSDF)  
 4. JdVVNL (Proposal No. 347 of PSDF)

Dear Sir,

As per the deliberations & discussions held during 77<sup>th</sup> TESC meeting of PSDF intimated to us vide letter No. NLDC-PSDF/74<sup>th</sup> TESC/2022-23 dated 11.04.2023, RVPN had performed a combined study optimizing the locations for better placement of 33 kV & 11 kV capacitor banks and removing those capacitor banks which are causing overcompensation. This study was submitted to your good self on dated 12.06.2023 along with NRLDC & CTUIL and was discussed in meeting held on 21.06.2023 at NRPC Secretariat, New Delhi.

As per the outcome of the study & as per discussions in the meeting on 21.06.2023, revised DPRs (R-1) for three DISCOMs & RVPN was submitted on 26.06.2023 for vetting & approval by NRPC, so that the proposals can be finally submitted to PSDF for requisite grant.

NRLDC in the meeting held on dated 21.06.2023 has suggested inclusion of some substations which had been otherwise dropped in the optimization on the basis of the load fluctuations. The same

**Signature valid**

Digitally signed by Suresh Chand Meena  
 Designation : Additional Chief Engineer  
 Date: 2023.08.04 15:03:47 IST  
 Reason: Approved

RajKaj Ref No. : 4422068





communication has been received through e-mail of NRPC dated 14.07.2023 with suggestions to incorporate the comments. In this respect, comments of NRLDC have been incorporated in the revised DPRs/BoQ (R-2) being submitted.

Brief of the revised DPR/BoQ is as shown hereunder:-

S.No.	Entity	Voltage Level of Capacitor Banks	Capacitor Banks proposed earlier	Capacitor Banks proposed after optimization by STU-R1	Capacitor Banks proposed after optimization by STU-R2
1.	RVPN	33 kV	101	100	100
2.	JVVNL	11 kV	578	509	511
3.	AVVNL	11 kV	732	644	650
4.	JdVVNL	11 kV	911	730	730
<b>Total</b>			<b>2322</b>	<b>1983</b>	<b>1991</b>

1. **RVPNL-** RVPN has removed 01 No. of 33 kV capacitor bank from its previously proposed & NRPC vetted 101 Nos. of capacitor banks.  
**Revised BoQ indicating 100 Nos. of locations & revised financial implication is placed at Annexure-I.**
2. **JVVNL-** 11 kV capacitor banks at 220 kV Gangapur City & 220 kV Baran have been included in the BoQ.  
**Revised DPR along with BoQ is placed at Annexure-II.**
3. **AVVNL-** 11 kV capacitor banks at 220 kV Khinvsar have been included in the BoQ.  
**Revised DPR along with BoQ is placed at Annexure-III.**
4. **JdVVNL-** No changes in the quantity of 11 kV Capacitor banks for JdVVNL, as capacitor bank at 220 kV GSS, Sayla has been covered by RVPN.  
**Revised DPR along with BoQ is placed at Annexure-IV.**

Encl: As Above

(S.C. Meena)  
Chief Engineer (PP&D),  
RVPN

Signature valid

Digitally signed by Suresh Chand Meena  
Designation : Additional Chief Engineer  
Date: 2023.08.04 15:03:47 IST  
Reason: Approved

RajKaj Ref No. : 4422068



## Annexure-I

<b><u>Revised BOQ of capacitor banks as per observations by TESG</u></b>					
<b>Estimate for One No. 33 KV Capacitor Bank Bay (Departmental works)</b>					
				(Rs. in lacs.)	
S.No.	Particulars of material	Qty.	Unit	Rate	Amount
<b>1</b>	<b>Structures</b>				
a	Column-X	2	Nos.	3768	7536.00
b	Column-Y	4	Nos.	28385	113540.00
C	Column-Z	0	Nos.	22350	0.00
d	Beam-GF (5-4 mtr)	2	Nos.	18531	37062.00
e	Strs-X 15	3	Nos.	18626	55878.00
f	Strs-33 KV CT	1	Nos.	14689	14689.00
<b>2</b>	<b>Equipments and CR Panels</b>				
a	33 KV SF <sub>6</sub> Breaker, 110 V DC	1	Nos.	211810	211810.00
b	33 KV CT ratio 250/1A, 2C, 0.5C	1	Nos.	36374	36374.00
C	33 KV LA	0	Nos.	4292	0.00
d	33 KV Isolator with EB (800 A)	2	Nos.	25500	51000.00
e	33 KV Isolator without EB (800 A)	1	Nos.	19600	19600.00
f	2X24 KV Polycon Insulators	36	Stack	728	26208.00
g	33KV, 5.43MVAR Capacitor bank with all accessories	1	Set	997896	997896.00
h	1X33 KV C/R Panel 110V DC, 1 Amp. For capacitor bank	1	Nos.	318391	318391.00
i	33 KV Marshalling Kiosk	1	Nos.	15458	15458.00
<b>3</b>	<b>Control Cables</b>				
a	18X2.5 mm <sup>2</sup>	0.5	Km	300900	150450.00

b	6X2.5 mm <sup>2</sup>	0.5	Km	103250	51625.00
C	4X4 mm <sup>2</sup>	1	Km	112690	112690.00
<b>4</b>	<b>Earthing Material</b>				
a	M.S. Flat 50X10 mm	2.5	MT	55814	139535.00
b	M.S. Round 28 mm dia	1	MT	51023	51023.00
<b>5</b>	<b>Hardwares Clamps and Connectors</b>				
a	S/S H.W. for Panther (bolted type)	0	Set	474	0.00
b	S/T H.W. for Panther (bolted type)	3	Set	1115	3345.00
C	S/T H.W. for Twin Zebra (bolted type)	0	Set	2969	0.00
d	T-Clamp P-P	9	Set	438	3942.00
e	T-Clamp Z-P	3	Set	419	1257.00
f	P.G. Clamp Z-P	3	Set	485	1455.00
g	P.G. Clamp P-P	21	Set	295	6195.00
h	P.G. Clamp Z-Z	0	Set	543	0.00
<b>6</b>	<b>Nuts and Bolts</b>				
a	16X35 mm	0.1	MT	93880	9388.00
b	16X40 mm	0.1	MT	93880	9388.00
C	16X45 mm	0.05	MT	93880	4694.00
d	Sp. Washer 16 mm dia	0.02	Lot	133281	2665.62
<b>7</b>	<b>Disc Insulators</b>				
a	120 KN	25	Nos.	502	12550.00
b	45 KN	10	Nos.	296	2960.00
<b>8</b>	<b>ACSR Panther Conductor</b>	0.25	Km	146858	36714.50
<b>9</b>	<b>ACSR Zebra Conductor</b>	0.25	Km	265592	66398.00
<b>10</b>	<b>Misc Items</b>	LS	LS	35000	35000.00

				<b>Total "A"</b>	2606717.12
<b>11</b>	Erection, Testing & Commissioning charges (@10%)				260671.71
<b>12</b>	<b>Total</b>				2867388.83
	<b>Overhead charges (only allowable charges by PSDF have been considered) :</b>				156403.02
	(i) Transportation charges @3% of Cost of Supply (A)				
	(ii) Spares @3% of Cost of Supply (A)				
				<b>G. Total</b>	<b><u>3023791.80</u></b>
	<b>Cost of New Capacitor Bank Installation</b>	<b>Say Rs. 30.24 lacs.</b>			
	<b>Total Cost of 101 Nos. of Capacitor Banks</b>	<b>30.24*100 = 30.24 Cr.</b>			

#### Funding Proposed From PSDF:-

The total cost of the scheme of Installation/ Re-shuffling\* of 33 KV, 5.43 MVAR Capacitor Banks at various GSS of RVPN works out to be Rs. **30.24 Crore**.

**\*Capacitor bank diversions have been removed from the BOQ as per the TESS observations.**

Being a project of category-C, 90% funding for this project shall be allowed with a maximum limitation of **27.216 Crore**, as per PSDF norms.

<b>S No</b>	<b>Name of Circle</b>	<b>Name of GSS</b>	<b>No. of Capacitor Banks proposed</b>	
1	SE (T&C), Jodhpur	132 KV GSS S S NAGAR	1	
2		132 KV GSS BAPINI	1	
3		132 KV GSS DECHU	0	Proposed for deletion
4		132 KV GSS CHAMU	2	
5		132 KV GSS Setrawa	1	
6		132 KV GSS KALAU	1	
7		132 KV GSS LOHAWAT	1	
8	SE (T&C) KANKANI	132 KV GSS NATHDAU	1	
9		132KV GSS Bana ka Bas	1	
10		132KV GSS Bera	1	
11		132KV GSS HATUNDI	1	
12	SE (T&C) SIROHI	132 KV GSS REODAR	1	
13		132 KV GSS PALADAR	1	
14		132 kv gss bhadroona	1	
15		132 KV GSS BAGORA	1	
16		132KV GSS POONASA	1	
17		132 KV GSS Daspan	1	
18		132 KV GSS POSALIYA	1	
19		220 KV GSS SAYALA	1	

20		132 KV GSS SWAROOPGANJ	1
21	SE (T&C) BARMER	220 KV GSS DHORIMANNA	1
22		132 KV GSS SEDWA	1
23		132 KV GSS SATA	1
24		132 KV GSS RANASAR	1
25		132 KV GSS SAWA	1
26		132 KV GSS MEHLOO	1
27		132 KV GSS CHOUHTAN	1
28		132 KV GSS Gadra road	1
29		SE (T&C) BIKANER	132 KV GSS BAJJU
30	132 KV GSS Bhamattsar		1
31	220 KV GSS Chhattargarh		2
32	132 KV GSS DULCHASAR		1
33	132 KV GSS DESHNOK		1
34	132KV GSS KITASAR		1
35	132 KV GSS LALAMDESAR		1
36	132 KV GSS MUNDSAR		1
37	132KV GSS SHERERA		1
38	SE (T&C) JAISALMER	132 KV GSS CHANDAN	2
39		132 KV GSS SANGARH	2
40		132 KV GSS JHINJHINYALI	1
41		132 KV GSS Ajasar	1

42	SE(T&C), Hanumanarh	132 KV GSS Fatehgarh	1
43		132 KV GSS TIBBI	1
44		132 KV GSS Pallu	1
45		220 KV GSS Bhadra	1
46	SE (T&C) Ratangarh	220 KV GSS HALASAR	1
47	SE (T&C), Ajmer	132KV GSS, SAWAR	1
48		220 KV GSS Jethana	1
49		132KV GSS Roopangarh	1
50	SE (T&C), Babai	132KV GSS Nangali	1
51	SE (T&C), Merta City	220 KV GSS Khinvsar	1
52		132 KV GSS HEESABA	1
53		132KV GSS GOGELAW	1
54		132KV GSS Narwa	1
55	SE (T&C), Sikar	220KV GSS DANTARAMGARH	1
56		220KV GSS Dhod	1
57		132 KV GSS RVPN KUDAN	1
58		132 KV GSS, Ranoli	1
59		132 KV GSS, Water Works, Sikar	1
60		132KV GSS Piprali	1
61	SE (T&C), Bhilwara	132 KV GSS KOTRI	1
62		132KV GSS Beegod	1
63		132 KV GSS BEGUN	1

64	SE (T&C), Chittorgarh	132 KV GSS BAROLI	1
65		132 KV GSS Dhoriya choraha	1
66		132 KV GSS KANERA	1
67		132 KV GSS Mokhampura	1
68		132KV GSS Chhoti Sadri	1
69	SE (T&C), Kota	220 KV GSS BHAWANIMANDI	1
70		220 KV GSS Baran	1
71		132 KV GSS Kishanganj	1
72		132 kV GSS RVPN, Mangrol	1
73		132 KV GSS BAPAWAR	1
74		132KV GSS RVPN Mamoni (Baran)	1
75	SE (T&C), Alwar	132 KV GSS,GOVINDGARH(ALWAR)	1
76		132 KV GSS, RVPN, Kherli (Alwar)	1
77		132 KV GSS, Laxmangarh	1
78		132 KV GSS Ramgarh	1
79		132 KV GSS,Pinan	1
80		132 KV GSS Thanagazi	1
81		132 KV TELCO CIRCLE ALWAR	1
82		220 KV GSS, RVPN, Bansur (Alwar)	1
83	SE (T&C), Hindaun	132 KV GSS Nangal Sherpur	1
84		AEN(132 KV GSS) RVPN RIICO DHOLPUR	1
85		132 KV GSS RVPN BARI	2



86		132 KV GSS, Marena	1
87	SE (T&C), Sawai Madhopur	220 KV GSS Gangapur City	1
88		132 KV GSS Bamanwas	1
89		132 KV GSS , Keshoraipatan	2
90		132 KV GSS , Bundi	1
91		132 KV GSS DABI	1
92		132 KV GSS Baler	1
93		132 KV GSS DABLANA	1
94	SE (T&C), Jaipur Rural	220 KV GSS, RVPN, Manoharpur	1
95		220 KV GSS NIWANA	1

**Total**

**100**



JAIPUR VIDYUT VITRAN NIGAM LIMITED  
Office of the Addl. Chief Engineer (PPM)

CIN: U40109RJ2000SGC016486

Old Power House Premises, Near Ram Mandir Banipark, Jaipur-302016

Email- [sermdf@jvnl.org](mailto:sermdf@jvnl.org), Website: [energy.rajasthan.gov.in/jvnl](http://energy.rajasthan.gov.in/jvnl)

असि रति सुर्योः

No. JPD/ACE(PPM)/SE(Reg.)/XEN(DF)/F. /D. 334

Dated : 21.07.2023

To,

Executive Director, NLDC  
Member Secretary of the Appraisal Committee of PSDF  
Power System Operation Corporation Ltd.  
B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi-110016  
Tel: 011- 26524527 | Email: [nldc.psd2020@gmail.com](mailto:nldc.psd2020@gmail.com)

Sub: Submission of Revised Detailed Project Report on observations of Northern Regional Load Despatch Centre (NRLDC) for Installation of Dynamic/ Automatic Capacitor Banks on 11 kV side of 33/11 kV Sub-stations under PSDF Scheme - Jaipur Discom (Proposal No. 349).

Ref:

1. Guidelines/ Procedure for Disbursement of Fund from Power System Development Fund
2. JVNL Request Letter No: JPD/SE(Regulation)/XEN(DF)/F./D. 503 dated: 25.08.2022
3. Your Letter No. NLDC-PSDF/66<sup>th</sup> TESSG/2022-23 dated 27.09.2022
4. JVNL Clarification Letter No.: JPD/SE(Regulation)/XEN(DF)/F./D 676 dated: 07.10.2022
5. JVNL Request to STU vide Letter No: JPD/SE(Regulation)/XEN(DF)/F./D.717 dated: 13.10.2022
6. Your Letter No. NLDC-PSDF/66<sup>th</sup> TESSG/2022-23 dated: 01.11.2022
7. STU Letter No. EVPN/SE(P&P)/XEN-2/AE-III/F. 51/D. 1566 dated 22.11.2022
8. JVNL Clarification Letter No.: JPD/SE(Regulation)/XEN(DF)/F./D.847 dated: 24.11.2022
9. NLDC-PSDF/70<sup>th</sup> TESSG/2022-23 dated 16.01.2023
10. JVNL Clarification Letter No.: JPD/ACE(PPM)/XEN(DF)/F./D 999 dated: 17.01.2023
11. NLDC-PSDF/73<sup>rd</sup> TESSG/2022-23 dated 06.03.2023
12. JVNL Clarification Letter No.: JPD/ACE(PPM)/XEN(DF)/F./D 1134 dated: 14.03.2023
13. 2<sup>nd</sup> System Studies Sub-Committee Meeting held on dated 04.04.2023
14. Your office email dated 04.05.2023 regarding observations
15. PSDF Techno-Economic Sub-Group (TESSG) Physical Meeting as held on dated 08.05.2023
16. JVNL Letter to STU vide Letter No: 114 dated: 10.05.2023 for finalization of proposed locations
17. Study Report duly conducted by Rajasthan Rajya Vidyut Prasaran Nigam Ltd. (RVPN) vide email dated 12.06.2023.
18. JVNL Submission of Revised DPR vide Letter No: JPD/ACE(PPM)/XEN(DF)/F./D. 222 dated: 12.06.2023.
19. Northern Regional Power Committee (NRPC) Meeting as held on 21.06.2023
20. Comments of Northern Regional Load Despatch Centre (NRLDC) received vide Email Dated 20.07.2023

Addl. Chief Engineer (PPM)  
JVNL, Jaipur

Dear Sir/Ma'am,

In view of the above references and based on subsequent discussions, JVVNL had submitted the necessary details of the project pertaining to Installation of Dynamic/ Automatic Capacitor Banks on 11 kV side of 33/11 kV Sub-stations in JVVNL, including revised detailed project report, annexures and clarifications to the appraisal committee vide letter no. JPD/ACE(PPM)/XEN(DF)/F./D 999 dated 17.01.2023.

On 06.03.2023, NLDC's 73<sup>rd</sup> Meeting of the Techno-Economic Sub Group (TESG) was held where in data gaps, observations and further requirements from the respective entity were discussed. Further, 2<sup>nd</sup> System Studies Sub-Committee Meeting held on dated 04.04.2023 for deliberately discussion on the requirement of Dynamic/ Automatic Capacitor Banks on 11 kV Side of 33/11 kV sub-stations under Power System Development Fund (PSDF)-Phase-I Scheme in Jaipur Discom. Subsequently, data gaps / observations were received on dated 04.05.2023 and request for attending PSDF Techno-Economic Sub-Group (TESG) physical meeting were made.

In reference to our physical meeting on dated 08.05.2023, the appraisal committee of PSDF decided to conduct a study of various 11 kV feeders for analyzing 33/11 kV sub-station wise Reactive Power (MVAR) requirements. Also, Rajya Vidyut Prasaran Nigam Ltd. (RVPN, Jaipur) was nominated to fix up the locations of the proposed 33/11 kV sub-stations in consultation of Rajasthan Discoms for installation of APFC.

As per directives from appraisal committee, JVVNL submitted the detailed list of the 33/11 kV Sub-stations including 220/132/33 kV or 132/33 kV Grid Sub-stations duly mapped vide Letter No. 114 dated 10.05.2023 for vetting the locations as provided by JVVNL and also for further submission of study report to appraisal committee within the due date for the release of PSDF funds. Subsequently, JVVNL submitted revised detailed project reports including supporting documents & annexures to NLDC vide Letter No. JPD/ACE(PPM)/XEN(DF)/F./D. 222 dated: 12.06.2023.

In view of above submissions, Northern Regional Power Committee (NRPC) Meeting was held on dated 21.06.2023 where the proposed locations for installation of capacitor banks under RVPN & Rajasthan Discoms were discussed. Finally, it was analyzed that from the existing list of proposed locations, two (02) of the 33/11 kV Sub-stations (Saloda & Shyampura) were mandated due to excessive voltage fluctuations and hence, directed to incorporate both of the sub-stations.

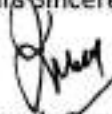
In view of above and based on revised inputs received from RVPN / NRLDC dated 20.07.2023, JVVNL is hereby submitting our revised proposal (Rs. 106.99 Cr.) including Annexures (I to IV) and detailed list of proposed 33/11 kV Sub-stations to facilitate identification, prioritization, and appraisal of the scheme by the Appraisal Committee. Hence, it is to request that in-principle approval may be granted towards release of funding for Installation of Dynamic/ Automatic Capacitor Banks at specified 33/11 kV sub-stations of Rs.95.92 Cr. (i.e. 90% of total estimated cost) as a grant while balance cost of Rs. 10.66 Cr. shall be in form of internal/ external source of funding.

  
Addl. Chief Engineer (PPM)  
JVNL, Jaipur

**Enclosures:**

- 1) Annexure A: Revised Format (I to IV) duly signed by authorized representative.
- 2) Annexure B: Revised Detailed Project Report including revised list of 33/11 kV Sub-stations and Cost Estimation Summary including detailed Bill of Quantity (In soft copy).

Yours Sincerely,

  
(Umesh Gupta)

21/07/23  
ACE (PPM), JVVNL  
Addl. Chief Engineer (PPM)  
JVNL, Jaipur

Copy to the following for information:

1. Director (Technical), JVVNL, Jaipur.
2. Director (Finance), JVVNL, Jaipur.
3. TA to Chairman Discom, Jaipur.
4. TA to Managing Director, JVVNL, Jaipur.
5. SE (P&P), RVPN, JVVNL, Jaipur.

  
ACE (PPM), JVVNL  
Addl. Chief Engineer (PPM)  
JVNL, Jaipur

**Cost Estimation for JVVNL, Rajasthan**

Sr. No.	Name of Items	Unit	Qty. (Nos.)	Unit Rates (In Lakhs)	Amount (In Cr.)
1	Installation of 1587 kVAr Automatic 11 kV Capacitor Bank including procurement, installation, commissioning and testing (For 3.15/5 MVA)	Nos.	498	20.85	103.81
2	Installation of 3174 kVAr Automatic 11 kV Capacitor Bank including procurement, installation, commissioning and testing (For 8 MVA)	Nos.	13	24.46	3.18
<b>Total</b>			<b>511</b>		<b>106.99</b>

*Contribution*


Grant under PSDF Scheme  
 JVVNL Internal / External Source

90%      96.29  
 10%      10.70

  
 Asst. Chief Engineer (PPM)  
 JVVNL, Jaipur

BOD for 11 KV Dynamic/Automatic Capacitor Bank (APFC) for Rural Areas - JVVNL  
(Cost Reference - MSEDCL Approved Rate)

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	12.65 KV, 1587 KVAR (11 KV, 1.2 MVAR), 3-Phase, 50 Hz, Outdoor Type, CRCA panel having step as 396.75 Kvar + 396.75 KVAR + 793.5 KVAR at 12.65 KV. Bank shall be complete with Capacitor units of 132.25 KVAR for 396.75 KVAR & 264.5 KVAR for 793.5 KVAR step at 7.3 KV, including allied material such as suitable size of Aluminum busbars epoxy insulators, HRC fuses, Vacuum contactor, series reactors, RVT, etc shall also be housed in same cubicle in the below mentioned quantity	Nos.	1	1,016,949.00	1,016,949.00
a)	11 KV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 396.75 KVAR	Nos.	6		
b)	11 KV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 793.5 KVAR	Nos.	3		
c)	11 KV, 1-Phase Dry, AN-Cooled RVT	No.	1		
d)	11 KV/400 Amp, Indoor type Vacuum contactor	Nos.	3		
e)	Surge Suppressor	No.	1		
f)	IP 55, Outdoor CRCA cubicle panel for accommodating capacitors, series reactor, vacuum contactor, surge arrester fuses along with canopy	Set	1		
g)	C & R Panel with Automatic Control Unit with APFC relay and Neutral Displacement relay	Set	1		
2	11 KV Isolator with EB (800 A) with elevating structure	No.	1	30,025.00	30,025.00
3	11 KV Isolator without EB (800 Amp.) with elevating structure	No.	1	26,630.00	26,630.00
4	9 KV, 10 KA, Station Class, Lightning Arrestors	Set	1	10,260.00	10,260.00
5	*Cable Support Structure, Clamps, Connectors, Earthing MS Flats 50 x 6, 3 Mtr long Earthing CI Pipe Dia 150 mm, Dog Conductor	LS	1	61,506.95	61,506.95
6	11 KV, 3 x 185 sqmm, HT XLPE Cable	Mtr.	20	858.00	17,160.00
7	Outdoor cable jointing kits	No.	2	1,907.00	3,814.00
8	11 KV VCB (Kiosks Type) (800 Amp.) Switchgear with complete arrangement with adopter panel for connection with existing 11 KV bus bar	No.	1	117,466.00	117,466.00
9	**Control cables of various sizes	LS	1	43,818.20	43,818.20
10	11 KV CT 400 - 200/5 A Outdoor Type	Nos.	3	10,611.00	31,833.00
11	24 Volt / 200 AH Battery with Battery Charger (For Capacitor's VCB)	Nos.	1	69,000.00	69,000.00
<b>Sub-Total (A)</b>					<b>1,428,462.15</b>
13	Transportation on material	LS	4%	-	57,138.49
14	Erection cost on material	LS	5%	-	71,423.11
15	Insurance, Labour & Finance Cost	LS	3%	-	42,853.86
<b>Service Cost</b>					<b>171,415.46</b>
<b>Sub-Total (B)</b>					<b>171,415.46</b>
<b>Total (C) = (A) + (B)</b>					<b>1,599,877.61</b>
17	Applicable GST	-	18%	-	287,977.97
18	Price Escalation on cost of material	-	10%	-	142,846.22
19	***Civil Cost	LS	1	53,857.50	53,857.50
<b>Sub-Total (D)</b>					<b>484,681.68</b>
<b>Grand Total (E) = (C) + (D)</b>					<b>2,084,559.29</b>

  
 Addl. Chief Engineer (PPM)  
 JVVNL, Jaipur

**\*Cost Structure for 11 kV Station Capacitor Bank JVNL**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	Structure for 11 KV CT	Kg	155	51.80	8,029.00
2	Structure for 11 KV LA	Kg	155	51.80	8,029.00
3	G.I. Nut Bolts	Kg	20	82.90	1,658.00
4	Cable Support Structure (2 Nos.)	Kg	200	51.80	10,360.00
5	MS Flat 50 X 6	Kg	235.5	48.50	11,421.75
6	Earthing CI Pipe Dia 150 mm 3 Mtr long	Nos.	3	6300.00	18,900.00
7	Dog Conductor	Mtr.	60	51.82	3,109.20
<b>Total</b>					<b>61,506.95</b>

**\*\*Cost Structure for Control Cables**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	2C X 2.5 Sq. mm Armoured, Copper	Mtr.	100	55.11	5,511.00
2	4C X 2.5 Sq. mm Armoured, Copper	Mtr.	275	87.60	24,090.00
3	7C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	139.19	5,567.60
4	10C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	216.24	8,649.60
<b>Total</b>					<b>43,818.20</b>

**\*\*\*Cost Structure for Civil Work**

Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	Excavation	CuM	8	150.00	1,200.00
2	PCC	CuM	2.5	4257.00	10,642.50
3	RCC	CuM	5	5255.00	26,275.00
4	Steel	Kg	300	51.80	15,540.00
5	Back Filing	CuM	2	100.00	200.00
<b>Total</b>					<b>53,857.50</b>

**Annual Maintenance Charges after Guarantee Period for 05 Years (1 Year + 5 Year's) - Shall be borne by JVNL**

Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	1st Year	Job	1	50000.00	50,000.00
2	2nd Year	Job	1	60000.00	60,000.00
3	3rd Year	Job	1	70000.00	70,000.00
4	4th Year	Job	1	80000.00	80,000.00
5	5th Year	Job	1	90000.00	90,000.00
<b>Total</b>					<b>350,000.00</b>
<b>Total AMC Cost after considering 496 Nos. APFC</b>					<b>197,050,000.00</b>

  
**Add. Chief Engineer (PPM)**  
**JVNL, Jaipur**

Bidding for 11 kV Dynamic/ Automatic Capacitor Bank (APFC) for Rural Areas- JVVNL  
(Cost Reference- MSEDCL Approved Rate)

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	12.65 kV, 3174 kVAr, 3-Phase, 50 Hz, Outdoor Type, CRCA panel having 4 step as 396.75 kVAr + 396.75 kVAr +1190.25 kVAr +1190.25 kVAr at 12.65 KV. Bank shall be complete with Capacitor units of 132.25 kVAr for 396.75 kVAr & 396.75 kVAr for 1190.25 kVAr at 7.3 kV including allied material such as suitable size of Aluminum busbars epoxy insulators, HRC fuses, Vacuum contactor, series reactors, RVT, etc. with details as under	Nos.	1		
a)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 396.75 kVAr	Nos.	6	1,271,186.00	1,271,186.00
b)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 1190.25 kVAr	Nos.	6		
c)	11 kV, 3-Phase dry type RVT	No.	1		
d)	11 kV/400 Amp, Indoor type Vacuum contactor	Nos.	4		
e)	Surge Suppressor	No.	1		
f)	IP 55, Outdoor CRCA cubicle panel for accommodating capacitors, series reactor, vacuum contactor, surge arrester fuses along with canopy	Set	1		
g)	C & R Panel with Automatic Control Unit with APFC relay and Neutral Displacement relay	Set	1		
2	11 KV Isolator with EB (800 A) with elevating structure	No.	1		
3	11 KV Isolator without EB (800 Amp.) with elevating structure	No.	1	26,630.00	26,630.00
4	9 kV, 10 kA, Station Class, Lightning Arrestors	Set	1	10,260.00	10,260.00
5	*Cable Support Structure, Clamps, Connectors, Earthing MS Flats 50 x 6, 3 Mtr long Earthing CI Pipe Dia 150 mm, Dog Conductor	LS	1	61,506.95	61,506.95
6	11 kV XLPE insulated 3x185 mm <sup>2</sup> Armoured	Mtr.	20	858.00	17,160.00
8	Outdoor cable jointing kits	No.	2	1,907.00	3,814.00
9	11 kV VCB (Kiosks) (800 Amp.) Switchgear with complete arrangement with adopter panel for connection with existing 11 kV bus bar	No.	1	117,466.00	117,466.00
10	**Control cables of various sizes	LS	1	43,818.20	43,818.20
11	11 kV CT 400 - 200/5 A Outdoor Type	Nos.	3	10,611.00	31,833.00
12	24 Volt / 200 AH Battery with Battery Charger (For Capacitor's VCB)	Nos.	1	69,000.00	69,000.00
<b>Sub-Total (A)</b>					<b>1,682,699.15</b>
13	Transportation on material	LS	4%	-	67,307.97
14	Erection cost on material	LS	5%	-	84,134.96
15	Insurance, Labour & Finance Cost	LS	3%	-	50,480.97
<b>Service Cost</b>					<b>201,923.90</b>
<b>Sub-Total (B)</b>					<b>201,923.90</b>
<b>Total (C) = (A) + (B)</b>					<b>1,884,623.05</b>
17	Applicable GST	-	18%	-	339,232.15
18	Price Escalation on cost of material	-	10%	-	168,269.92
19	***Civil Cost	LS	1	53,857.50	53,857.50
<b>Sub-Total (D)</b>					<b>561,359.56</b>
<b>Grand Total (E) = (C) + (D)</b>					<b>2,445,982.61</b>

  
 Addl. Chief Engineer (PPM)  
 JVVNL, Jaipur



**\*Cost Structure for 11 kV Station Capacitor Bank - JVVNL**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	Structure for 11 KV CT	Kg	155	51.80	8,029.00
2	Structure for 11 KV LA	Kg	155	51.80	8,029.00
3	G.I. Nut Bolts	Kg	20	82.90	1,658.00
4	Cable Support Structure (2 Nos)	Kg	200	51.80	10,360.00
5	MS Flat 50 X 6	Kg	235.5	48.50	11,421.75
6	Earthing CI Pipe Dia 150 mm 3 Mtr long	Nos.	3	6300.00	18,900.00
7	Dog Conductor	Mtr.	60	51.82	3,109.20
<b>Total</b>					<b>61,506.95</b>

**\*\*Cost Structure for Control Cables**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	2C X 2.5 Sq. mm Armoured, Copper	Mtr.	100	55.11	5,511.00
2	4C X 2.5 Sq. mm Armoured, Copper	Mtr.	275	87.60	24,090.00
3	7C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	139.19	5,567.60
4	10C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	216.24	8,649.60
<b>Total</b>					<b>43,818.20</b>

**\*\*\*Cost Structure for Civil Work**

Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	Excavation	CuM	8	150.00	1,200.00
2	PCC	CuM	2.5	4257.00	10,642.50
3	RCC	CuM	5	5255.00	26,275.00
4	Steel	Kg	300	51.80	15,540.00
5	Back Filing	CuM	2	100.00	200.00
<b>Total</b>					<b>53,857.50</b>

**Annual Maintenance Charges after Guarantee Period for 05 Years (1 Year + 5 Year's) - Shall be borne by JVVNL**

Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	1st Year	Job	1	50000.00	50,000.00
2	2nd Year	Job	1	60000.00	60,000.00
3	3rd Year	Job	1	70000.00	70,000.00
4	4th Year	Job	1	80000.00	80,000.00
5	5th Year	Job	1	90000.00	90,000.00
<b>Total</b>					<b>350,000.00</b>
<b>Total AMC Cost after considering 13 Nos. APFC</b>					<b>4,900,000.00</b>

Addl. Chief Engineer (P)

**REVISED**  
**DETAILED PROJECT REPORT (DPR)**  
**FOR**  
**System Improvement Scheme**  
**Installation of Capacitor Banks on 11 kV Side of**  
**33/11 kV Substations for Reactive Power**  
**Compensation under Power System Development**  
**Fund (PSDF) – Phase 'I'**

**Estimated Cost: Rs. 106.99 Cr.**



प्रभास्मि शशि सूर्यायः

**JAIPUR VIDYUT VITRAN NIGAM LIMITED**

Corporate Identification Number (CIN): U40109RJ2000SGC016486

**Office of the Additional Chief Engineer (PPM)**

Old Power House Premises, Banipark, Jaipur-302016

**TELEFAX:** 0141-2209533, **Email –** [sermdf@ivnl.org](mailto:sermdf@ivnl.org)

**Website:** [www.jaipurdiscom.com](http://www.jaipurdiscom.com)

## DETAILED PROJECT REPORT

### INTRODUCTION

Rajasthan is the largest state in the country, in terms of area, spreading across 3,42,239 Sq. km, which is 10.41% of the nation area. The total population of Rajasthan is nearly 8.1 Crores spread across 33 Districts, of which 75% is rural population. The density of population in Rajasthan is 200 per sq.km which is much lower than the national average of 382 per sq.km. The state is, predominantly, an agrarian society with majority (45%) of the population depending on agriculture activities as source of income, which accounts for around 29.5% of Gross State Domestic Product (GSDP).

Due to this spread of population, meeting power demand, distribution of electricity and maintaining quality power for every category of consumers has always remained a challenge. The state is primarily agricultural base; however, the intensive power is too supplied to the domestic, non-domestic and industrial sector. It has been identified that these loads are highly inductive in nature which need rectification. In this regard, JVVNL has proposed to install dynamic/ automatic capacitor bank under which the capacitive load helps to adjust power factor as close to '**Unity Power Factor**'. The implementation of the project/ scheme will limit the heavy drawl of reactive power from grid and mitigate the risk such as **(a) Overloading of transmission lines; (b) Overloading of transformers at different voltage levels; and (c) Increase in system losses.**

Under JVVNL Discom, efforts have continuously been made to provide requisite reactive power compensation; however, the challenge associated with low voltage at the load end and drawl of heavy reactive power from the grid still persists due to fast growing load demand. Additionally, it has been noticed that the power factor is ranging from 0.80 to 0.90 at urban feeder and 0.75 to 0.80 (or even less) at the rural feeders within the respective circles. In view of this, the **provision through submission of detailed project report has been proposed at various circles having 'power factor less than 0.85'**. The report shall consist of brief background of JVVNL Discom, geographical maps, operational profile, objective, beneficiaries, recent initiatives, technology, cost estimates, timeframe, success criteria etc.

## OUR PROPOSAL

### 1. BACKGROUND

#### 1.1. Introduction

Jaipur Vidyut Vitran Nigam Limited (JVVNL) is a public utility company under the Department of Energy, Government of Rajasthan and is holder of the distribution and retail supply business licenses in the State of Rajasthan (*hereafter referred as "DISCOM"*). The Distribution Company came in to existence on 19 July 2000 pursuant to the "Rajasthan Power Sector Reforms Transfer Scheme, 2000" and restructuring undertaken in the State under which the vertically integrated Electricity Board (*Rajasthan State Electricity Board*) was unbundled and the power generation, transmission and distribution business was segregated to form 05 successor companies viz.

- a) **Rajasthan Rajya Vidyut Utpadan Nigam Limited (RVUN)** to manage the electricity generation business of erstwhile RSEB.
- b) **Rajasthan Rajya Vidyut Prasaran Nigam Limited (RVPN)** to manage the electricity transmission and bulk supply business of erstwhile RSEB.
- c) **Ajmer Vidyut Vitran Nigam Limited (AVVNL)** to manage the electricity distribution and retail supply business of erstwhile RSEB in Ajmer City Circle, Ajmer District Circle, Bhilwara, Nagaur, Jhunjhunu, Sikar, Udaipur, Chittorgarh, Rajsamand, Banswara, Pratapgarh and Dungarpur Circles.
- d) **Jaipur Vidyut Vitran Nigam Limited (JVVNL)** to manage the electricity distribution and retail supply business of erstwhile RSEB in Alwar, Bharatpur, Jaipur City, Jaipur District, Dausa, Kota, Jhalawar, Sawai Madhopur, Bundi, Baran, Tonk, Karauli and Dholpur Circles.
- e) **Jodhpur Vidyut Vitran Nigam Limited (JdVVNL)** to manage the electricity distribution and retail supply business of erstwhile RSEB in Sriganganagar, Hanumangarh, Churu, Bikaner District, Bikaner City, Jaisalmer, Jalore, Barmer, Jodhpur City, Jodhpur District, Sirohi, Jalore, and Pali Circles.

## 1.2. Geographical Map of Rajasthan Discom



Figure 1:<sup>1</sup>Distribution Company Operating in State of Rajasthan

All the 03 Discoms have been established with the principal object of engaging in the business of distribution and supply of uninterrupted and reliable quality electricity in different districts (JVVNL – 12 Nos., AVVNL – 11 Nos. & JdVVNL – 10 Nos.) of Rajasthan. In view of above geographic locations, the proposal will mainly focus on ‘Installation of Capacitor Bank at the 11 kV Side of various 33/11 kV sub-stations’ under various Circles of Jaipur Discom.

## 1.3. Operational Profile

The JVVNL Discom is responsible for operating the distribution assets within the area of Alwar, Baran, Bundi, Bharatpur, Dholpur, Dausa, Jhalawar, Jaipur, Kota, Karauli, Sawai Madhopur and Tonk. Its scope of work and the electricity network (*as on Dec 2021*) are as presented below.

<sup>1</sup> Source: <https://energy.rajasthan.gov.in/content/raj/energy-department/en/departments/avnvl/knowledge-base/discom-map.html>

Table 1: Operational Profile of JVVNL Discom

Sr. No.	Parameters	JVVNL
1	Area of Operation	72,475 Sq. KM
2	Total Population (As per 2011 Census)	256 Lakhs
3	Total Number of Consumers	59.59 Lakhs
4	Total Number of Villages	15,145 Nos.
5	Electrified Villages	14,776 Nos.
6	Circles	13 Nos.
7	33/11 kV Sub-stations	1893 Nos.
8	MVA Capacity of 33/11 kV Power Transformer	13,349 MVA
9	33 kV Line	16,529 KM
10	11 kV Line	1,85,106 KM
11	11 kV Feeders	9,466 Nos.
12	LT Line	1,60,476 KM
13	11/0.4, 6.35/0.24 kV Sub-station	8,23,939 Nos.
14	MVA Capacity of Distribution Transformer	18,636 MVA
15	Load Profile (LV) based on MU	Agriculture & Domestic loads are predominating
16	Load profile (HV) based on MU	Industrial & Non Industrial, Agriculture, Residential and Commercial

Further, in terms of electrical connectivity, the JVVNL Discom is connected to Rajasthan Rajya Vidyut Prasaran Nigam Limited network at 33 kV & 11 kV levels. Also, there are few interconnection points with other Discoms.

#### 1.4. Customers Profile

Discom currently serves about 5,038,760 consumers with a total connected load of around 18,446,237 kW under the LT & HT categories of consumers. Hence, category wise break-up of total number of consumers with connected Load as on March 2022 is stated below:

Table 2: Customer Profile for LT &amp; HT Consumers of JVVNL Discom

Category (LT)	Consumers (Nos)	Connected Load (kW)
Domestic	3,908,907	6,218,679
Non Domestic	452,080	2,506,429
PSL	7,201	88,901
Agri (M)	565,812	4,536,199
Agri (F)	12,264	112,833
SIP	50,115	393,001
MIP	14,050	761,591
LIP	5,026	3,463,076
PWW (S)	17,737	108,974
PWW (M)	418	20,269
PWW (L)	211	108,406
Mixed Load	4,900	127,185
EV	39	694
<b>Total</b>	<b>50,38,760</b>	<b>1,84,46,237</b>

## 2. PROJECT OBJECTIVE

JVVNL believes that there is a need for a consistent and long lasting solution in order to improve & strength the Power Distribution Network with minimum losses in the long run. Also, the distribution system has suffered various challenges such as **(a) Unbalanced Load Flow; (b) High Level of Technical Losses; (c) Less System Stability; (d) Poor Voltage Regulation; (e) Low Power Factor; (f) Low Consumer Satisfaction Level etc.** which need to be gradually resolve. In this regard, JVVNL Discom is taking up Integrated Planning for Distribution System covering the Renovation & Modernization of the overall network. This will enable relieving congestion and improving the voltage profile at the load end.

“Government of India has finalized the scheme/ guidelines for operationalization of PSDF dated 10.01.2014. The provision consists of ‘Installation of Shunt Capacitors, Series Compensators and other Reactive Energy Generators including Reactive Energy Absorption, Dynamic Reactive’ support etc. for improvement of voltage profile in the Grid”.

Hence, this report aims to provide detailed information relating to the project for which Power System Development Fund for current year sought by the JVVNL. The key activity have been identified is to improve power distribution system with the installation of **1587 kVAr & 3174 kVAr Dynamic/ Automatic Capacitor Bank** at the selected 11 kV Side of 33/11 kV Sub-stations within the respective Circle/ Division/ Sub-division which could be possible with the **Power System Development Fund (PSDF)**.

Table 3: Project Estimation for Installation of Capacitor Bank under JVVNL Discom

Installation of Dynamic/ Automatic Capacitor Bank under 12 Circles of JVVNL Discom							
Power Factor	Circle	Division	Sub Division	Total 33/11 kV Substation	Feeder Count	Proposed Transformer Capacity (MVA)	Power Transformer Count (Nos.)
Less than 0.85	12	46	143	505	2,305	3.15/ 5	498
						8	13
Total (In Nos.)							511

3. SINGLE LINE DIAGRAM FOR INSTALLATION OF APFC AT VARIOUS 33/11 KV SUB-STATIONS

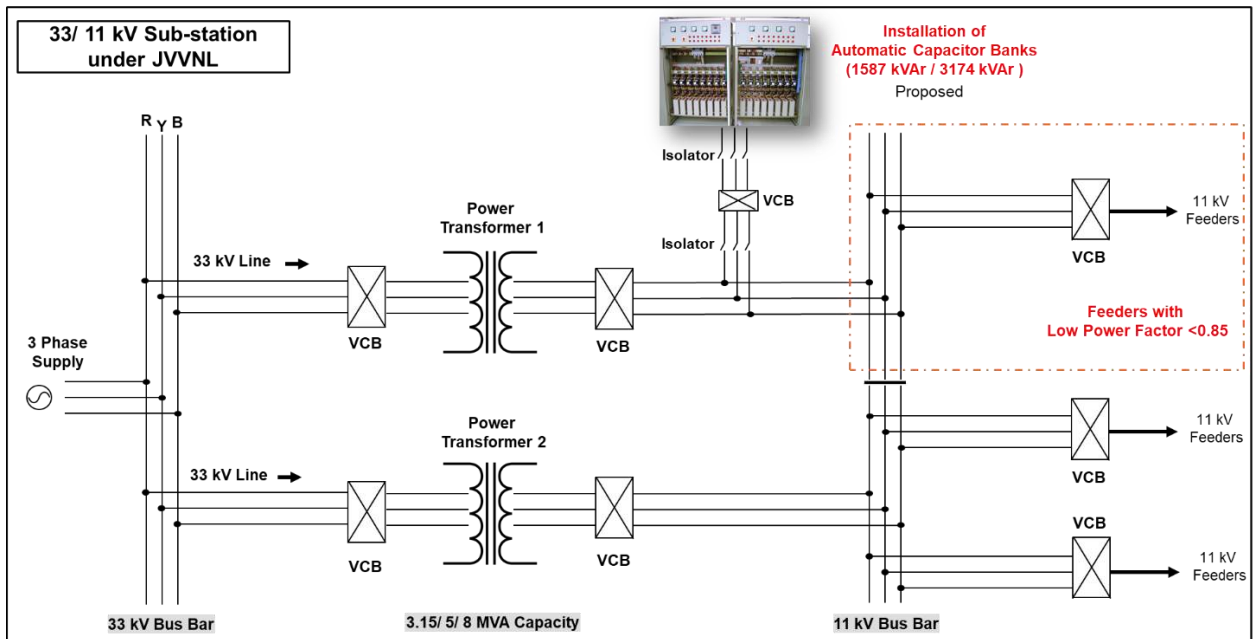


Figure 2: Single Line Diagram – Installation of Dynamic/ Automatic Capacitor Bank



#### 4. PROPOSED SCHEMATIC DIAGRAM FOR APFC PANEL ON 3.15, 5 AND 8 MVA TRANSFORMER AT 33/11 KV SUBSTATIONS

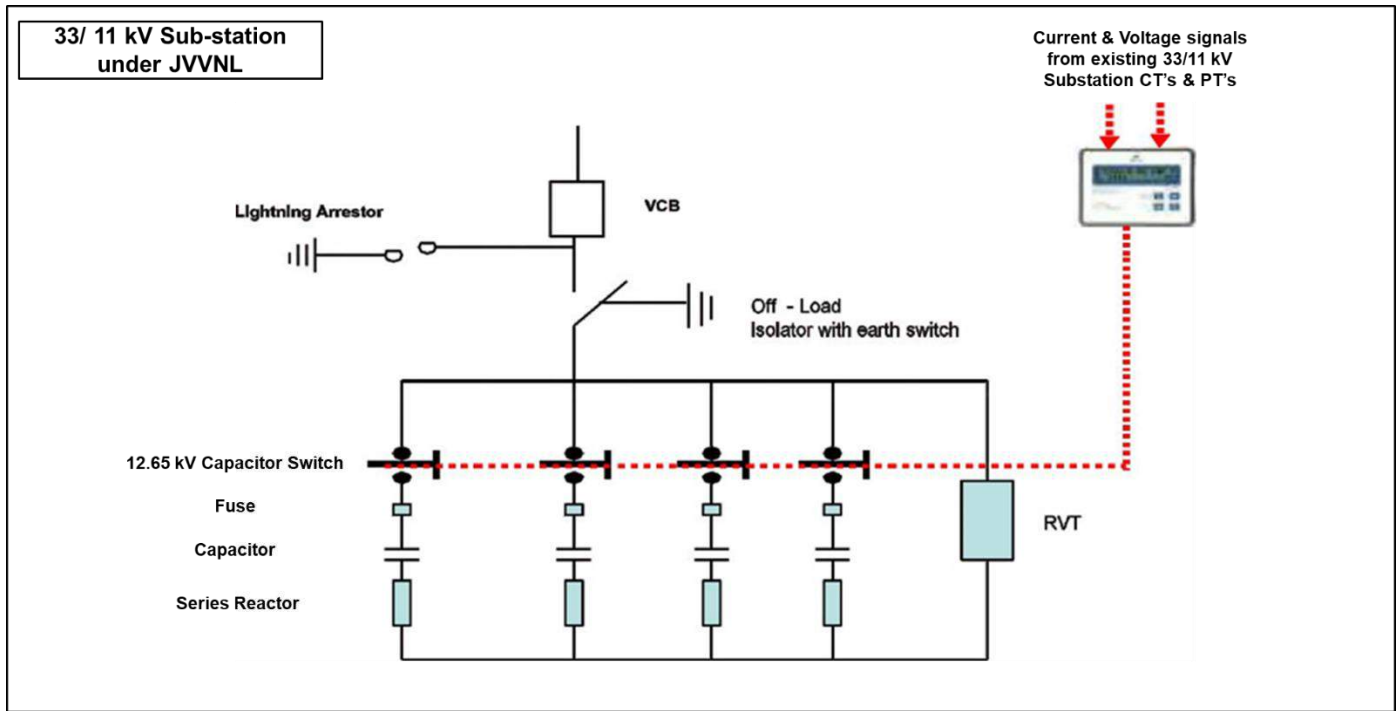


Figure 3: Proposed Schematic Diagram – APFC Panel

#### 5. METHODOLOGY ADOPTED

The methodology as followed by JVVNL, for identification of low power factor (*i.e. below 0.85*) are as stated below.

- a) JVVNL Discom has developed a **Feeder Monitoring System (FdrMS)** in order to have a **'Real Time'** power supply status of 11 kV feeders including installation status, power quality, system reliability, issue tracker, block hours supply, power factors, loan analysis, energy audit, tamper details etc.
- b) With the support of FdrMS, the review reports consisting of 'Power Factors Less than 0.90' has been downloaded for the last 01 year (*i.e. from May 2021 till April 2022*).
- c) Analysis were carried-out on the Power Factor, Maximum Current (In Amp.) & Peak Load (In kW) at the various zone, circle, division, sub-division, 33/11 kV sub-stations, 11 kV feeders including its transformational capacity (In MVA).

- d) The average power factor for the 12 months were calculated and finalized for 12 circles (except Jaipur, as maximum number of 11 kV feeders are having power factor  $>0.85$ ) which is enclosed under **Annexure 'I'**.
- e) Further, the automatically generated data are reliable enough for consideration however, JVVNL has taken initiative and finalized data were cross-checked on a sample basis at the various division/ sub-divisions levels.

## 6. VOLTAGE PROFILE

In addition to the above study, as most of the identified feeders are under rural category having block hours power supply, JVVNL analyzed phase voltage under average load and peak load conditions. In Rajasthan, 11 kV feeders are not segregated from agricultural loads, hence 3-phase supply are provided during peak/ block hours where the phase voltage lies less than 0.9 pu. However, during the non-block hours, the entire loads are shifted to 1-phase supply leading to further voltage drop below 0.9 pu at various 11 kV feeders. In this regard, analysis were carried-out between 10:00 AM – 03:00 PM (peak/ block hour) under three phase (R-Y-B) supply where the voltage at the substations were found to be below 0.9 pu (i.e. below 5.7 kV phase or 9.9 kV line voltage). Hence, the phase voltage profile for some of the feeders on sample basis are as presented below. Also, detailed voltage analysis are included in attached annexure of revised detailed project report.

### (a) Feeder – Haripura (Rural) under 33/11 kV Digod Sub-station



**(b) Feeder– Dindhor (Rural) under 33/11 kV Tasing Sub-station**

Feeder Name : Dindhor Feeder Type : Rural Area : 0 Substation : Tasing

Phase	Voltage(kV)	Current(Amps)	Power Factor
R	5.17	0	-
Y	5.71	122.4	0.98
B	1.64	0	-

**(c) Feeder– Petrol (Rural) under 33/11 kV Railganv Sub-station**

Feeder Name : Petrol Feeder Type : Rural Area : 0 Substation : Railganv

Phase	Voltage(kV)	Current(Amps)	Power Factor
R	5.04	30.8	0.94
Y	5.04	28.5	0.87
B	5.79	28	0.94

**(d) Feeder– Manoharpura (Rural) under 33/11 kV Kashipur Sub-station**

Feeder Name : Manoharpura Feeder Type : Rural Area : 0 Substation : Kashipur

Phase	Voltage(kV)	Current(Amps)	Power Factor
R	1.34	12.4	0.81
Y	5.67	33.2	-0.67
B	5.97	15.8	0.98

**(e) Feeder– Ukhana (Rural) under 33/11 kV Aligarh Sub-station**

Phase	Voltage(KV)	Current(Amps)	Power Factor
R	22	0	-
Y	5.31	50.12	-0.89
B	5.3	0	-

**(f) Feeder– Chogai (Rural) under 33/11 kV Ranoli (Tonk) Sub-station**

Phase	Voltage(KV)	Current(Amps)	Power Factor
R	5.41	0.12	0.57
Y	5.31	0.68	0.94
B	1.73	0.2	0.79

**7. BENEFICIARIES**

Adequate reactive power compensation offered salient benefits to the power system which includes voltage regulation (*i.e. voltage control within acceptable limits*), system power losses reduction brought about by power factor improvement and it increases the utilization of connected equipments at the consumer end, improves reliability of transmission system and more importantly efficiency of real power made available at the consumer end. Hence, the major beneficiaries are as stated below.

- a) Rajasthan Rajya Vidyut Prasaran Nigam Limited
- b) Jaipur Vidyut Vitran Nigam Limited (*Approx. 20 Lakhs Consumers under 572 Nos. 33/11 kV Sub-stations of 12 Circles*)

## 8. ON-GOING INITIATIVES

JVVNL is taking active participation for the supply of quality power without compromising the technical and commercial losses in the urban and rural areas. Some of the initiatives includes village electrification, augmentation of transformational capacity, infrastructure development, privatizations through distribution franchisee, meterization, theft control, adopting schemes like Revamped Distribution Sector Scheme (RDSS), PM-KUSUM Scheme etc. Further, for the improvement of power factors at load end, JVVNL has installed approx. 5,62,323 Nos. of LT Shunt Capacitors (3 kVAr - 6 kVAr - 9 kVAr) from 2016-17 onwards. However due to smaller impact of power factor improvement, burning/ failure issue and theft of LT Shunt Capacitors have forced Discom to rethink and initiate the implementation of dynamic/ automatic capacitor bank at the various 11 kV side of the 33/11 kV sub-stations.

Apart from above, majority of the 11kV feeders in JVVNL are having high agriculture load which are being catered using 3.15/ 5 MVA power transformers at substations. **Over the decade, Discom has witnessed a growth of around ~9% in connected load thus leading to increase in power demand. Also, Government of Rajasthan has mandated supply of day-time power (two blocks supply) to agricultural farmers.** To meet this increase in demand and ensure day time supply to agriculture consumers, JVVNL need to augment its existing transformation capacities at Substation level (specifically from 3.15 MVA to 5 MVA) within next 2 years. Hence, under this detailed project report, JVVNL has considered the upcoming requirement and proposed a capacitor bank with common rated capacity for 3.15/ 5 MVA.

## 9. TECHNOLOGY

- a) For 11 kV, 1587 kVAr & 3174 kVAr Dynamic/ Automatic Capacitor Bank shall include 11 kV Vacuum Circuit Breaker (VCB) Switchgear with complete arrangement with Adopter Panel for connection with existing 11 kV Bus Bar, Capacitor Switch, Reactor, APFC, Indoor Type Automatic Control Unit, Lightning Arrestor, Surge Arrestor, Pin & Post Insulators, PT's-CT's, Power & Control Cables, Junction Box, Supports of various types channels, Nut Bolts, Bus Bar Structure, Laying of Cables, Installation of Energy Meters, Interconnection of VCB and C&R Panel, Battery with Batter Charger etc.
- b) The capacitor bank shall consist of variable steps of different kVAr (*details shared under BoQ*). All the capacitor unit shall be controlled through separate capacitor

switch and complete capacitor bank shall be protected through a VCB suitable for capacitor duty.

- c) The rated voltage of the system will be not less than 12 kV and shall be carried-out under 3-Phase Power Supply; 50 Hz frequency level.
- d) The automatic power factor control unit shall continuously monitor power factor at 11 kV side of power transformer and automatically switched ON/OFF capacitors units in steps according to the requirement of KVAR to maintain the Target Power Factor (*atleast 0.98*).
- e) The automatic power factor control unit shall be programmable and have data downloading facility. Data Storage capacity of the control unit shall be at least for 45 days with every 15 minutes data. The bidder shall have to provide two data downloading instrument for data download from control unit with necessary BCS in each Circles.
- f) The all display meters provided in the control panel shall be digital meters and shall be compatible for Automatic Meter Reading (AMR).
- g) There are no low voltage limit for tripping of capacitor bank main VCB or capacitor switch. Also, the power factor control unit and relays provided for the protection of control unit shall be capable to store at least last 05 faults.
- h) All equipment and material shall be designed, manufactured and tested in accordance with the latest applicable IS/ IEC standards.
- i) The electrical installation shall meet the requirement of Indian Electricity Rules-1956/CEA safety Regulation 2010 as amended up to date; relevant IS code of practice and Indian Electricity Act-2003 in addition other rules and regulations as applicable to the work shall be followed.

## 10. TECHNICAL SPECIFICATION OF AUTOMATIC POWER FACTOR CAPACITOR

The technical specifications for the proposed capacitor bank are as presented below:

- a) **Switching Arrangement:** The automatic control unit shall be mounted in the control & relay panel itself to continuously monitor total load kVAR on 11 kV side of power transformer and shall automatically switch ON or switch OFF (variable steps) through VCB operation.

- b) **Time Delay:** The switching ON operation will take place after period of 10 minutes while switching OFF operation of relevant steps will be instantaneous.
- c) **Controls:** The unit shall instantly switch OFF the capacitor bank when the voltage increase by 10% above the rated voltage of 11 kV etc.
- d) **Monitoring Facility:** A suitable display should be provided to indicate the capacitor current in each phases of the complete capacitor bank. Indications shall also be provided to indicate ON & OFF status of each capacitor bank. Along with audio alarm indicating tripping of capacitor bank and ON /OFF, visual display window be provided on control panel.
- e) **Temperature Variation:** The control equipment and associate circuitry shall be suitable for operation at an ambient temperature in the range of + 5 deg C to (+) 50 deg C.

**Note:** *The above proposed technology including technical specifications are indicative only, detailed version will be a part of tender documents.*

## 11. MANAGEMENT ARRANGEMENTS

The implementation plan for the project will be **24 months (i.e., 03 months tendering process + 21 months implementation)** from the date of approval from funding agency and shall be executed as per proposed plan. Further, the works under different activities shall be carried out on **turnkey basis** through international or national competitive bidding as per the guidelines of funding agency.

The project shall cover the overall procurement, installation, commissioning, testing and 05 years maintenance of dynamic/ automatic capacitor bank and will be divided into two phases (I & II) depending upon the total number of sub-station considered, area covered, time frame and available fund. Here, providing the estimate for **'Phase – I'**.

## 12. COST ESTIMATES

The cost estimation of installation of **511 Nos. of Dynamic/ Automatic 11 kV Capacitor Bank** under Power System Development Fund is stated below.

Sr. No.	Name of Work	Unit	Qty.	Unit Rate (Rs. Lakhs)	*Amount (In Rs. Cr.)
1	Installation of 1587 kVAr Automatic 11 kV Capacitor Bank including procurement, installation, commissioning and testing.  (For 3.15/5 MVA)	Nos.	498	20.85	103.81
2	Installation of 3174 kVAr Automatic 11 kV Capacitor Bank including procurement, installation, commissioning and testing.  (For 8 MVA)	Nos.	13	24.46	3.18

**\*Note:** The above estimated cost is inclusive of Transportation on material, Erection cost on material, Insurance, Labour & Finance Cost, Service Cost, Price Escalation on cost of material, Civil Cost, applicable GST and other taxes, except AMC.

### 13. BILL OF QUANTITY (BOQ)

#### (A) Cost break-up of 11 kV Switched Capacitor Bank at 3.15 / 5 MVA Power Transformer

BoQ for 11 kV Dynamic/ Automatic Capacitor Bank (APFC) for Rural Areas - JVVNL (Cost Reference - MSEDCL Approved Rate)					
Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	12.65 kV, 1587 kVAr (11 KV, 1.2 MVAR), 3-Phase, 50 Hz, Outdoor Type, CRCA panel having step as 396.75 kVAr + 396.75 kVAr +793.5 kVAr at 12.65 KV. Bank shall be complete with Capacitor units of 132.25 kVAr for 396.75 KVAR & 264.5 kVAr for 793.5 KVAR step at 7.3 KV, including allied material such as suitable size of Aluminum busbars epoxy insulators, HRC fuses, Vacuum contactor, series reactors, RVT, etc shall also be housed in same cubicle in the below mentioned quantity	Nos.	1	1,016,949.00	1,016,949.00
a)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 396.75 kVAr	Nos.	6		



b)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 793.5 kVAr	Nos.	3		
c)	11 kV, 1-Phase Dry, AN-Cooled RVT	No.	1		
d)	11 kV/400 Amp, Indoor type Vacuum contactor	Nos.	3		
e)	Surge Suppressor	No.	1		
f)	IP 55 , Outdoor CRCA cubicle panel for accommodating capacitors, series reactor, vacuum contactor, surge arrestor fuses along with canaopy	Set	1		
g)	C & R Panel with Automatic Control Unit with APFC relay and Neutral Displacement relay	Set	1		
2	11 KV Isolator with EB (800 A) with elevating structure	No.	1	30,025.00	30,025.00
3	11 KV Isolator without EB (800 Amp.) with elevating structure	No.	1	26,630.00	26,630.00
4	9 kV, 10 kA, Station Class, Lightning Arrestors	Set	1	10,260.00	10,260.00
5	*Cable Support Structure, Clamps, Connectors, Earthing MS Flats 50 x 6, 3 Mtr long Earthing CI Pipe Dia 150 mm, Dog Conductor	LS	1	61,506.95	61,506.95
6	11 KV, 3 x 185 sqmm, HTXLPE Cable	Mtr.	20	858.00	17,160.00
7	Outdoor cable jointing kits	No.	2	1,907.00	3,814.00
8	11 kV VCB (Kiosks Type) (800 Amp.) Switchgear with complete arrangement with adopter panel for connection with existing 11 kV bus bar	No.	1	117,466.00	117,466.00
9	**Control cables of various sizes	LS	1	43,818.20	43,818.20
10	11 kV CT 400 - 200/5 A Outdoor Type	Nos.	3	10,611.00	31,833.00
11	24 Volt / 200 AH Battery with Battery Charger (For Capacitor's VCB)	Nos.	1	69,000.00	69,000.00
<b>Sub-Total (A)</b>					<b>1,428,462.15</b>
13	Transportation on material	LS	4%	-	57,138.49
14	Erection cost on material	LS	5%	-	71,423.11
15	Insurance, Labour & Finance Cost	LS	3%	-	42,853.86
<b>Service Cost</b>					<b>171,415.46</b>
<b>Sub-Total (B)</b>					<b>171,415.46</b>
<b>Total (C) = (A) + (B)</b>					<b>1,599,877.61</b>

17	Applicable GST	-	18%	-	287,977.97
18	Price Escalation on cost of material	-	10%	-	142,846.22
19	***Civil Cost	LS	1	53,857.50	53,857.50
<b>Sub-Total (D)</b>					<b>484,681.68</b>
<b>Grand Total (E) = (C) + (D)</b>					<b>2,084,559.29</b>

**Note 1:** As JVVNL is not under practice of regular installation of APFC, hence the cost estimation has been considered from recently approved PSDF Scheme of MSEDCL.

**Note 2:** As per the monthly Wholesale Price Index (WPI) issued by office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, following variation is observed in the prices of following items:

Commodity Name	WPI for 2020-21 (Base 2011-12)	WPI for 2021-22 (Base 2011-12)	Variation (%)
Iron Ore	102	156.2	+53%
Electric insulating material	105.4	107.1	+2%
Electrical relay/ conductor	112.3	129.1	+15%
Batteries	117.9	123.1	+5%

Therefore, looking the variations in some of the materials as required for the installation of capacitor banks at various 33/11 kV S/s over the period (24 months), JVVNL has considered price escalation of 10%.

**Additionally, the cost towards annual maintenance charges (as shown below) shall be borne by JVVNL as internal / external source of funding.**

Annual Maintenance Charges after Guarantee Period for 05 Years (1 Year + 5 Year's)					
Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	1st Year	Job	1	50000.00	50,000.00
2	2nd Year	Job	1	60000.00	60,000.00
3	3rd Year	Job	1	70000.00	70,000.00
4	4th Year	Job	1	80000.00	80,000.00
5	5th Year	Job	1	90000.00	90,000.00
<b>Total</b>					<b>350,000.00</b>
<b>Total AMC Cost for 05 Years considering 563 Nos. of APFC</b>					<b>197,050,000.00</b>

**Item Wise Cost Breakup:****(A.1) \*Cost Structure for 11 kV Station Capacitor Bank – For 1587 kVAr**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	Structure for 11 KV CT	Kg	155	51.80	8,029.00
2	Structure for 11 KV LA	Kg	155	51.80	8,029.00
3	G.I. Nut Bolts	Kg	20	82.90	1,658.00
4	Cable Support Structure (2 Nos.)	Kg	200	51.80	10,360.00
5	MS Flat 50 X 6	Kg	235.5	48.50	11,421.75
6	Earthing CI Pipe Dia 150 mm 3 Mtr long	Nos.	3	6300.00	18,900.00
7	Dog Conductor	Mtr.	60	51.82	3,109.20
<b>Total</b>					<b>61,506.95</b>

**(A.2) \*\* Cost Structure for Control Cables – For 1587 kVAr**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	2C X 2.5 Sq. mm Armoured, Copper	Mtr.	100	55.11	5,511.00
2	4C X 2.5 Sq. mm Armoured, Copper	Mtr.	275	87.60	24,090.00
3	7C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	139.19	5,567.60
4	10C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	216.24	8,649.60
<b>Total</b>					<b>43,818.20</b>

**(A.3) \*\*\* Cost Structure for Civil Work – For 1587 kVAr**

Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	Excavation	CuM	8	150.00	1,200.00
2	PCC	CuM	2.5	4257.00	10,642.50
3	RCC	CuM	5	5255.00	26,275.00
4	Steel	Kg	300	51.80	15,540.00
5	Back Filing	CuM	2	100.00	200.00
<b>Total</b>					<b>53,857.50</b>

**(B) Cost break-up of 11 kV Switched Capacitor Bank at 8 MVA Power Transformers**

BoQ for 11 kV Dynamic/ Automatic Capacitor Bank (APFC) for Rural Areas - JVVNL (Cost Reference - MSEDCL Approved Rate)					
Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	12.65 kV, 3174 kVAr, 3-Phase, 50 Hz, Outdoor Type, CRCA panel having 4 step as 396.75 kVAr + 396.75 kVAr +1190.25 kVAr +1190.25 kVAr at 12.65 KV. Bank shall be complete with Capacitor units of 132.25 kVAr for 396.75 kVAr & 396.75 kVAr for 1190.25 kVAr at 7.3 kV including allied material such as suitable size of Aluminum busbars epoxy insulators, HRC fuses, Vacuum contactor, series reactors, RVT, etc. with details as under	Nos.	1	1,271,186.00	1,271,186.00
a)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 396.75 kVAr	Nos.	6		
b)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 1190.25 kVAr	Nos.	6		
c)	11 kV, 3-Phase dry type RVT	No.	1		
d)	11 kV/400 Amp, Indoor type Vacuum contactor	Nos.	4		
e)	Surge Suppressor	No.	1		
f)	IP 55 , Outdoor CRCA cubicle panel for accommodating capacitors, series reactor, vacuum contactor, surge arrestor fuses along with canaopy	Set	1		
g)	C & R Panel with Automatic Control Unit with APFC relay and Neutral Displacement relay	Set	1		
2	11 KV Isolator with EB (800 A) with elevating structure	No.	1	30,025.00	30,025.00
3	11 KV Isolator without EB (800 Amp.) with elevating structure	No.	1	26,630.00	26,630.00
4	9 kV, 10 kA, Station Class, Lightning Arrestors	Set	1	10,260.00	10,260.00
5	*Cable Support Structure, Clamps, Connectors, Earthing MS Flats 50 x 6, 3 Mtr long Earthing CI Pipe Dia 150 mm, Dog Conductor	LS	1	61,506.95	61,506.95

6	11 kV XLPE insulated 3x185 mm <sup>2</sup> Armoured	Mtr.	20	858.00	17,160.00
8	Outdoor cable jointing kits	No.	2	1,907.00	3,814.00
9	11 kV VCB (Kiosks) (800 Amp.) Switchgear with complete arrangement with adopter panel for connection with existing 11 kV bus bar	No.	1	117,466.00	117,466.00
10	**Control cables of various sizes	LS	1	43,818.20	43,818.20
11	11 kV CT 400 - 200/5 A Outdoor Type	Nos.	3	10,611.00	31,833.00
12	24 Volt / 200 AH Battery with Battery Charger (For Capacitor's VCB)	Nos.	1	69,000.00	69,000.00
<b>Sub-Total (A)</b>					<b>1,682,699.15</b>
13	Transportation on material	LS	4%	-	67,307.97
14	Erection cost on material	LS	5%	-	84,134.96
15	Insurance, Labour & Finance Cost	LS	3%	-	50,480.97
<b>Service Cost</b>		<b>LS</b>	<b>12%</b>	<b>-</b>	<b>201,923.90</b>
<b>Sub-Total (B)</b>					<b>201,923.90</b>
<b>Total (C) = (A) + (B)</b>					<b>1,884,623.05</b>
17	Applicable GST	-	18%	-	339,232.15
18	Price Escalation on cost of material	-	10%	-	168,269.92
19	***Civil Cost	LS	1	53,857.50	53,857.50
<b>Sub-Total (D)</b>					<b>561,359.56</b>
<b>Grand Total (E) = (C) + (D)</b>					<b>2,445,982.61</b>

**Note 1:** As JVVNL is not under practice of regular installation of APFC, hence the cost estimation has been considered from recently approved PSDF Scheme of MSEDCL.

**Note 2:** As per the monthly Wholesale Price Index (WPI) issued by office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, following variation is observed in the prices of following items:

Commodity Name	WPI for 2020-21 (Base 2011-12)	WPI for 2021-22 (Base 2011-12)	Variation (%)
Iron Ore	102	156.2	+53%
Electric insulating material	105.4	107.1	+2%
Electrical relay/ conductor	112.3	129.1	+15%
Batteries	117.9	123.1	+5%

Therefore, looking the variations in some of the materials as required for the installation of capacitor banks at various 33/11 kV S/s over the period (24 months), JVVNL has considered price escalation of 10%.

**Additionally, the cost towards annual maintenance charges (as shown below) shall be borne by JVVNL as internal / external source of funding.**

Annual Maintenance Charges after Guarantee Period for 05 Years (1 Year + 5 Year's)					
Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	1st Year	Job	1	50000.00	50,000.00
2	2nd Year	Job	1	60000.00	60,000.00
3	3rd Year	Job	1	70000.00	70,000.00
4	4th Year	Job	1	80000.00	80,000.00
5	5th Year	Job	1	90000.00	90,000.00
<b>Total</b>					<b>350,000.00</b>
<b>Total AMC Cost for 05 Years considering 14 Nos. of APFC</b>					<b>4,900,000.00</b>

#### Item Wise Cost Breakup:

##### **(B.1) \*Cost Structure for 11 kV Station Capacitor Bank – For 3174 kVAR**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	Structure for 11 KV CT	Kg	155	51.80	8,029.00
2	Structure for 11 KV LA	Kg	155	51.80	8,029.00
3	G.I. Nut Bolts	Kg	20	82.90	1,658.00
4	Cable Support Structure (2 Nos.)	Kg	200	51.80	10,360.00
5	MS Flat 50 X 6	Kg	235.5	48.50	11,421.75
6	Earthing CI Pipe Dia 150 mm 3 Mtr long	Nos.	3	6300.00	18,900.00
7	Dog Conductor	Mtr.	60	51.82	3,109.20
<b>Total</b>					<b>61,506.95</b>

**(B.2) \*\*Cost Structure for Control Cables – For 3174 kVAr**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	2C X 2.5 Sq. mm Armoured, Copper	Mtr.	100	55.11	5,511.00
2	4C X 2.5 Sq. mm Armoured, Copper	Mtr.	275	87.60	24,090.00
3	7C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	139.19	5,567.60
4	10C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	216.24	8,649.60
<b>Total</b>					<b>43,818.20</b>

**(B.3) \*\*\*Cost Structure for Civil Work – For 3174 kVAr**

Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	Excavation	CuM	8	150.00	1,200.00
2	PCC	CuM	2.5	4257.00	10,642.50
3	RCC	CuM	5	5255.00	26,275.00
4	Steel	Kg	300	51.80	15,540.00
5	Back Filing	CuM	2	100.00	200.00
<b>Total</b>					<b>53,857.50</b>

**14. TIME FRAME PERT CHART**

The total duration of the project is considered as **24 months**. The tentative start date shall be considered as the date of receipt of approval from PSDF funding while the completion time is likely to be **end of July 2025**. The detailed time frame is presented below.

Sr. No.	Description	TIMELINE																							
		FY 2023-24												FY 2024-25										FY 2025-26	
		Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25
<b>Finalization of Tender Documents &amp; Issuance of Work Order</b>																									
1	Project Approval																								
2	Conduct of Committee Meeting																								
3	Preparation & Release of Tender Document																								
4	Evaluation, Contract Award and Mobilization																								
<b>Procurement, Installation, Commissioning &amp; Testing of Equipments</b>																									
5	1st Disbursement (30% of Grant)																								
6	Procurement, Installation, Commissioning & Testing of Equipments																								
7	Bi-monthly Review Meeting																								
8	Monthly Report Submission																								
9	2nd Disbursement (60% of Grant) i.e. After Utilization of 30% Grant + 10% Self-contribution (JVNL)																								
<b>Cost Benefit Analysis &amp; Report Submission on Improved Power Factor</b>																									
10	Submission of Draft Report																								
11	Final Report Submission																								
12	3rd Disbursement (10% of Grant) i.e. On Completion of Scheme																								

## 15. SUCCESS CRITERIA & SUSTAINABILITY

To identify the success of any project, it is always necessary to evaluate the standards by which to examine whether the proposed objective, target or outcomes will be achieved or not. Hence, the **Cost-Benefit Analysis** for the 1587 kVAr & 3174 kVAr ratings automatic capacitor bank on the 3.15, 5 & 8 MVA power transformer has been presented below.

<b>Payback Calculation for Installation of 11 kV Automatic Capacitor Bank at 33/11 kV Sub-station</b>															
<b>Assumptions - Load Factor - 80%   Avg. Loading - 54%   Average PF - 0.85   Desired PF - 0.98   Initial Line Losses as 20%</b>															
Sr. No.	Transformer Rating (In MVA)	Qty	Total MVA	Load Factor	Average Loading	Average Demand (In MW) with 0.85 Power Factor	Reduction in MVA after Capacitors Bank	% Line Loss Reduction	Actual Line Loss Reduction of Initial Loss as	Total MWh Drawn in a Year	Saving in MWh	Cost of energy saved per annum @ 4.85/- (2021-22) per unit	Proposed 11 KV Automatic Capacitor Bank (In kVAr)	Supply, Installation Cost (In Lakhs)	Total Cost (In Cr.)
				80%	54%		0.98		20						
1	3.15	312	983	786	425	360.8842	368.25	24.77	4.95	3161345	156619	759,601,741	1587	20.85	65.05
2	5	186	930	744	402	341.496	348.47	24.77	4.95	2991505	148205	718,792,856	1587	20.85	38.78
3	8	13	104	83	45	38.1888	38.97	24.77	4.95	334534	16573	80,381,137	3174	24.46	3.18
<b>Grand Total</b>										<b>6487384</b>	<b>321397</b>	<b>1,558,775,734</b>	-	-	<b>106.99</b>

Total Cost of the Project : Rs. 106.99 Cr.

Total Savings with Power Factor Improvement : Rs. 155.88 Cr.

**Payback Period - Approx. 09 Months**

**“Further, regional entities are liable for weekly settlement of ‘Reactive Energy Charges’ in accordance with the CERC (Indian Electricity Grid Code) Regulations, 2010 and amendments thereof, which are sometimes payable or receivable. Due to poor power factor, sometimes Rajasthan accounts for a penalty at the rate of 10 paise/kVArh (from 03.05.2010 onwards) reactive charges with escalation factor of 0.5 paise/ kVArh. Also, recent provision of CERC’s Draft Indian Electricity Grid Code 2022 recommends the reactive charge at the rate of 5 paise/kVArh w.e.f. the date of effect of final regulations with escalation at 0.5paise/kVArh per year thereafter”.**

Hence, the draft provision to rate reduction along with saving achieved through installation of capacitor bank will definitely lower down the overall penalty impact. These shall be the contributing factor for the Improvement of Financial Health of Discoms and will leading to a sustainable implementation structure. (Note: The NRLDC charges is not taken into consideration in above payback calculation).

Moreover, the capacitor units are used in these capacitor banks are manufactured with the latest design and tested to meet or exceed the requirement of applicable IEC & IS



Standards, it is rated in continuous kVAr, voltage and frequency for operating within the -200 °C to +500 °C ambient temperature range & designed to produce not less than rated kVA at rated voltage and frequency.

**Capacitors will operate safely at 135% of kVAr rating under following condition as:**

- kVAr caused by excess at rated frequency.
- kVAr added by the harmonic voltage superimposed on the power frequency voltage.
- kVAr attributable to manufacturing tolerances.

The maximum recommended working voltage of capacitor is 110% of rated voltage. The capacitors include a safety factor that permits them to tolerate without damage momentary over voltage caused due to switching/ load fluctuation.

**Thus, it is quite successful and sustainable in the high voltage system.**

ANNEXURE 'I'

**List of Various 33/11 kV Sub-stations  
considered for  
Power Factor Improvement**



## AJMER VIDYUT VITRAN NIGAM LIMITED

Corporate Identification Number (CIN)- U40109RJ2000SGC016482  
Regd. off. Vidyut Bhawan, Panchsheel Nagar, Makarwali Road, ajmer-305004

**Office of the Add. Chief Engineer (Projects)**

Phone:- 0145-2644551, Email Id:- cenprojectavvnl2023@gmail.com, Website -http://energy.rajasthan.gov.in/avvnl

**No. AVVNL/ACE(Projects)/Ajmer/F.PSDF/D- 494**

**Dt. 27 JUL 2023**

Sh. Debasis De  
Executive Director, NLDC  
Member Secretary of the Appraisal Committee of PSDF  
Power System Operation Corporation Ltd.  
B-9, Qutub Institutional Area, Katwaria Sarai,  
New Delhi-110016

**Sub: Submission of revised DPR for installation of dynamic/ automatic Capacitor Banks on 11 kV Side of selected 33/11 kV sub-stations of AVVNL under Power System Development Fund (PSDF Scheme)**

- Ref: 1. DPR submitted vide this office letter No. D-545 dated 08-09-2022**  
**2. PSDF TEGS meeting held at New Delhi on 08-05-2023**  
**3. Study report conducted by RVPNL**  
**4. This office letter No. D-332 dated 23-06-2023**

Kindly find enclosed herewith the revised DPR for installation of dynamic/ automatic Capacitor Banks on 11 kV Side of selected 33/11 kV sub-stations of AVVNL under Power System Development Fund (PSDF Scheme) amounting to Rs 135.99 Cr for further needful at your level and fund approval.

As discussed and decided in the TEGS meeting dated 08-05-2023, the revised DPR has been prepared in accordance with the inputs received from RVPNL (STU), initially for installation of capacitor banks on 644 Nos. sub-stations and later for 650 Nos. sub-stations. It is further submitted that the DPR has been prepared in line with JVVNL.

**Enclosed: As above**

(Ashok Kumar)  
Add. Chief Engineer (Projects)  
AVVNL, Ajmer

Copy submitted / forwarded to the following:

1. The TA to Managing Director, AVVNL, Ajmer for kind perusal of MD Sb.
2. The Add. Chief Engineer (Projects), JVVNL, Jaipur
3. The Superintending Engineer (PP), RVPNL, Jaipur

Add. Chief Engineer (Projects)  
AVVNL, Ajmer

# REVISED DETAILED PROJECT REPORT (DPR)

## FOR

### System Improvement Scheme

## Installation of Capacitor Banks on 11 kV Side of 33/11kV Substations for Reactive Power Compensation under Power System Development Fund (PSDF) – Phase 'I'

Estimated Cost: Rs. 135.99 Cr.



## AJMER VIDYUT VITRAN NIGAM LIMITED

Corporate Identification Number (CIN): U40109RJ2000SGC016482

**Office of the Add. Chief Engineer (Projects)**

VidyutBhawan, Panchsheel Nagar, Makarwali Road, Ajmer-305004

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Website: [www.energy.rajasthan.gov.in/avvn1](http://www.energy.rajasthan.gov.in/avvn1)

### DETAILED PROJECT REPORT

## INTRODUCTION

Rajasthan is the largest state in the country, in terms of area, spreading across 3,42,239 Sq. km, which is 10.41% of the nation area. The total population of Rajasthan is nearly 8.1 Crores spread across 33 Districts, of which 75% is rural population. The density of population in Rajasthan is 200 per sq.km which is much lower than the national average of 382 per sq.km. The state is, predominantly, an agrarian society with majority (45%) of the population depending on agriculture activities as source of income, which accounts for around 29.5% of Gross State Domestic Product (GSDP).

Due to this spread of population, meeting power demand, distribution of electricity and maintaining quality power for every category of consumers has always remained a challenge. The state is primarily agricultural base; however, the intensive power is too supplied to the domestic, non-domestic and industrial sector. It has been identified that these loads are highly inductive in nature which need rectification. In this regard, AVVNL has proposed to install dynamic/ automatic capacitor bank under which the capacitive load helps to adjust power factor as close to '**Unity Power Factor**'. The implementation of the project/ scheme will limit the heavy drawl of reactive power from grid and mitigate the risk such as **(a) Overloading of transmission lines; (b) Overloading of transformers at different voltage levels; and (c) Increase in system losses.**

Under AVVNL Discom, efforts have continuously been made to provide requisite reactive power compensation; however, the challenge associated with low voltage at the load end and drawl of heavy reactive power from the grid still persists due to fast growing load demand. Additionally, it has been noticed that the power factor is ranging from 0.80 to 0.90 at urban feeder and 0.75 to 0.80 (or even less) at the rural feeders within the respective circles. In view of this, the **provision through submission of detailed project report has been proposed at various circles having 'power factor less than 0.85'**. The report shall consist of brief background of AVVNL Discom, geographical maps, operational profile, objective, beneficiaries, recent initiatives, technology, cost estimates, timeframe, success criteria etc.

## OUR PROPOSAL

### 1. BACKGROUND

#### 1.1. Introduction

Ajmer Vidyut Vitran Nigam Limited (AVVNL) is a public utility company under the Department of Energy, Government of Rajasthan and is holder of the distribution and retail supply business licenses in the State of Rajasthan (*hereafter referred as "DISCOM"*). The Distribution Company came in to existence on 19 July 2000 pursuant to the "Rajasthan Power Sector Reforms Transfer Scheme, 2000" and restructuring undertaken in the State under which the vertically integrated Electricity Board (*Rajasthan State Electricity Board*) was unbundled and the power generation, transmission and distribution business was segregated to form 05 successor companies viz.

- a) **Rajasthan Rajya Vidyut Utpadan Nigam Limited (RVUN)** to manage the electricity generation business of erstwhile RSEB.
- b) **Rajasthan Rajya Vidyut Prasaran Nigam Limited (RVPN)** to manage the electricity transmission and bulk supply business of erstwhile RSEB.
- c) **Ajmer Vidyut Vitran Nigam Limited (AVVNL)** to manage the electricity distribution and retail supply business of erstwhile RSEB in Ajmer City Circle, Ajmer District Circle, Bhilwara, Nagaur, Jhunjhunu, Sikar, Udaipur, Chittorgarh, Rajsamand, Banswara, Pratapgarh and Dungarpur Circles.
- d) **Jaipur Vidyut Vitran Nigam Limited (JVVNL)** to manage the electricity distribution and retail supply business of erstwhile RSEB in Alwar, Bharatpur, Jaipur City, Jaipur District, Dausa, Kota, Jhalawar, Sawai Madhopur, Bundi, Baran, Tonk, Karauli and Dholpur Circles.
- e) **Jodhpur Vidyut Vitran Nigam Limited (JdVVNL)** to manage the electricity distribution and retail supply business of erstwhile RSEB in Sriganganagar, Hanumangarh, Churu, Bikaner District, Bikaner City, Jaisalmer, Jalore, Barmer, Jodhpur City, Jodhpur District, Sirohi, Jalore, and Pali Circles.



Table 1: Operational Profile of AVVNL Discom

Sr. No.	Parameters	AVVNL
1	Area of Operation	87,256 Sq. KM
2	Total Population (As per 2011 Census)	229 Lakhs
3	Total Number of Consumers	54.73 Lakhs (Regular)
4	Total Number of Villages	15379 Nos.
5	Electrified Villages	15272 Nos. (The balance 107 Nos. villages are unpopulated)
6	Circles	12 Nos.
7	33/11 kV Sub-stations	1974 Nos.
8	MVA Capacity of 33/11 kV Power Transformer	10276.70MVA
9	33 kV Line	16821.30 KM
10	11 kV Line	162143.59 KM
11	11 kV Feeders	9443 Nos.
12	LT Line	199117.66 KM
13	11/0.4, 6.35/0.24 kV Sub-station	537494 & 185452 Nos.
14	MVA Capacity of Distribution Transformer	17713.45MVA
15	Load Profile (LV) based on MU	Agriculture & Domestic loads are predominating
16	Load profile (HV) based on MU	Industrial & Non Industrial, Agriculture, Residential and Commercial

Further, in terms of electrical connectivity, the AVVNL Discom is connected to Rajasthan Rajya Vidyut Prasaran Nigam Limited network at 33kV & 11kV levels. Also, there are few interconnection points with other Discoms.

#### 1.4. Customers Profile

Discom currently serves about 5473245 regular consumers with a total connected load of around 1,44,21,291 kW under the LT & HT categories of consumers. Hence, category wise break-up of total number of consumers with connected Load as on March 2023 is stated below:



Table 2: Customer Profile for LT&amp;HT Consumers of AVVNL Discom

Category (LT)	Consumers (Nos)	Connected Load (kW)
Domestic	4393918	3943062
Non Domestic	392589	1527874
PSL	6851	138677
Agri (M)	579349	3973100
Agri (F)	453	5341
Agri (P)	1512	9385
SIP	50619	386441
MIP	10414	630158
LIP	5398	3413773
SIP(WW)	22314	164336
MIP(WW)	321	15829
LIP(WW)	197	80542
Mixed Load	9301	91520
EV	4	55
Railway Traction	5	41198
Total	54,73,245	1,44,21,291

## 2. PROJECT OBJECTIVE

AVVNL believes that there is a need for a consistent and long lasting solution in order to improve & strengthen the Power Distribution Network with minimum losses in the long run. Also, the distribution system has suffered various challenges such as **(a) Unbalanced Load Flow; (b) High Level of Technical Losses; (c) Less System Stability; (d) Poor Voltage Regulation; (e) Low Power Factor; (f) Low Consumer Satisfaction Level etc.** which need to be gradually resolved. In this regard, AVVNL is taking up Integrated Planning for Distribution System covering the Renovation & Modernization of the overall network. This will enable relieving congestion and improving the voltage profile at the load end.

“Government of India has finalized the scheme/ guidelines for operationalization of PSDF dated 10.01.2014. The provision consists of ‘Installation of Shunt Capacitors, Series Compensators and other Reactive Energy Generators including Reactive Energy Absorption, Dynamic Reactive’ support etc. for improvement of voltage profile in the Grid”.

Hence, this report aims to provide detailed information relating to the project for which Power System Development Fund for current year sought by the AVVNL. The key activity identified is to improve power distribution system with the installation of **1587 kVAr &**

**3174 kVAr Dynamic/ Automatic Capacitor Bank** at the selected 11kV Side of 33/11 kV Sub-stations within the respective Circle/ Division/ Sub-division which could be possible with the **Power System Development Fund (PSDF)**.

*Table 3: Project Estimation for Installation of Capacitor Bank under AVVNL Discom*

Installation of Dynamic/ Automatic Capacitor Bank under 12 Circles of AVVNL Discom							
Power Factor	Circle	Division	Sub Division	Total 33/11 kV Substation	Feeder Count	Proposed Transformer Capacity (MVA)	Power Transformer Count (Nos.)
Less than 0.85	12	39	127	650	1826	3.15/ 5	637
						8	13
<b>Total (In Nos.)</b>							<b>650</b>

### 3. METHODOLOGY ADOPTED

The methodology as followed by AVVNL, for identification of low power factor (*i.e. below 0.85*) is as stated below.

- a) AVVNL Discom has developed a **Feeder Monitoring System (FMS)** in order to have a '**Real Time**' power supply status of 11 kV feeders including installation status, power quality, system reliability, issue tracker, block hours supply, power factors, loan analysis, energy audit, tamper details etc.
- b) With the support of RFMS, the review reports consisting of 'Power Factors Less than 0.90' has been downloaded for the last 01 year (*i.e. from May 2022 till April 2023*).
- c) Analysis were carried-out on the Power Factor, Maximum Current (In Amp.) & Peak Load (In kW) at the various zone, circle, division, sub-division, 33/11 kV sub-stations, 11 kV feeders including its transformational capacity (In MVA).
- d) The average power factor for the 12 months were calculated and finalized for 12 circles which is enclosed under **Annexure 'I'**.

- e) Further, the automatically generated data are reliable enough for consideration however, AVVNL has taken initiative and finalized data were cross-checked on a sample basis at the various division/ sub-divisions levels.

#### 4. BENEFICIARIES

Adequate reactive power compensation offered salient benefits to the power system which includes voltage regulation (*i.e. voltage control within acceptable limits*), system power losses reduction brought about by power factor improvement and it increases the utilization of connected equipments at the consumer end, improves reliability of transmission system and more importantly efficiency of real power made available at the consumer end. Hence, the major beneficiaries are as stated below.

- a) Rajasthan Rajya Vidyut Prasaran Nigam Limited
- b) Ajmer Vidyut Vitran Nigam Limited (*Approx. 20 Lakhs Consumers under 650 Nos. 33/11 kV Sub-stations of 12 Circles*)

#### 5. ON-GOING INITIATIVES

AVVNL is taking active participation for the supply of quality power without compromising the technical and commercial losses in the urban and rural areas. Some of the initiatives include village electrification, augmentation of transformational capacity, infrastructure development, privatizations through distribution franchisee, metering, theft control, adopting schemes like Revamped Distribution Sector Scheme (RDSS), PM-KUSUM Scheme etc. Further, for the improvement of power factors at load end, AVVNL has installed approx. 195242 Nos. of LT Shunt Capacitors (3 kVAR / 6 kVAR / 9 kVAR) till date. However due to smaller impact of power factor improvement, burning/ failure issue and theft of LT Shunt Capacitors have forced Discom to rethink and initiate the implementation of dynamic/ automatic capacitor bank at the various 11 kV side of the 33/11 kV sub-stations.

Apart from above, majority of the 11kV feeders in AVVNL are having high agriculture load which are being catered using 3.15/ 5 MVA power transformers at substations. Over the decade, Discom has witnessed a growth of around ~9% in connected load thus leading to increase in power demand. Also, Government of Rajasthan has mandated supply of day-time power (two blocks supply) to agricultural farmers. To meet this increase in demand and ensure day time supply to agriculture consumers, AVVNL need to augment its existing transformation capacities at Substation level (specifically from 3.15MVA to 5 MVA) within next 2 years. Hence, under this detailed project report, AVVNL has considered the upcoming requirement and proposed a capacitor bank with common rated capacity for 3.15/ 5 MVA.

## 6. TECHNOLOGY

- a) For 11kV, 1587 kVAr & 3174 kVAr Dynamic/ Automatic Capacitor Bank shall include 11kV Vacuum Circuit Breaker (VCB) Switchgear with complete arrangement with Adopter Panel for connection with existing 11 kV Bus Bar, Capacitor Switch, Reactor, APFC, Indoor Type Automatic Control Unit, Lightning Arrestor, Surge Arrestor, Pin & Post Insulators, PT's-CT's, Power & Control Cables, Junction Box, Supports of various types channels, Nut Bolts, Bus Bar Structure, Laying of Cables, Installation of Energy Meters, Interconnection of VCB and C&R Panel, Battery with Batter Charger etc.
- b) The capacitor bank shall consist of variable steps of different kVAr (*details shared under BoQ*). All the capacitor unit shall be controlled through separate capacitors witch and complete capacitor bank shall be protected through a VCB suitable for capacitor duty.
- c) The rated voltage of the system will be not less than 12 kV and shall be carried-out under 3-Phase Power Supply; 50 Hz frequency level.
- d) The automatic power factor control unit shall continuously monitor power factor at 11kV side of power transformer and automatically switched ON/OFF capacitors units in steps according to the requirement of KVAR to maintain the Target Power Factor (*atleast 0.98*).
- e) The automatic power factor control unit shall be programmable and have data down loading facility. Data Storage capacity of the control unit shall be at least for 45 days with every 15 minutes data. The bidder shall have to provide two data downloading instrument for data download from control unit with necessary BCS in each Circles.
- f) The all display meters provided in the control panel shall be digital meters and shall be compatible for Automatic Meter Reading (AMR).
- g) There are no low voltage limit for tripping of capacitor bank main VCB or capacitor switch. Also, the power factor control unit and relays provided for the protection of control unit shall be capable to store at least last 05 faults.
- h) All equipment and material shall be designed, manufactured and tested in accordance with the latest applicable IS/IEC standards.
- i) The electrical installation shall meet the requirement of Indian Electricity Rules-1956/CEA safety Regulation 2010 as amended up to date; relevant IS code of

practice and Indian Electricity Act-2003 in addition other rules and regulations as applicable to the work shall be followed.

**Note:** The above proposed technology is indicative only, detailed version will be a part of tender documents.

## 7. MANAGEMENT ARRANGEMENTS

The implementation plan for the project will be **24 months (i.e 03 months tendering process + 21 months implementation)** from the date of approval from funding agency and shall be executed as per proposed plan. Further, the works under different activities shall be carried out on **turnkey basis** through international or national competitive bidding as per the guidelines of funding agency.

The project shall cover the overall procurement, installation, commissioning, testing and 05 years maintenance of dynamic/ automatic capacitor bank and will be divided into two phases (I& II) depending upon the total number of sub-station considered, area covered, time frame and available fund. Here, providing the estimate for '**Phase – I**'.

## 8. COST ESTIMATES

The cost estimation of installation of **650 Nos. of Dynamic/ Automatic 11 kV Capacitor Bank** under Power System Development Fund is stated below.

Sr. No.	Name of Work	Unit	Qty.	Unit Rate (Rs. Lakhs)	*Amount (In Rs. Cr.)
1	Installation of 1587 kVAr Automatic 11 kV Capacitor Bank including procurement, installation, commissioning and testing. (For 3.15/5 MVA)	Nos.	637	20.85	132.81
2	Installation of 3174 kVAr Automatic 11 kV Capacitor Bank including procurement, installation, commissioning and testing. (For 8 MVA)	Nos.	13	24.46	3.18
	Total		650		135.99

**\*Note:** The above estimated cost is inclusive of transportation of material, erection cost, insurance, labour & finance cost, service cost, price escalation, civil cost, applicable GST and other taxes, except AMC.

**9. BILL OF QUANTITY (BOQ)****(A) Cost break-up of 11 kV Switched Capacitor Bank at 3.15 / 5 MVA Power Transformer**

BoQ for 11 kV Dynamic/ Automatic Capacitor Bank (APFC) for Rural Areas - AVVNL (Cost Reference - MSEDCL Approved Rate)					
Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	12.65 kV, 1587 kVAr (11 KV, 1.2 MVAR), 3-Phase, 50 Hz, Outdoor Type, CRCA panel having step as 396.75 kVAr + 396.75 kVAr +793.5 kVAr at 12.65 KV. Bank shall be complete with Capacitor units of 132.25 kVAr for 396.75 KVAR & 264.5 kVAr for 793.5 KVAR step at 7.3 KV, including allied material such as suitable size of Aluminium busbars epoxy insulators, HRC fuses, Vacuum contactor, series reactors, RVT, etc shall also be housed in same cubicle in the below mentioned quantity	Nos.	1	1,016,949.00	1,016,949.00
a)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 396.75 kVAr	Nos.	6		
b)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 793.5 kVAr	Nos.	3		
c)	11 kV, 1-Phase Dry, AN-Cooled RVT	No.	1		
d)	11 kV/400 Amp, Indoor type Vacuum contactor	Nos.	3		
e)	Surge Suppressor	No.	1		
f)	IP 55 , Outdoor CRCA cubicle panel for accommodating capacitors, series reactor, vacuum contactor, surge arrestor fuses along with canaopy	Set	1		
g)	C & R Panel with Automatic Control Unit with APFC relay and Neutral Displacement relay	Set	1		
2	11 KV Isolator with EB (800 A) with elevating structure	No.	1		
3	11 KV Isolator without EB (800 Amp.) with elevating structure	No.	1	26,630.00	26,630.00
4	9 kV, 10 kA, Station Class, Lightning Arrestors	Set	1	10,260.00	10,260.00
5	*Cable Support Structure, Clamps, Connectors, Earthing MS Flats 50 x 6, 3 Mtr long Earthing CI Pipe Dia 150 mm, Dog Conductor	LS	1	61,506.95	61,506.95
6	11 KV, 3 x 185 sqmm, HT XLPE Cable	Mtr.	20	858.00	17,160.00
7	Outdoor cable jointing kits	No.	2	1,907.00	3,814.00
8	11 kV VCB (Kiosks Type) (800 Amp.) Switchgear with complete arrangement with adopter panel for connection with existing 11 kV bus bar	No.	1	117,466.00	117,466.00

9	**Control cables of various sizes	LS	1	43,818.20	43,818.20
10	11 kV CT 400 - 200/5 A Outdoor Type	Nos.	3	10,611.00	31,833.00
11	24 Volt / 200 AH Battery with Battery Charger (For Capacitor's VCB)	Nos.	1	69,000.00	69,000.00
<b>Sub-Total (A)</b>					<b>1,428,462.15</b>
13	Transportation on material	LS	4%	-	57,138.49
14	Erection cost on material	LS	5%	-	71,423.11
15	Insurance, Labour & Finance Cost	LS	3%	-	42,853.86
<b>Service Cost</b>			<b>LS</b>	<b>12%</b>	<b>-</b>
<b>Sub-Total (B)</b>					<b>171,415.46</b>
<b>Total (C) = (A) + (B)</b>					<b>1,599,877.61</b>
17	Applicable GST	-	18%	-	287,977.97
18	Price Escalation on cost of material	-	10%	-	142,846.22
19	***Civil Cost	LS	1	53,857.50	53,857.50
<b>Sub-Total (D)</b>					<b>484,681.68</b>
<b>Grand Total (E) = (C) + (D)</b>					<b>2,084,559.29</b>

**Note 1:** As AVVNL is not under practice of regular installation of APFC, hence the cost estimation has been considered from recently approved PSDF Scheme of MSEDCL.

**Note 2:** As per the monthly Wholesale Price Index (WPI) issued by office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, following variation is observed in the prices of following items:

Commodity Name	WPI for 2020-21 (Base 2011-12)	WPI for 2021-22 (Base 2011-12)	Variation (%)
Iron Ore	102	156.2	+53%
Electric insulating material	105.4	107.1	+2%
Electrical relay/conductor	112.3	129.1	+15%
Batteries	117.9	123.1	+5%

Therefore, looking the variations in some of the materials as required for the installation of capacitor banks at various 33/11 kV S/s over the period (24 months), AVVNL has considered price escalation of 10%.

**Additionally, the cost towards annual maintenance charges (as shown below) shall be borne by AVVNL as internal / external source of funding.**

Annual Maintenance Charges after Guarantee Period for 05 Years (1 Year + 5 Year's)					
Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	1st Year	Job	1	50000.00	50,000.00
2	2nd Year	Job	1	60000.00	60,000.00
3	3rd Year	Job	1	70000.00	70,000.00
4	4th Year	Job	1	80000.00	80,000.00
5	5th Year	Job	1	90000.00	90,000.00
<b>Total</b>					<b>350,000.00</b>
<b>Total AMC Cost for 05 Years considering 631 Nos. of APFC</b>					<b>2208,50,000.00</b>

**Item Wise Cost Breakup:****(A.1) \*Cost Structure for 11 kV Station Capacitor Bank – For 1587 kVAr**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	Structure for 11 KV CT	Kg	155	51.80	8,029.00
2	Structure for 11 KV LA	Kg	155	51.80	8,029.00
3	G.I. Nut Bolts	Kg	20	82.90	1,658.00
4	Cable Support Structure (2 Nos.)	Kg	200	51.80	10,360.00
5	MS Flat 50 X 6	Kg	235.5	48.50	11,421.75
6	Earthing CI Pipe Dia 150 mm 3 Mtr long	Nos.	3	6300.00	18,900.00
7	Dog Conductor	Mtr.	60	51.82	3,109.20
<b>Total</b>					<b>61,506.95</b>

**(A.2) \*\*Cost Structure for Control Cables – For 1587 kVAr**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	2C X 2.5 Sq. mm Armoured, Copper	Mtr.	100	55.11	5,511.00
2	4C X 2.5 Sq. mm Armoured, Copper	Mtr.	275	87.60	24,090.00
3	7C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	139.19	5,567.60
4	10C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	216.24	8,649.60
<b>Total</b>					<b>43,818.20</b>



**(A.3) \*\*\*Cost Structure for Civil Work – For 1587 kVAr**

Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	Excavation	CuM	8	150.00	1,200.00
2	PCC	CuM	2.5	4257.00	10,642.50
3	RCC	CuM	5	5255.00	26,275.00
4	Steel	Kg	300	51.80	15,540.00
5	Back Filing	CuM	2	100.00	200.00
<b>Total</b>					<b>53,857.50</b>

**(B) Cost break-up of 11 kV Switched Capacitor Bank at 8 MVA Power Transformers**

BoQ for 11 kV Dynamic/ Automatic Capacitor Bank (APFC) for Rural Areas - AVVNL (Cost Reference - MSEDCL Approved Rate)					
Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4		5
1	12.65 kV, 3174 kVAr, 3-Phase, 50 Hz, Outdoor Type, CRCA panel having 4 step as 396.75 kVAr + 396.75 kVAr +1190.25 kVAr +1190.25 kVAr at 12.65 KV. Bank shall be complete with Capacitor units of 132.25 kVAr for 396.75 kVAr & 396.75 kVAr for 1190.25 kVAr at 7.3 kV including allied material such as suitable size of Aluminum busbars epoxy insulators, HRC fuses, Vacuum contactor, series reactors, RVT, etc. with details as under	Nos.	1	1,271,186.00	1,271,186.00
a)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 396.75 kVAr	Nos.	6		
b)	11 kV, 0.2%, Aluminium Wound, Dry type Series reactors suitable for 1190.25 kVAr	Nos.	6		
c)	11 kV, 3-Phase dry type RVT	No.	1		
d)	11 kV/400 Amp, Indoor type Vacuum contactor	Nos.	4		
e)	Surge Suppressor	No.	1		
f)	IP 55 , Outdoor CRCA cubicle panel for accommodating capacitors, series reactor, vacuum contactor, surge arrestor fuses along with canaopy	Set	1		
g)	C & R Panel with Automatic Control Unit with APFC relay and Neutral Displacement relay	Set	1		
2	11 KV Isolator with EB (800 A) with elevating structure	No.	1	30,025.00	30,025.00

3	11 KV Isolator without EB (800 Amp.) with elevating structure	No.	1	26,630.00	26,630.00
4	9 kV, 10 kA, Station Class, Lightning Arrestors	Set	1	10,260.00	10,260.00
5	*Cable Support Structure, Clamps, Connectors, Earthing MS Flats 50 x 6, 3 Mtr long Earthing CI Pipe Dia 150 mm, Dog Conductor	LS	1	61,506.95	61,506.95
6	11 kV XLPE insulated 3x185 mm <sup>2</sup> Armoured	Mtr.	20	858.00	17,160.00
8	Outdoor cable jointing kits	No.	2	1,907.00	3,814.00
9	11 kV VCB (Kiosks) (800 Amp.) Switchgear with complete arrangement with adopter panel for connection with existing 11 kV bus bar	No.	1	117,466.00	117,466.00
10	**Control cables of various sizes	LS	1	43,818.20	43,818.20
11	11 kV CT 400 - 200/5 A Outdoor Type	Nos.	3	10,611.00	31,833.00
12	24 Volt / 200 AH Battery with Battery Charger (For Capacitor's VCB)	Nos.	1	69,000.00	69,000.00
<b>Sub-Total (A)</b>					<b>1,682,699.15</b>
13	Transportation on material	LS	4%	-	67,307.97
14	Erection cost on material	LS	5%	-	84,134.96
15	Insurance, Labour & Finance Cost	LS	3%	-	50,480.97
<b>Service Cost</b>		<b>LS</b>	<b>12%</b>	<b>-</b>	<b>201,923.90</b>
<b>Sub-Total (B)</b>					<b>201,923.90</b>
<b>Total (C) = (A) + (B)</b>					<b>1,884,623.05</b>
17	Applicable GST	-	18%	-	339,232.15
18	Price Escalation on cost of material	-	10%	-	168,269.92
19	***Civil Cost	LS	1	53,857.50	53,857.50
<b>Sub-Total (D)</b>					<b>561,359.56</b>
<b>Grand Total (E) = (C) + (D)</b>					<b>2,445,982.61</b>

**Note 1:** As AVVNL is not under practice of regular installation of APFC, hence the cost estimation has been considered from recently approved PSDF Scheme of MSEDCL.

**Note 2:** As per the monthly Wholesale Price Index (WPI) issued by office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, following variation is observed in the prices of following items:

Commodity Name	WPI for 2020-21 (Base 2011-12)	WPI for 2021-22 (Base 2011-12)	Variation (%)
Iron Ore	102	156.2	+53%
Electric insulating material	105.4	107.1	+2%

Electrical relay / conductor	112.3	129.1	+15%
Batteries	117.9	123.1	+5%

Therefore, looking the variations in some of the materials as required for the installation of capacitor banks at various 33/11 kV S/s over the period (24 months), AVVNL has considered price escalation of 10%.

**Additionally, the cost towards annual maintenance charges (as shown below) shall be borne by AVVNL as internal / external source of funding.**

Annual Maintenance Charges after Guarantee Period for 05 Years (1 Year + 5 Year's)					
Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	1st Year	Job	1	50000.00	50,000.00
2	2nd Year	Job	1	60000.00	60,000.00
3	3rd Year	Job	1	70000.00	70,000.00
4	4th Year	Job	1	80000.00	80,000.00
5	5th Year	Job	1	90000.00	90,000.00
<b>Total</b>					<b>350,000.00</b>
<b>Total AMC Cost for 05 Years considering 13 Nos. of APFC</b>					<b>45,50,000.00</b>

**Item Wise Cost Breakup:**

**(B.1) \*Cost Structure for 11 kV Station Capacitor Bank – For 3174 kVAr**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	Structure for 11 KV CT	Kg	155	51.80	8,029.00
2	Structure for 11 KV LA	Kg	155	51.80	8,029.00
3	G.I. Nut Bolts	Kg	20	82.90	1,658.00
4	Cable Support Structure (2 Nos.)	Kg	200	51.80	10,360.00
5	MS Flat 50 X 6	Kg	235.5	48.50	11,421.75
6	Earthing CI Pipe Dia 150 mm 3 Mtr long	Nos.	3	6300.00	18,900.00
7	Dog Conductor	Mtr.	60	51.82	3,109.20
<b>Total</b>					<b>61,506.95</b>

**(B.2) \*\*Cost Structure for Control Cables – For 3174 kVAr**

Sr. No.	Name of Items	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	2C X 2.5 Sq. mm Armoured, Copper	Mtr.	100	55.11	5,511.00
2	4C X 2.5 Sq. mm Armoured, Copper	Mtr.	275	87.60	24,090.00
3	7C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	139.19	5,567.60
4	10C X 2.5 Sq. mm Armoured, Copper	Mtr.	40	216.24	8,649.60
<b>Total</b>					<b>43,818.20</b>

**(B.3) \*\*\*Cost Structure for Civil Work – For 3174 kVAr**

Sr. No.	Parameters	Unit	Qty.	Unit Rates	Amount (In Rs.)
1	2	3	4	5	6
1	Excavation	CuM	8	150.00	1,200.00
2	PCC	CuM	2.5	4257.00	10,642.50
3	RCC	CuM	5	5255.00	26,275.00
4	Steel	Kg	300	51.80	15,540.00
5	Back Filing	CuM	2	100.00	200.00
<b>Total</b>					<b>53,857.50</b>

**1. TIME FRAME PERT CHART**

The total duration of the project is considered as **24 months**. The tentative start date shall be considered as the date of receipt of approval from PSDF funding while the completion time is likely to be **end of May 2025**. The detailed time frame is presented below.

Sr. No.	Description	TIMELINE																							
		FY 2022-23												FY 2023-24											
		Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25
<b>Finalization of Tender Documents &amp; Issuance of Work Order</b>																									
1	Project Approval	■																							
2	Conduct of Committee Meeting	■	■	■																					
3	Preparation & Release of Tender Document	■	■	■																					
4	Evaluation, Contract Award and Mobilization	■	■	■																					
<b>Procurement, Installation, Commissioning &amp; Testing of Equipments</b>																									
5	1st Disbursement (30% of Grant)				■																				
6	Procurement, Installation, Commissioning & Testing of Equipments				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7	Bi-monthly Review Meeting					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8	Monthly Report Submission					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9	2nd Disbursement (60% of Grant) i.e. After Utilization of 30% Grant + 10% Self-contribution (JVNL)										■														
<b>Cost Benefit Analysis &amp; Report Submission on Improved Power Factor</b>																									
10	Submission of Draft Report																							■	
11	Final Report Submission																								■
12	3rd Disbursement (10% of Grant) i.e. On Completion of Scheme																								■

**2. SUCCESS CRITERIA&SUSTAINABILITY**

To identify the success of any project, it is always necessary to evaluate the standards by which to examine whether the proposed objective, target or outcomes will be achieved or not. Hence, the **Cost-Benefit Analysis** for the 1980 kVAr & 3168 kVAr ratings automatic capacitor bank on the 3.15, 5 & 8 MVA power transformer has been presented below.

<b>Payback Calculation for Installation of 11 kV Automatic Capacitor Bank at 33/11 kV Sub-station</b>															
<b>Assumptions - Load Factor - 80%   Avg. Loading - 54%   Average PF - 0.85   Desired PF - 0.98   Initial Line Losses as 20%</b>															
Sr. No.	Transformer Rating (In MVA)	Qty	Total MVA	Load Factor	Average Loading	Average Demand (In MW) with 0.85 Power Factor	Reduction in MVA after Capacitors Bank	% Line Loss Reduction	Actual Line Loss Reduction of Initial Loss as	Total MWh Drawn in a Year	Saving in MWh	Cost of energy saved per annum @ 4.85/- (2022-21) per unit	Proposed 11 KV Automatic Capacitor Bank (In kVAr)	SITC cost with 5 Yr AMC (In Lakhs)	Total Cost (In Cr.)
				80%	54%										
1	3.15	380	1197	958	517	439.5384	448.51	24.77	4.95	3850356	190754	9251,55,967	1587	20.85	79.23
2	5	257	1285	1028	555	471.852	481.48	24.77	4.95	4133424	204777	9931,70,774	1587	20.85	53.58
3	8	13	104	83	45	38.1888	38.97	24.77	4.95	334534	16573	803,81,137	3174	24.46	3.18
<b>Grand Total</b>										<b>8318314</b>	<b>412105</b>	<b>19987,07,878</b>	-	-	<b>135.99</b>

Total Cost of the Project : Rs. 135.99 Cr.

Total Savings with Power Factor Improvement : Rs. 199.87 Cr

-----  
**Payback Period - Approx. 9 Months**

“Further, regional entities are liable for weekly settlement of ‘Reactive Energy Charges’ in accordance with the CERC (Indian Electricity Grid Code) Regulations, 2010 and amendments thereof, which are sometimes payable or receivable. Due to poor power factor, sometimes Rajasthan accounts for a penalty at the rate of 10 paise/kVArh (from 03.05.2010 onwards) reactive charges with escalation factor of 0.5 paise/ kVArh. Also, recent provision of CERC’s Draft Indian Electricity Grid Code 2022 recommends the reactive charge at the rate of 5 paise/kVArh w.e.f. the date of effect of final regulations with escalation at 0.5paise/kVArh per year thereafter”.

Hence, the draft provision to rate reduction along with saving achieved through installation of capacitor bank will definitely lower down the overall penalty impact. These shall be the contributing factor for the Improvement of Financial Health of Discoms and will leading to a sustainable implementation structure. (Note: The NRLDC charges is not taken into consideration in above payback calculation).

Moreover, the capacitor units are used in these capacitor banks shall be manufactured with the latest design and tested to meet or exceed the requirement of applicable IEC & IS Standards, it is rated in continuous kVAr, voltage and frequency for operating within the -200°C to +500°C ambient temperature range & shall be designed to produce not less than rated kVA at rated voltage and frequency.

**Capacitors will operate safely at 135% of kVAR rating under following condition as:**

- kVAR caused by excess at rated frequency.
- kVAR added by the harmonic voltage superimposed on the power frequency voltage.
- kVAR attributable to manufacturing tolerances.

The maximum recommended working voltage of capacitor is 110% of rated voltage. The capacitors include a safety factor that permits them to tolerate without damage momentary over voltage caused due to switching/load fluctuation.

**Thus, it is quite successful and sustainable in the high voltage system.**

# **List of Various 33/11 kV Sub-stations considered for Power Factor Improvement**



**JODHPUR VIDYUT VITRAN NIGAM LTD.**

Corporate Identity Number (CIN) - I140109R120005GCO16483

**Office of Superintending Engineer (I&S)**

Regd. Office: New Power House, Jodhpur- 342003

Phone No: 0291-2742343 : Fax No: 0291-2742228

E-mail:- scinsjdvnvl@gmail.com Web site: www.jdvvnvl.com



No.JdVVNL/SE (I&S)/R.PSDF/

/D.

403

Dt. 30.06.2023

**Sh. Debasis De**

Executive Director NLDC

Member Secretary of the Appraisal Committee PSDF

B-9, Qutub Institutional Area, Katwaria Sarai,

New Delhi – 110016

REVISED

**Sub :** Re-Submission of revised proposal for approval of project for implementation of Automatic Reactive Power solution on 33/11 KV substations of Jodhpur DISCOM (Proposal No. 347) after removal of typological errors.

**Ref :** 1. DPR submitted vide letter No. 1747 dated 03.08.2022

2. PSDF TESC meeting held at New Delhi on 08.05.2023

3. Study report conducted by RVPNL


4. This office Letter D. 392 Dt: 23.06.2023

Under reference to the subject cited above to bring down the AT&C losses in the state and to strengthen the medium voltage network of the state which in turn will be of benefit to Jodhpur DISCOM, we have planned to implement the automatic/dynamic reactive power solution (Capacitor Banks) on 11 KV side of 33/11 KV substations of Jodhpur DISCOM under Power System Development Fund (PSDF) amounting to Rs. 216.38 Crores excluding AMC.

As discussed and decided in the TESC meeting held on 08.05.2023 the detailed revised project report in accordance with the inputs received from RVPNL (STU) for 730 nos. 33/11 KV substations of Jodhpur DISCOM selected for implementation is submitted herewith for further needful at your level and for approval of funds.

Encl: The Complete Revised DPR

Page 1 to 110

  
30/6/2023  
(M.L. BENDA)

Project Nodal Officer

Superintending Engineer (I&S),

Jodhpur DISCOM, Jodhpur

**Er. M.L. Benda**  
SE (I&S), JdVVNL





**JODHPUR VIDYUT VITRAN NIGAM LTD.**

(A Govt. of Rajasthan undertaking)

Corporate Identity Number (CIN) -U40109RJ2000SGC016483

Regd. Office: New Power House, Jodhpur- 342003

Office of the Superintending Engineer (I&S)

Phone No: 0291-2745801/+919413359036

E-mail: seinsjdvnvl@gmail.com, Web site: www.jdvvnvl.com

**REVISED**

## **DETAILED PROJECT REPORT (DPR)**

**FOR**

**IMPLEMENTATION OF AUTOMATIC REACTIVE POWER  
SOLUTION ON 33/11 KV SUB STATIONS IN JODHPUR DISCOM  
(JdVVNL)**

**TOTAL ESTIMATED COST: Rs. 216.38 crores**

### **Key Glances:**

Existing Avg. Power Factor	Transformer Rating (MVA)	Qty.	Proposed 11 KV Automatic Capacitor Bank (KVAR)	Supply Installation Cost per Unit (In Lakh)	Total Cost of Project (In Cr.)	Cost of Energy Saving per Year (In Cr.)	Payback Period
0.84	1.6	1	1980	29.57	216.38	108.29	2 Year
	2.5	1	1980	29.57			
	3.15	559	1980	29.57			
	5.00	156	1980	29.57			
	8.00	06	3950	33.75			
	10.00	07	3950	33.75			

*shil*  
30/6/2023


Jodhpur, June 2023

**En. M.L. Benda**  
SE (I&S), JdVVNL, JU

**SUMMARY OF PROPOSAL**

<b>For Official Use- To be filled by the Nodal Agency of PSDF</b>	
Project Proposal No: .....	Date of Receipt: .....

<b>To be filled by the Requesting Organization / Project Entity</b>	
i. Name of the requesting Organization / Utility	Jodhpur Vidyut Vitran Nigam Limited., Jodhpur
<b>2. Summary of Project/ Scheme / Activity</b>	
a. Name and location of the Project/Scheme/Activity:	<b>Implementation of Automatic Reactive Power Solution on 33/11 KV substations in Jodhpur DISCOM</b>
b. Objective of the Project/Scheme/Activity:	The objective is to automate the reactive power and optimize the performance of the distribution grid of Sub Stations of JdVVNL, Jodhpur
c. Authorized person for this Project/Scheme/Activity:	Name: Sh. Pranod Tak, Managing Director, JdVVNL E-mail ID: md.jdvvnl@rajasthan.gov.in Land Line: +91 291 2742229 Mobile No: +91 9413359001 Fax No : +91 291 2741870
d. Nature of the Project/Scheme/Activity: Interstate/Intra-State	Intra-State
e. Identified Beneficiaries	The State Grid of Rajasthan and Regional Grid of Northern Region of India. The Project will strengthen the Medium Voltage Network of the State which will in turn benefit the Distribution Licensees, the JdVVNL, Jodhpur.
f. Merits of the scheme	Better Management of Volt-VAR
g. Limitations, if any	Installation process may take considerable time.
h. Time frame of Implementation	24 months
i. Estimated Cost of Project/Scheme/Activity:	<b>Rs. 216.38 Crores</b>
j. Category under which the project is classified (Please refer Para 5.1 of the Guidelines/Procedure)	5.1 (b) as per Guidelines/Procedure for Disbursement of Fund from Power System Development Fund

  
 Sr. M.L. Bedia  
 SE (I&S), JdVVNL, JU

**DETAILED PROPOSAL (DP)**

**1. DETAILS OF THE REQUESTING ORGANIZATION / PROJECT ENTITY**

**1.1 Details of Organization / Entity**

Name of Organization / Entity	Jodhpur Vidyut Vitran Nigam Limited, Jodhpur
Acronym or Abbreviation (if applicable)	JdVVNL

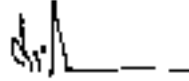
**1.2 Details of Head of the Organization**

Name (Mr/Ms/Mrs)	Mr. Pramod Tak
Designation	Managing Director
E-mail Address	md.jdvvn1@rajasthan.gov.in
Land line No	+91 291 2742229
Fax No.	+91 291 2741870
Address	New Power House, Basni, JODHPUR
City	Jodhpur
Postal Code	342003

**1.3 Details of Project Incharge/ Project Manager (Authorized Person) for this project / scheme / activity (Not below the rank of Dy. General Manager / Superintending Engineer)**

Name (Mr/Ms/Mrs)	Mr. M.L. Benda
Designation	Superintending Engineer (I&S)
E-mail Address	seinsjdvvn1@gmail.com
Land Line No.	
Mobile No	9413359036
Fax No.	NA
Address	2 <sup>nd</sup> Floor, Old Generation Building, New Power House, Basni, Jodhpur
City	Jodhpur
Postal Code	342003

Any change in above mentioned details may be notified to the Nodal agency of PSDF immediately.

  
Mr. M.L. Benda

## 2. Justification of the Proposal

### 2.1 Analysis of the Objective

GENERAL PROFILE OF JODEPUR DISCOM			
S.No.	Particular	UNIT	March, 2022
1	Area	Sq. Km	182509
2	Population 2011(as per 2011 Census)	Crore	2.00 (2,00,10,828)
3	Nos. of O & M Circles	Nos.	12
4	Nos. of O & M Divisions	Nos.	48
5	Nos. of O & M Sub-Divisions	Nos.	193
6	Nos. of 33KV Sub Stations	Nos.	2337
7	Nos. of Consumers (Regular)	Lacs	45.61
8	No. of Ag. Consumers (Regular)	Lacs	4.26
9	Average Monthly Energy Draw (LU)	LU	24478.40
10	Average Monthly Energy Sold (LU)	LU	19312.16
11	Average Monthly Rev Assessed (Rs. Crores)	CR.	1472.71
12	Average Monthly Rev. Realisation (Rs. Crores)	CR.	1480.90
13	Percentage Realisation	%	100.56
14	T&D losses As on MAR 2022.	%	21.11
15	No. of 11kv Feeders	Nos.	11690
16	No. of Urban 11kv Feeders	Nos.	1253
17	No. of Rural 11kv Feeders	Nos.	10437

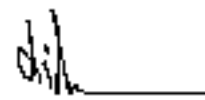
#### *The problem / constraint to be addressed:*

The reasons for high AT&C Losses in the state are primarily the following:

- Non - availability of reliable Reactive Power compensation solution, resulting in high technical losses.
- Deficiency in the organizational setup (O & M) & Financial Support from Govt. Power Dept.
- Electricity consumer in the state consists mainly of domestic (17.84%), Agriculture (60.52%), industrial/commercial consumer (10.10%) and water works and other (11.54%).

  
Er. M.L. Benda  
SE (R&S) JODHPUR

- The Dept is also plagued by shortage of manpower. All these factors lead to inefficiency of the power sector. Therefore reduction of AT&C Losses requires a very committed road map/policy of the Govt by considering electricity as a business commodity for essential contribution towards the growth of the economy (resources) while notwithstanding the social obligation in providing energy as a basic need.
- The state is forced to maintain a high HT line length ratio owing to the extremely extended area 182509 KM where electricity is transmitted to long distances due to which frequency and voltage could not be maintained to specified limits.. Hence voltage at receiving end drastically drops and leads to drawl to excess current. Same can be understand by formula of Power,  $P(KW) = \sqrt{3} \times V \times I \times \cos\theta$ , according to this formula  $V \propto I$ .
- This distributed population not only increased the capital investment requirements of the state but also makes the maintenance and monitoring of the network very difficult.
- Defective meters, tampering and power theft are the main causes for high AT&C losses. With prepaid metering the AT&C losses in the State may improve drastically and also alleviate shortage of manpower.



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JdVVNL have envisaged following measures for bringing down AT&C losses;

- Installation of Automatic Power Factor Control (APFC) Capacitor banks at all 33/11 kV transformers.
- Identification of loss prone area by tagging of consumers with DTs and feeders for energy accounting.
- Load verification of agriculture category during peak session and ensuring billing accordingly.
- Improvement in HT/LT ratio.
- Formation of Special Task Force for raid against theft.
- Implementation of IT enabled services for power consumers. This has great potential in reducing losses and providing consumer friendly services.
- Smart Metering under RDSS Scheme.
- Feeder and DT metering for accurate energy accounting.
- Introduction of modern technologies to monitor reliable and quality power supply.



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### Introduction Of APFC Panel

In present condition, the 11 KV capacitor bank is controlled by manually switched devices like Isolators/Load Break Switch or circuit breakers. This old practice has disadvantage as compared to modern automatically switched Capacitor Bank.

- The ON/OFF operation of capacitor bank is depending on one operator and it is difficult to control on switching ON/OFF the capacitor bank as per varying load condition.
- There are only two possible conditions in manually switched banks, complete bank is either fully in their circuit or out of circuit and reactive power compensation cannot be closely matched with the varying load condition.
- This results in over compensation or under compensation of reactive power at varying load condition.
- If one of the capacitor units from the capacitor bank is failed, whole capacitor bank will become idle.

Following are the some advantages to propose the Automatic power factor correction systems up to 11 KV.

The APFC scheme is to provide an effective control of capacitor bank installations in Substations to maintain power factor under varying load conditions, for any sub-station load on Transformer changes during a 24 Hour daily load cycle. This variation of load depends upon type of load i.e. Urban Load, Rural load, Agricultural Load, Industrial load etc. The load pattern will be different for different loads. Thus load variation will follow certain pattern and which could be divided into four or six periods in a 24 Hour daily

load cycle. Power factor would also vary and at the same time actual requirement of Capacitors in circuit will also vary. If steps are provided with capacitor banks to switch them as required it will help the Electricity Supply Authority to maintain the power factor at desired level throughout the day.

This load variation has been observed to change from 8 % to 68 %. When conventional fixed type capacitor banks are used the capacitor bank will provide compensation of certain level and in an event the bank is not removed from the circuit at low load, it will provide overcompensation to the system. In conventional fixed type capacitor bank removing required capacitor cells from circuit is very cumbersome process as the lineman/operator has to switch on Breaker, Isolator, disconnect the fuse to isolate the capacitor cells and switch ON all the equipments once again. This will again depend upon availability of trained man power for such purpose.

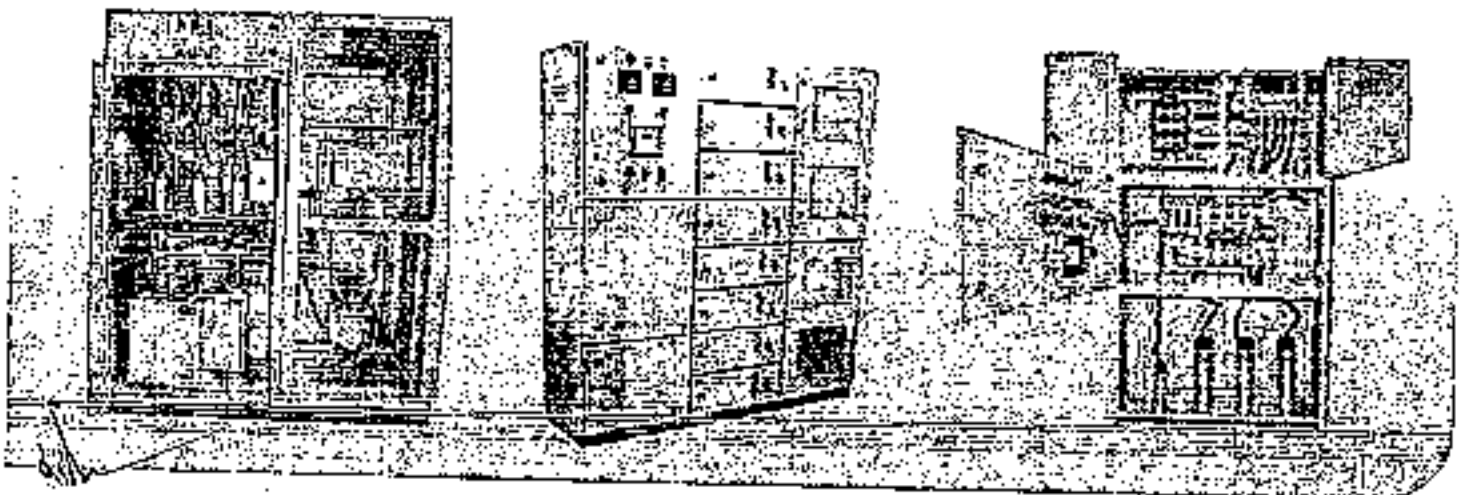
Overcompensation has harm full effects on Capacitors, switching devices. Outdoor type H.V. Capacitor bank with facility of automatic switching of required number of steps with the help of capacitor switch. The bank comprising of externally single star connected Capacitor bank, 0.2% to 0.4% Series Reactors for switching inrush current suppression at neutral end, RFI for unbalance protection.

### CEA Regulation

(1) Capacitor and the residual voltage transformer shall be as per relevant IS.

(2) The capacitor shall be of automatic switched type for sub-stations of 5 MVA and higher capacity.

(3) Where over-voltage (load) capacitor are provided, the relay shall be chosen so as to prevent over compensation during off peak periods.



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**BENEFITS OF POWER QUALITY IMPROVEMENT**

<p>Difficult to Quantify</p>	<p><u>Improved voltage stability margins</u>  <u>Reduction in equipment failure rates</u>  <u>Reduction in equipment mal-function</u></p>	<p><u>Compliance to standards</u>  <u>Compliance to regulations</u>  <u>CDM benefits</u></p>
<p>Easy to Quantify</p>	<p><u>Reduction in equipment losses</u>  <u>Release of blocked capacity</u>  <u>Reduction in I &amp; D loss</u></p>	<p>Depreciation benefits  Incentives  Penalties  Statutory levies  Tariff benefits</p>
<p>Technical</p>		<p>Non-Technical</p>

*dh*

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SE (I&S), JVVNL, JU



### DETERMINATION OF THE CAPACITOR BANK RATING

The size of capacitor unit (or Bank) required may be determined from the following formula:

$$Q = P (\tan \theta - \tan \theta_c)$$

Where:

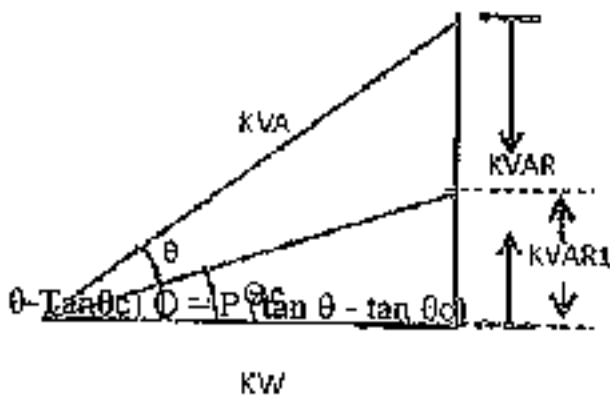
Q = KVAR required

P = Active power in KW

cos θ = Power factor before compensation

cos θ<sub>c</sub> = Power factor after compensation

Tan θ = Perpendicular/Base



$$\begin{aligned} \tan \theta &= \text{KVAR/KW} \\ \tan \theta_c &= \text{KVAR}_1 / \text{KW} \\ \text{KVAR} - \text{KVAR}_1 &= \text{KW} (\tan \theta - \tan \theta_c) \end{aligned}$$

*dit*

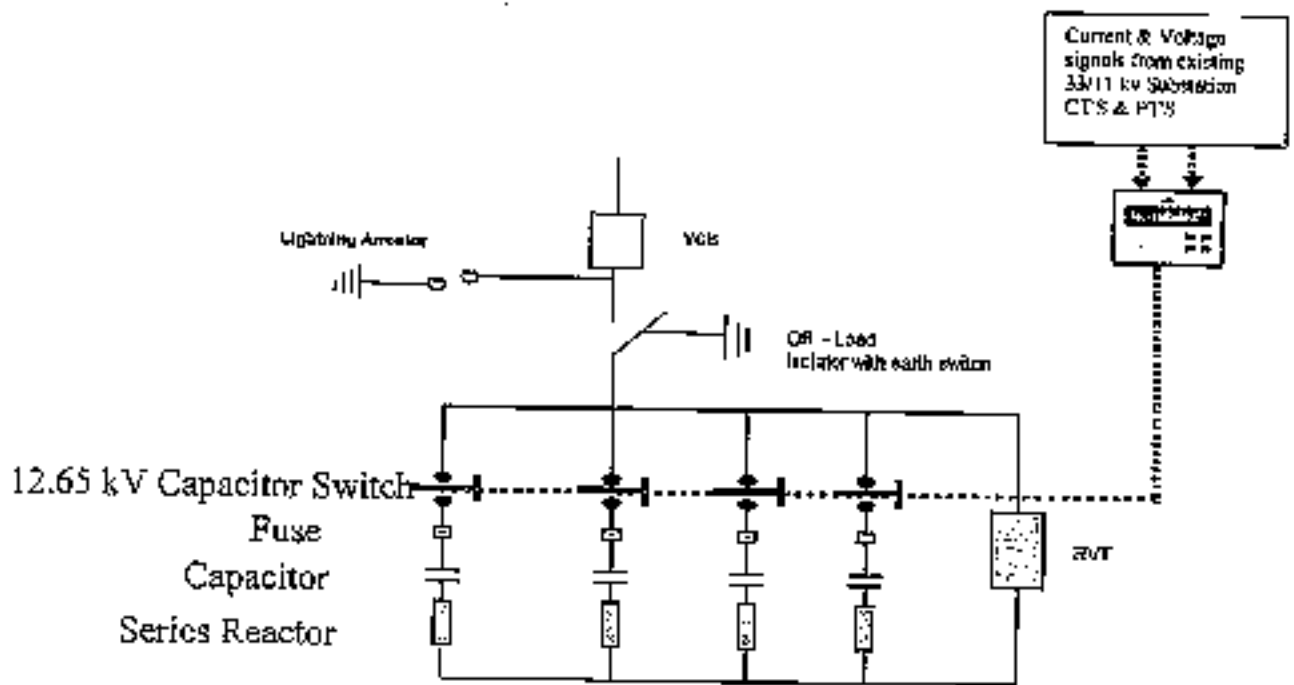
Er. M.I. Benda

Table Indicating capacitor size in KVAR for each KW Load for correction from different P.F to higher P.F

KW	P.F	TARGET P.F = 0.95									
		0.90	0.92	0.94	0.96	0.98	0.99	0.995	0.998	0.999	1.00
3.10	0.90	2.43	2.48	2.56	2.64	2.70	2.75	2.82	2.89	2.98	3.08
2.96	0.92	2.21	2.26	2.34	2.42	2.48	2.53	2.60	2.67	2.76	2.86
2.77	0.94	2.02	2.07	2.15	2.23	2.28	2.34	2.41	2.48	2.56	2.67
2.59	0.96	1.84	1.89	1.97	2.05	2.10	2.17	2.23	2.30	2.39	2.50
2.43	0.98	1.68	1.73	1.81	1.89	1.95	2.01	2.07	2.14	2.23	2.33
2.28	0.99	1.54	1.59	1.67	1.75	1.81	1.87	1.93	2.00	2.09	2.20
2.15	0.995	1.41	1.46	1.54	1.62	1.68	1.73	1.80	1.87	1.96	2.06
2.04	0.998	1.29	1.34	1.42	1.50	1.56	1.61	1.68	1.75	1.84	1.94
1.93	0.999	1.19	1.23	1.31	1.39	1.45	1.50	1.57	1.64	1.73	1.83
1.83	1.00	1.08	1.13	1.21	1.29	1.34	1.40	1.47	1.54	1.62	1.73
1.73	0.90	0.98	1.03	1.11	1.19	1.25	1.31	1.37	1.46	1.53	1.63
1.64	0.92	0.89	0.94	1.02	1.10	1.16	1.22	1.28	1.37	1.44	1.54
1.56	0.94	0.81	0.86	0.94	1.02	1.07	1.13	1.20	1.27	1.36	1.46
1.48	0.96	0.73	0.78	0.86	0.94	1.00	1.06	1.12	1.20	1.28	1.38
1.40	0.98	0.65	0.70	0.78	0.86	0.92	0.98	1.04	1.11	1.20	1.30
1.33	0.99	0.58	0.63	0.71	0.79	0.85	0.91	0.97	1.04	1.13	1.23
1.30	0.995	0.55	0.60	0.68	0.76	0.81	0.87	0.94	1.01	1.10	1.20
1.27	0.998	0.52	0.57	0.65	0.73	0.78	0.84	0.91	0.98	1.06	1.17
1.23	0.999	0.48	0.53	0.61	0.69	0.75	0.81	0.87	0.94	1.03	1.13
1.20	1.00	0.45	0.50	0.58	0.66	0.72	0.77	0.84	0.91	1.00	1.10
1.17	0.90	0.32	0.37	0.45	0.53	0.58	0.64	0.71	0.78	0.86	0.96
1.14	0.92	0.30	0.35	0.43	0.51	0.56	0.62	0.69	0.76	0.84	0.94

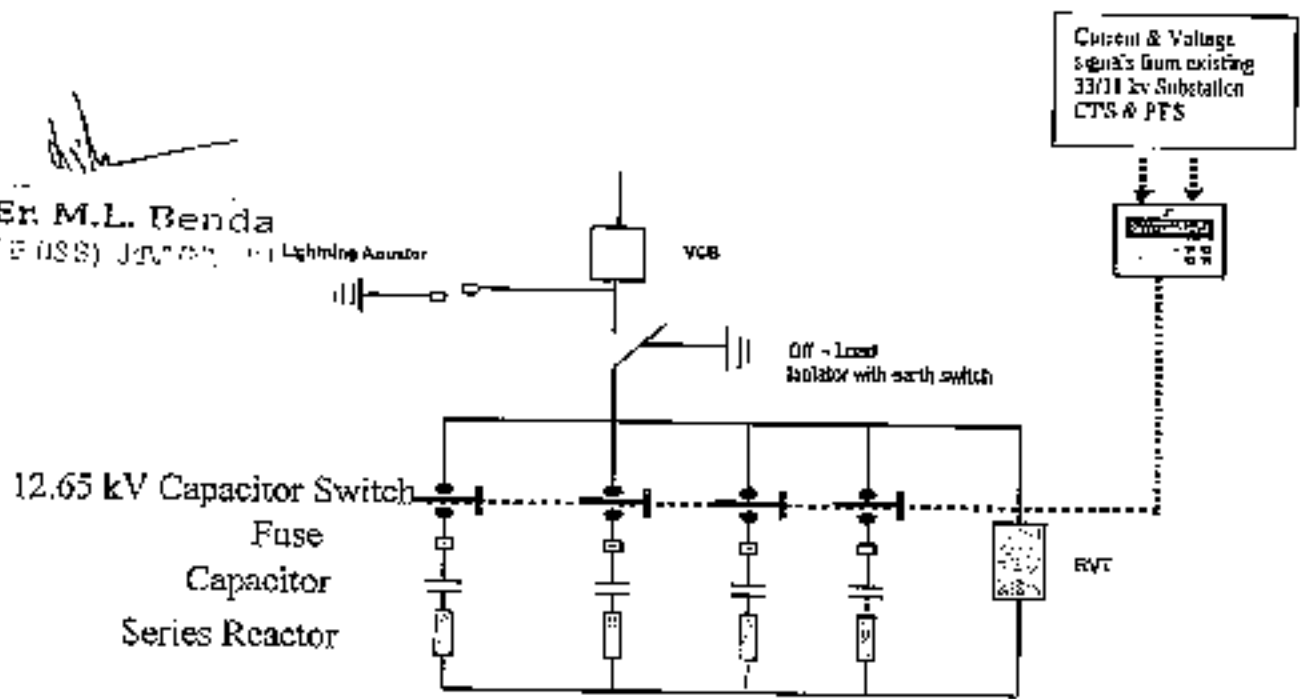


**SINGLE LINE DIAGRAM PROPOSED for APFC PANEL ON 3.15, 5.8 and 10 MVA TRANSFORMER AT 33/11 KV SUBSTATIONS**



1980 KVAR APFC Bank with 3 Steps of  $396+792+792$  kVAR for , 33/11 KV, 3.15 & 5 MVA Transformer

*M.L.*  
Er. M.L. Benda  
E (SS) J...



3960 KVAR APFC Bank with 4 Steps of  $792+792+1188+1188$  kVAR for , 33/11 KV, 8 & 10 MVA Transformer

*Objective of the project / scheme/ activity:*


*Maintaining voltage by reactive power management*

Voltage Control in an electrical power system is important for proper operation for electrical power equipment to reduce technical losses, prevent damage to equipment's, overhead lines etc. In general terms, decreasing reactive power causes voltage to fall while increasing it causes voltage to rise. When reactive power supply lowers voltage, current must increase to maintain power supplied, causing system to consume more reactive power and the voltage drops further. If the current increases too much, transmission lines go off line, overloading other lines and potentially causing cascading failures.

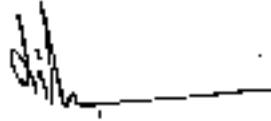
This can be controlled by managing the reactive power in the system. To introduce Reactive Power, capacitors are the cheapest and the simplest means. By introducing Switched Capacitor Banks, precise and real time compensation of Reactive Power can be achieved. By achieving precise Reactive Power Compensation, overall healthy voltage profile can be achieved.

*Advantages to JdVVNL:*

- a. Improvement in Voltage level.
  - b. Reduction of losses in lines and transformers.
  - c. Reduction of over loading means less heating cables, conductors, transformers etc.
  - d. A better utilization of the capacity of the generators, transformers, switchgear, cables lines, etc., means increase in efficiency of the system.
  - e. Reduced depreciation charges on capital outlay and less capital investment.
  - f. Reduced reactive power drawn charges to NRLDC
  - g. Reduction in I & D loss (through reduction in current)
    - i. Additional units available for sale
    - ii. Lower impact on environment
  - h. Release of Blocked Capacity (through reduction in apparent power)
    - i. Defr Capital Investment
    - ii. Better utilization of fixed asset/capital investment
  - i. Better asset management (operation at lower temperatures)
    - i. Lower life cycle cost
    - ii. Longer life of equipment & lower replacement cost
- Better voltage profile**

  
En. M. L. Benda  
SE (I&S), JdVVNL, JU

Date: 30.06.2023

  
Signature: \_\_\_\_\_  
Name: M. L. Benda  
(Project Nodal Officer)  
(Authorized Representative)

## Required physical additions/equipment in power system

As per BOQ and the DPR.

- **Financing and other commercial details**  
90% grant under PSDF.

- **Merits and limitations (if any) in the implementation of the project / scheme / activity**  
The deficiencies in the old system are expected to be removed provided the project is funded with full grant. However, training of the engineers to familiarize with the new state of art equipment's will have to be looked into.

## 2.2 Identified Beneficiaries of the Project

The beneficiary of the schemes is Jodhpur Vidyut Vitran Nigam Limited, Jodhpur, State Power utilities suffer from frequent load shedding, tripping due to over loading of transformer resulting in loss of revenue. This system will provide much needed relief to the already overloaded and stressed grid sub stations of JdVVNL.

## 2.3 Identified Source of funding

90% funding is being proposed through PSDF for installation of 730 Nos. Automatic Reactive Power Solution on 33/11 KV substation in Jodhpur DISCOM in the general interest of providing better power supply to the consumers as JdVVNL is not financially sound.

*Contribution from Internal Sources:*

10% through internal funding.

*Contribution from External Sources:*

No external borrowing is envisaged as the project is planned for 90% funding through PSDF and 10% through internal funding.

## 2.4 Details of Activities for project / Scheme / Activity

*Process of implementation*

The project will be implemented in following phases:

- Installation of automatic reactive power solution system equipment; S/I/T/C and FMS of Capacitor Cubical Panels, Outdoor Kiosk VCB, Isolator and allied equipment's.

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(Authorized Representative)

Present the voltage profile for SS worsened due to load growth in last 5 years and need to install Capacitor Banks in s/s where the voltage profile needs improvement.

To achieve Volt/ volt ampere reactive optimization and Energy conservation through voltage reduction JdVVNL is proposing 730 sub stations for Automatic Reactive Power Solution system as per below list:

Sr. No.	Name of Substations	Transformer Capacity (MVA)	Sub Station/ Transformer Peak Loading (MW)	Voltage During Average / No Load	Voltage During Peak Load
1	MATHANIA	5	4.56	10.3	9.1
2		5	4.47	10.3	9.7
3	UMMED NAGAR (JOOD)	5	4.52	10.2	8.9
4	RAMPURA+RICO	5	4.98	10.2	9.7
5		5	5	10.2	9.7
6	RAJASANI	3.15	2.78	10.2	8.9
7		3.15	2.83	10.2	9
8	NEWRA ROAD	3.15	3.12	10.5	8.9
9		3.15	3.09	10.5	9
10		3.15	3.05	10.5	9.1
11	KIRMARSAIYA	5	4.78	10.5	9.3
12		5	4.87	10.5	9.8
13	BHENSER KOOTRI	3.15	2.94	10.3	9
14		3.15	2.98	10.3	9
15	JOOD	3.15	2.94	10.3	9
16		3.15	2.8	10.3	8.9
17	KHARDA	3.15	2.95	10.2	9
18		3.15	3.02	10.2	8.9
19	NEWRA GAON	3.15	3.05	10.3	9
20		5	3	10.3	8.9
21	GAGADI	3.15	2.82	10.5	9.2
22		3.15	2.8	10.5	9.2
23	MANDIYA( KALLA	5	4.78	10.5	8.9
24		5	4.82	10.5	9
25	BALARWA	3.15	2.75	10.5	9.1
26		3.15	2.69	10.5	9
27		3.15	2.83	10.5	9
28	MINIYARD TINWARI	5	4.69	10.5	8.9
29		5	4.78	10.5	9.1
30	GHEWARA	3.15	2.74	10.2	9
31		5	4.34	10.2	8.9
32	PANCHALA	3.15	2.62	10.2	9
33	BADA KOT+CHA-II	3.15	2.81	10.2	9.2
34		3.15	2.76	10.2	9

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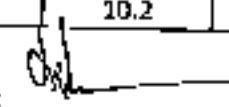
Signature: 

Name: M. R. Benda  
(Project Nodal Officer) JdVVNL, JJ  
(Authorized Representative)

35		3.15	2.81	10.3	9
36	BADLA BASNI	3.15	2.77	10.3	9.1
37		3.15	2.72	10.3	8.9
38		3.15	2.94	10.2	9
39	MANDIYAI KHURD	3.15	3.01	10.2	9
40	MALUNGA	3.15	3.1	10.2	8.9
41		3.15	3	10.3	9
42	GOPASARIYA	3.15	3.05	10.3	8.9
43	BHALASARIYA	3.15	3.09	10.2	9
44		3.15	2.82	10.2	9.3
45	THOB	3.15	2.73	10.2	8.9
46	HARLAYA	3.15	3.01	10.5	9
47		3.15	2.99	10.5	9.1
48	OSIAN	5	4.7	10.5	9
49	CHERAI	3.15	2.77	10.5	9
50	SINWARO KI DHANI (	3.15	2.85	10.3	8.9
51	SIRMANDI)	3.15	2.88	10.3	9.2
52	SOMERI BHAKARI	3.15	2.88	10.3	9
53		3.15	2.92	10.4	8.9
54	BHIMSAGAR	3.15	3.01	10.4	9
55		3.15	2.98	10.3	8.9
56	BERDO KA BAS	3.15	2.89	10.3	9
57	RAWAT BERA	3.15	2.77	10.4	8.9
58	JAKIRO KI DHANI	3.15	2.78	10.4	9.3
59		3.15	2.54	10.5	9.3
60	BARAKALLA	3.15	2.59	10.5	9.2
61		3.15	2.75	10.5	9
62	DHAMARI KALLA	5	4.31	10.5	9.2
63		3.15	2.71	10.2	9
64	CHINDARI	3.15	2.75	10.2	9
65	NANDIYA KHURD	3.15	3.01	10.3	9.3
66		3.15	2.91	10.2	9.2
67	JELAV NADI	3.15	2.66	10.2	9
68		3.15	2.91	10.3	9.3
69	JETIYAWAS	3.15	3.03	10.3	9
70	SELVI NADI(RAIKORIYA)	3.15	2.98	10.3	8.9
71		3.15	3.08	10.4	9.3
72	TAPL	3.15	3.15	10.4	9.1
73		3.15	3.09	10.2	8.9
74	NOSER	5	4.75	10.2	9
75		3.15	2.8	10.5	9.1
76	KANKRALA	3.15	2.95	10.5	9
77		3.15	2.77	10.5	9
78		3.15	2.62	10.2	9
79	PADASALA	3.15	2.78	10.2	8.9
80		3.15	2.68	10.2	9
81	NIMBO KA TALAB	3.15	2.82	10.2	9.2

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(Authorized Representative)

82		3.15	3.02	10.2	9
83	KHEDAPA	3.15	2.69	10.5	9.3
84		5	4.24	10.5	9.3
85	ANWANA OLD	3.15	2.88	10.4	9
86		3.15	2.83	10.4	9.1
87	BIRAJI	3.15	2.9	10.2	9
88		3.15	2.86	10.2	9
89	DANWARA	3.15	2.73	10.2	9
90		3.15	2.82	10.2	9.1
91	BAORI	5	4.74	10.5	8.9
92		5	4.83	10.5	9
93	POONIYO KI BASNI	3.15	2.91	10.3	9
94	KAJNAU KHURD	3.15	2.88	10.5	8.9
95		3.15	2.8	10.5	9
96	KAJNAU KALLA	3.15	3.02	10.3	9.3
97		3.15	2.72	10.3	9
98	ANWANA NEW	3.15	2.94	10.4	9.2
99	MANAI	3.15	2.86	10.5	9
100		3.15	2.72	10.5	8.9
101	INDROKA	5	4.94	10.5	9
102	SALAWAS	3.15	3.14	10.2	9
103		5	5.04	10.2	9
104	DHANDHORA	5	5.13	10.2	9.7
105		5	4.08	10.5	9.2
106	HEERADES-HAR	3.15	2.86	10.2	9.3
107		3.15	2.78	10.2	9
108	DHORU	3.15	2.69	10.2	8.9
109	RAJANI	3.15	2.77	10.2	9
110		3.15	2.6	10.2	8.9
111	DEVARI	3.15	2.83	10.2	8.9
112	HINGOLI	5	4.47	10.2	9
113	GAISINGHPURA	3.15	2.98	10.2	9.1
114		3.15	2.72	10.2	9
115	RAMPURA	5	4.56	10.2	8.9
116	ASDP	3.15	2.89	10.2	8.9
117		5	4.56	10.2	9.1
118	ARTIYA KALLAN	3.15	2.74	10.2	9
119	BARNI KHURD	3.15	2.91	10.2	9.1
120		5	4.51	10.2	8.9
121	MANGERIYA	3.15	2.68	10.3	9
122	BILARA	5	4.43	10.5	9
123		5	4.34	10.5	8.9
124	SOJAT GATE	5	4.58	10.5	9
125		5	4.56	10.5	8.9
126	DIWAN JI KI PIAO	3.15	2.67	10.5	9
127		3.15	2.51	10.5	9.1
128	KHARIYA M. THAPUR	3.15	2.78	10.5	9

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
Name: Dr. B. B. Benda  
 (Project Director)  
 (Authorized Representative)



129		5	4.5	10.5	9.2
130	JHAK	3.15	2.64	10.5	9
131	UDALIYAWAS	3.15	2.69	10.5	9.3
132		3.15	2.63	10.5	9
133	RANSI GAON	3.15	2.71	10.5	8.9
134		5	4.27	10.5	9
135	PIPAR CITY	5	4.75	10.5	8.9
136		5	4.66	10.5	9
137	SATHIN	1.6	1.46	10.5	8.9
138		3.15	2.94	10.5	9
139	KHARIYA KHANGAR	3.15	2.71	10.2	8.9
140	PABUNAGAR	3.15	2.74	10.5	8.9
141	AMRIT NAGAR	3.15	3.14	10.5	9.1
142	RATORI GAL (BASTWA)	3.15	3.06	10.5	9
143		3.15	3.08	10.5	9.3
144	CHUDWAI	3.15	2.72	10.2	9
145	DERIYA	3.15	2.67	10.4	9
145	KERU	3.15	2.85	10.5	8.9
147	GODELAI	3.15	2.68	10.3	9.2
148	BHOMSAGAR	3.15	2.88	10.5	9
149	GUMANPURA	3.15	2.93	10.5	9
150	PABUSAGAR UNTI AWALIYA	5	4.15	10.2	9
151	BABA KI	3.15	2.8	10.3	9.1
152	NIMBARI(DHEERPURA)	3.15	3.03	10.6	9
153	KANODIYA PUROHITAN	3.15	3.1	10.6	9.2
154	BHALU KALLA	3.15	2.82	10.2	9
155	KHIRIAKHAS	3.15	2.88	10.5	9.2
156	CHABA	3.15	3.01	10.5	9.2
157	SOINTRA	3.15	2.91	10.5	9
158	KHIRJA TIBNA	3.15	2.9	10.3	8.9
159	NOKHDADA BHATIYA	3.15	2.95	10.1	8.9
160		3.15	2.81	10.3	8.9
161	RAD KA BERA	3.15	2.88	10.3	9
162	CHHITERBERA	5	4.54	10.4	9.1
163		3.15	2.85	10.3	9
164	CHADI	3.15	2.76	10.3	9
165		3.15	2.83	10.4	8.9
166	KRISHAN NAGAR	3.15	2.93	10.4	9
167		3.15	3.02	10.2	9.2
168	RIDMALSAR	3.15	3.05	10.2	9
169		3.15	2.78	10.4	8.9
170	MANASAR	3.15	2.71	10.4	9.3
171		3.15	2.7	10.5	8.9
172	BOONGADI	3.15	2.59	10.5	8.9
173	INDO KA DAS	3.15	2.59	10.2	9
174		3.15	2.62	10.2	9.1
175	IGNP PHALODI	3.15	2.62	10.2	9

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(Project Field Officer) M. J. U.  
(Authorized Representative)

176	(BAP) R.O.1120	3.15	2.27	10.8	8.9
177	DURGANI	3.15	3.01	10.2	9
178		3.15	2.78	10.2	9.1
179	SHEKHASAR	3.15	2.82	10.2	9
180		3.15	2.75	10.5	8.9
181	ANOP NAGAR	3.15	2.8	10.5	9
182		3.15	2.88	10.2	9.1
183	RIN SALT	3.15	2.85	10.2	9
184	JHARASAR KALLA	3.15	2.89	10.3	9
185		3.15	2.7	10.2	9.3
186	Rampura( Raneri)	3.15	2.62	10.2	9.2
187	JETERI	5	4.65	10.3	9
188		3.15	2.85	10.3	8.9
189	PALINA	3.15	2.85	10.3	8.9
190	KUSHLAWA	3.15	2.82	10.2	9.1
191	BHOJAKOR	5	4.61	10.3	9.2
192	MORIYA	3.15	2.88	10.5	9.1
193	AMLA	3.15	3.02	10.3	9
194	Chainpura	5	4.7	10.4	8.9
195	SHIVSAR	3.15	2.8	10.5	8.9
196		5	4.08	10.5	9
197	BAORI KALLA	3.15	2.48	10.5	9.2
198	RAYADA	5	4.46	10.2	8.9
199		3.15	2.98	10.2	9
200	MARJAT	3.15	3.01	10.2	9.1
201	JALODA	3.15	2.77	10.2	9
202		3.15	2.83	10.2	8.9
203	UNTHWALIYA	3.15	2.88	10.2	9
204	MANDLA KHURD	3.15	2.89	10.2	9
205		3.15	2.98	10.2	9.1
206	KHARA	3.15	2.98	10.2	9
207		3.15	2.89	10.2	8.9
208	KOLU PABLI	3.15	2.95	10.2	9
209	BENGTI KHURD	3.15	2.89	10.2	9
210		5	4.56	10.2	9
211	SIHRA	3.15	2.91	10.2	9
212		5	4.61	10.2	8.9
213	MANDLA KALLAN	3.15	2.95	10.2	9.2
214	EKA BHATIYA	3.15	2.91	10.2	9
215	JEMALA	5	4.54	10.3	8.9
216		3.15	2.85	10.3	9
217	GAJA	3.15	2.94	10.5	8.9
218		3.15	3.01	10.5	8.9
219	BARSANADA	3.15	2.94	10.5	9
220		3.15	3	10.5	9.1
221	KAPADISAR	3.15	2.67	10.5	9.3
222		3.15	2.7	10.5	8.9

Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Office)  
 SE (P&S), JUVNL, JU  
 (Authorized Representative)

223	SADAWATA	3.15	2.78	10.5	9.5
224		5	4.12	10.58	9.5
225	Goyali Road	3.15	3	10.58	9.7
226	Sirohi City	5	4.74	10.62	9.6
227	Sindrath	3.15	2.74	10.41	9.6
228		5	4	10	9.5
229	Jawal	3.15	2.78	10	9.7
230	Padlv	3.15	2.5	10	9.7
231	Varada	3.15	2.7	10	9.5
232		5	4.34	10	9.6
233	Sheogon/Riico	3.15	2.78	10	9.6
234		3.15	2.7	10	9.6
235	Palari	3.15	2.78	10	9.6
236		3.15	2.6	10	9.7
237	Sawali	3.15	2.5	10	9.5
238		3.15	2.8	10	9.6
239	Kalandari	3.15	2.23	10	9.6
240		3.15	2.56	10	9.5
241	Krishnagarj	3.15	2.7	10	9.7
242		3.15	2.5	10	9.6
243	Mer/Mandwara	3.15	2.4	10	9.6
244	Tanwari	3.15	2.23	10	9.6
245		3.15	2.5	10	9.6
246	Sirohi Road	3.15	2.6	10	9.5
247		5	4.65	10	9.7
248	Plndwara City	5	4.34	10	9.7
249	Banas	5	4.6	10	9.5
250	Veerwada	3.15	2.38	10	9.6
251	Nadiya	3.15	2.8	10	9.5
252	Gandhi Nagar	10	6.2	9.78	9.7
253	IOCL	5	3.2	9.7	9.6
254	AmbajindAr	10	7.8	9.7	9.6
255	Khara	10	7.33	9.7	9.6
256	Manpur	10	6.87	10.5	9.8
257	Deldar	3.15	2.25	9.7	9.6
258	Karoli	3.15	2.34	9.7	9.7
259		3.15	2.4	9.7	9.5
260	Moogthala	3.15	2.34	9.7	9.5
261	Girwar	3.15	2.43	9.7	9.5
262	Mawal	3.15	1.98	9.7	9.7
263		5	3.5	9.7	9.6
264	Mt. Abu	5	3.4	9.7	9.6
265	Mandar	3.15	2.88	10.2	9.6
265	Bant	3.15	2.35	10.2	9.6
267		3.15	2.5	9.8	9.6
268	Jethawada	5	4.5	9.8	9.6
269	Morwada	3.15	2.45	9.6	9.7

Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 SE-189, JGVNL, JU  
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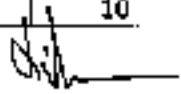
270		3.15	2.7	9.8	9.6
271		3.15	2.55	9.8	9.7
272	Magriwada	3.15	2.86	9.8	9.5
273		3.15	2.67	9.8	9
274	GusaisarBeda	3.15	2.78	9.8	9.1
275		3.15	2.97	9.8	8.9
276	Mankrasar	3.15	3	9.8	9
277	Binjasar 1st	3.15	2.37	9.8	9.2
278		3.15	2.27	9.8	8.9
279	Binjasar 2nd	3.15	2.47	9.8	9
280		3.15	2.4	10	8.9
281	Benisar	3.15	2.78	10	9
282		3.15	2.85	10	9.1
283	Dusarna-1	3.15	2.8	10	9.3
284		5	4	10	8.9
285	Jelasar	3.15	2.7	10	9
286	THUKRIYASAR-1	3.15	2.61	9.9	9
287	THUKRIYASAR-II	3.15	2.8	10	9
288	Jaisasar	3.15	2.33	10	8.9
289		3.15	2.71	9.9	9
290	Copelsar - I	3.15	2.66	9.9	8.9
291		3.15	2.62	10	9
292	SATTSAR	3.15	2.38	10	8.9
293	DHEERDESAR PURIHITAN	3.15	2.58	10.1	9.2
294		5	3.57	10.1	9.2
295	LIXHMADESAR-1	3.15	2.69	10.1	8.9
296		3.15	2.78	10	9
297	LIXHMADESAR-III	3.15	2.42	10	9.1
298		3.15	2.52	10	9
299	AADSAR	3.15	2.6	10	9
300		3.15	2.4	10	8.9
301	UDRASAR	3.15	2.85	10	9.1
302	LALASAR	3.15	2.71	10	9
303	SARNA JOHAD	3.15	2.87	10	8.9
304		3.15	2.47	10	9
305	Ramdevra	3.15	2.6	10	9.2
306		5	4.2	10	9.2
307	Seruna 2	3.15	2.4	10	9.1
308	Derajsar - I	5	4.23	10	8.9
309		3.15	2.19	10	8.9
310	Gogana	3.15	2.47	10	9
311	Sarrnda	3.15	2.4	10	8.9
312		5	4.36	10	9
313	Siniyala - I	3.15	2.5	10	8.9
314	Hanuman Nagar	3.15	2.4	10	9
315	Bhadla	3.15	2.13	10	8.9
316	Nathusa:	3.15	2.35	10	9

Date: 30.06.2023

Signature: 

Name: M. L. Benda Benda  
 (Project Sp. In Charge) ANL, JU  
 (Authorized Representative)

317		3.15	2.39	10	8.9
318	Salsar	3.15	2.49	10	9.1
319		3.15	2.4	10	8.9
320	Ratryaphanta	3.15	2.8	10	9
321	Lalasarsathri	5	4.23	10	9.4
322	Bhedkitalai	3.15	2.32	10	8.9
323	Mainsar	5	4.24	10	9
324		5	4.45	10	8.9
325	Jharell-I	3.15	2.4	10	9
326		3.15	2.3	10	9.1
327	Gundusar	5	4.3	10	8.9
328		3.15	2.6	10	9
329	Udsar	5	2.4	10	9.2
330	Jharell-II	3.15	2.85	10	8.9
331	Shiv Mandir	3.15	2.19	10	9
332	Bhagwatikund	3.15	2.7	10	8.9
333	SUJASAR	3.15	2.67	10	9.1
334	2. SURDHNA -II	3.15	2.85	10	9
335	1. K.D JATAN -II	3.15	2.8	10	8.9
336		3.15	2.7	10	8.9
337	1. NAPASAR	3.15	2.47	10	9
338		5	4.27	10	8.9
339	Gunsalsar-I	3.15	2.19	10	9.2
340		5	4.36	10	9.2
341	Naurangdesar	3.15	2.76	10	8.9
342	NAPASAR - II	3.15	2.44	10	9
343		5	4.35	10	9.1
344	2. RAMSAR - I	5	4.48	10	9
345		3.15	2.67	10	9
346	3. RAMSAR-II	3.15	2.5	10	8.9
347	1. K.D.Boran-I	3.15	2.43	10	9.1
348	2. K.D. Jatan - I	5	4.54	10	9
349	1. K.D. Jatan-IV	3.15	2.51	10	8.9
350	2. KILCHU	5	3.8	10	9
351		5	3.89	10	9.2
352	1. TEJASAR - I	3.15	2.44	10	9.2
353	2. TEJASAR - III	5	4.57	10	9.5
354	4. BELASAR	5	3.42	10	9
355	2. TEJASAR - II	5	4.57	10	9.5
356	2. SINTIAL	3.15	2.57	10	9
357		5	4.38	10	9.5
358	I D MAGARA	3.15	2.57	10	9.2
359	JD MEGRA	5	3.8	10	8.9
360		5	3.9	10	9.2
361	MEGHASAR	5	4.23	10	8.9
362		5	4.49	10	9
363	BARSINGHSAR	5	4.34	10	8.9

Signature: 

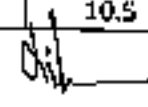
Name: M. C. Benda, Benda  
(Project N61a (05) (06) VVNL, JU  
(Authorized Representative)

Date: 30.06.2023

364	SWAROOPDESAR	3.15	2.23	10	9.3
365	BHANEKA	3.15	2.45	10	9.2
366		3.15	2.45	10	9
367	RAMERI	5	4.44	10	9
368		5	4.28	10	9.1
369	HAODA	3.15	2.28	10	8.9
370	LOI NIYA	5	3.81	10	9.2
371	KHINDASAR	5	4	10	9.2
372	DHELU	5	4.57	10	9.5
373	SERPURA	3.15	3.71	10	9.6
374	KISHANASAR	3.15	2.73	10	8.9
375		3.15	2.46	10	9
376	DANTOR	3.15	2.67	10	9.1
377	28 KID	3.15	2.48	10	9.2
378	3 PWM	3.15	2.29	10	9
379	1 ADM	3.15	2.67	10	9.1
380	Jamsar	3.15	2.36	10	9
381		3.15	2.3	10	8.9
382	1. GADHWALA - I	3.15	2.45	10	9
383		5	4	10	9.1
384	2 GADHWALA - II	5	3.81	10	9.3
385		3.15	2.5	10	8.9
386	Pugal	3.15	2.48	10	9
387	RD 710	3.15	2.48	10	9
388	RD 750	3.15	2.29	10	9
389	RADERAN	3.15	2.5	10	8.9
390	JETPUR	3.15	2.34	10	8.9
391		3.15	2.19	10	9
392	ARIUN SAR	3.15	2.45	10	8.9
393	Lalera	3.15	2.35	10	9
394	Mahajan	3.15	1.71	10	8.9
395	JAWAHARNAGAR	5	4.45	10	9
396		5	4.34	10	9
397		5	4.3	10	9.1
398		5	4.3	10.5	9.2
399	MAUSAM VIBHAG	8	6.3	10.5	9.8
400		5	4.2	10.5	9.5
401	MAHALAKMI ENCLAV	5	4.45	10.5	9.4
402	AGRAWAL COLONY	5	3.42	10.5	9.4
403	2 ML NATHAWALI	5	2.88	10.5	9.5
404		3.15	2.3	10.5	9
405	RIICO-I	3.15	2.4	10.5	9.1
406		8	5.89	10.5	9.8
407		5	4.17	10.5	9.3
408		5	4.3	10.5	9.2
409	RIICO-II	8	6.7	10.5	9.8
410		5	4.38	10.5	9

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Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 SE (I&S), JMWNL, JU  
 (Authorized Representative)



458	DALPATSINGHPUR	3.15	2.4	10.3	9.4
459	KAMINPURA	3.15	2.2	10.3	9.5
460	ARAYAN	3.15	2.4	10.3	9
461	MALKANA	3.15	2.4	10.3	9.1
462	MIRJEWALA	5	3.85	10.3	9.3
463	18F	3.15	2.2	10.3	9.3
464	KONI	3.15	2.8	10.3	9.2
465	DAULATPURA	3.15	2.1	10.3	9.4
466	MANFOOLSINGHWALA	5	4.5	10.3	9
467	GANESHGARH	3.15	2.24	10.3	9.4
468	GANESHGARH	3.15	2.6	10.3	9.3
469	LALGARH	3.15	2.4	10.3	9.3
470	PANNIWALI	3.15	2.2	10.3	9.2
471	BANWALI	3.15	2.4	10.3	9.4
472	MAMMAR	3.15	2.49	10.3	9
473	KHARACHAK	3.15	2.02	10.3	9.4
474	5 LNP	3.15	2.3	10.3	9
475	SAMEJA	3.15	2.24	10.3	9.2
476	BAJWALA	3.15	2.71	10.3	9.1
477	SATIANDA	3.15	2.52	10.3	9.3
478	DABLA	3.15	2.61	10.3	9.5
479	MUKLAWA	3.15	2.43	10.3	9.2
480	LOONEWALA	3.15	1.49	10.3	9.2
481	1EPS	3.15	2.22	10.3	9
482	UDSAR	3.15	2.33	10.3	9.5
483	BHOMPURA	3.15	2.4	10.3	9
484	RAISINGHNAGAR	8	7.72	10.3	9.8
485		3.15	2.7	10.3	9.3
486	SADA MANDIR	5	4.24	10.3	9.3
487	RIICO	5	4.21	10.3	9.5
488	PADAMPUR	5	4	10.3	9
489	24 BB	5	3	10.3	9
490	4 JJ	3.15	2.5	10.3	9.1
491	4 DD	3.15	2.3	10.3	9.2
492	CHANNADHAM	3.15	2.7	10.3	9
493	CC HEAD	3.15	2	10.3	9.5
494	3 RB	3.15	2.2	10.3	9.4
495	P S HEAD	3.15	2.3	10.3	9.4
496		3.15	2.5	10.3	9.5
497	JIVANDESAR	3.15	2.1	10.3	9
498	69 LNP	3.15	2.3	10.3	9.1
499	BINJHAYLA	3.15	2.9	10.3	9.3
500		3.15	2.5	10.3	9.3
501	GHAMURWALI	3.15	2.19	10.3	9.2
502	SAWANTSAR	3.15	2.1	10.3	9.4
503	MANJHIWASS	3.15	2.3	10.3	9
504	SKPR	5	4.1	10.3	9.3

Date: 30.06.2023

Signature: 

Name: M. L. Benda Benda  
 (Project Node Officer) VNL, JU  
 (Authorized Representative)



505		3.15	2.9	10.3	9.2
506	39H	3.15	2.8	10.3	9.4
507	2FC	3.15	2.75	10.3	9
508	52GG	3.15	2.95	10.3	9.4
509	48GG	3.15	2.9	10.3	9.1
510	42F	3.15	2.7	10.3	9.3
511	5"Q"	3.15	2.7	10.3	9.5
512		5	3.5	10.3	9
513	GAJINGHPUR	5	4.6	10.3	9
514	SANGRAMA	3.15	1.9	10.3	9.1
515	BALARAJUPURA	3.15	2.28	10.3	9.2
516	JORAWAR	3.15	2	10.3	9
517	CCBF	3.15	2.7	10.3	9.5
518		3.15	2.57	10.3	9.4
519	PAJWALA	3.15	2.63	10.3	9.4
520	SAROARUPURA BIKA	3.15	2.03	10.3	9.5
521	NIRWANA	3.15	2.46	10.3	9.1
522	DHABA	3.15	2.54	10.3	9.4
523	GURUSAR MODIA	3.15	2.46	10.3	9
524		5	4.49	10.3	9.2
525	BDOPAL ROAD GSS	5	4.34	10.3	9.1
526		5	4.67	10.3	9.3
527	RICO GSS	5	4.52	10.3	9.5
528	PHED GSS	5	4.6	10.3	9
529	STADIUM GROUND GSS	5	3.33	10.3	9
530		5	4.42	10.3	9.1
531	SOMASAR	5	3.98	10.3	9.2
532	KALUSAR	3.15	2.5	10.3	9
533	THETHAR	3.15	2.44	10.3	9.5
534	RAJAWALI	3.15	2.67	10.3	9.4
535	UDAIPUR	3.15	2.7	10.3	9.4
536	BIRMANA	3.15	2.6	10.3	9.5
537	2 GPN	3.15	2.62	10.3	9
538	19.600 RDR	3.15	2.5	10.3	9.1
539		3.15	2.38	10.3	9.3
540	RAJASAR	3.15	2.58	10.3	9.3
541	DEEDWANA	3.15	2.4	10.3	9.2
542	BACHHRAR	3.15	2.22	10.3	9.4
543		3.15	2.4	10.3	9
544	RHOJUSAR	3.15	2.3	10.3	9.3
545		3.15	2.3	10.3	9.5
546	GOVINDSAR	3.15	2.35	10.3	9.2
547	RAGHUNATHPUR	3.15	2.15	10.3	9.2
548	SILWANI	3.15	2.5	10.3	9
549		5	4.17	10.3	9.5
550	SRI VIJAYNAGAR	5	4.11	10.3	9.1
551	29 GB	5	3.8	10.3	9.3

Date: 30.06.2023

Signature: 

Name: M. E. Belida I. Benda  
(Project Node Office) MVNL, JU  
(Authorized Representative)

552	44 GB	3.15	4.3	10.3	9.8
553	KUPLI	3.15	2.9	10.3	9.4
554	PURANA BILI BOARD	5	4.1	10.3	9
555	2 DAM	5	4.45	10.3	9.2
556		3.15	2.13	10.3	9.1
557	ANOOPGARH	5	4.43	10.3	9.5
558		3.15	2.5	10.5	9.4
559	RIICO	5	4.34	10.5	9
560		3.15	2.65	10.5	9.2
561	PREM NAGAR	5	4.45	10.5	9.1
562	75GB	3.15	2.5	10.7	9.3
563	BANDA COLONY	3.15	2.6	10.7	9.5
564	10A	3.15	2.65	10.7	9
565	27A	3.15	2.45	10.7	9
566		3.15	2.5	10.7	9.1
567	61GB	3.15	2.5	10.9	9.2
568	RAMSINGHPUR	3.15	2.5	10.9	9
569	NHARAWALI	3.15	2.58	10.9	9.5
570	RAWLA MANDI	3.15	2.5	10.5	9.4
571		3.15	2.45	10.5	9.4
572	3 KD	3.15	2.45	10.5	9.5
573	7 KND	3.15	2.03	10.5	9
574	365 HED	3.15	2.46	10.5	9.1
575	NEW MANDI GHARSANA	3.15	2.4	10.5	9.3
576		3.15	2.6	10.5	9.3
577	OLD MANDI GHARSANA	3.15	2.4	10.5	9.2
578	6 DD	3.15	2.15	10.5	9.4
579	PATRODA	3.15	2.45	10.5	9
580	281 HEAD	3.15	2.35	10.5	9.4
581	JALWALI	3.15	1.98	10.5	9.3
582	ROJARY	3.15	2.95	10.5	9.3
583	4 STR	3.15	2.82	10.5	9.2
584	CHAWA	3.15	2.72	10.2	9.4
585	KAWAS	3.15	2.83	10.4	9
586	BATADOO	3.15	2.45	9.8	9.3
587		3.15	2.8	9.8	9.5
588	BHIMADA	3.15	2.5	9.8	9
589		3.15	2.45	9.5	9
590	KHANI KA TALLA	3.15	2.75	10.5	9.1
591	JETANIYON KI DHANI	3.15	2.30	10.1	9.2
592		3.15	2.5	10.1	9
593	BHADAKHA	5	2.45	10.2	9.5
594		5	2.3	10.2	9.4
595	HADWA HADVECHA	3.15	2.5	10.5	9.4
596	SAJITARA	5	2.7	10.2	9.5
597		5	2.67	10.2	9
598	BHIYAND	3.15	2.34	9.8	9.1

Date: 30.06.2023


Signature: 

Name: M. G. Benda L. Benda  
 (Project Node Officer) DUVNL, JU  
 (Authorized Representative)

509		3.15	2.45	9.8	9.3
600		3.15	2.89	10.2	9.3
601	CHOCHRA	3.15	2.45	10.2	9.2
602	DHEERJI KI DHANI	3.15	2.65	9.8	9.4
603		3.15	2.7	10.2	9
604	KANASAR	3.15	3.9	10.2	9.6
605		5	4.45	10.1	9
606	MOKHAD	5	4.6	10.1	9.1
607	PRALHADPURA	3.15	2.81	10.3	9.3
608	ASOTRA	3.15	2.85	10.3	9.4
609	BITHUJA	3.15	2.88	10.1	9
610	BRAHMAJI KA MANDIR	3.15	2.54	10.1	9.2
611		3.15	2.7	10.4	9.1
612	BUDIWARA	3.15	2.45	10.4	9.3
613		3.15	2.56	10.2	9.5
614	JAGSA	3.15	2.45	10.2	9
615		3.15	2.68	10.7	9
616	JASOL	3.15	2.7	10.7	9.1
617	KANANA	3.15	2.88	10.3	9.2
618	KITHNOD	3.15	2.92	10.4	9
619		3.15	3	10.4	9.5
620	PADROD-FANTA	3.15	2	10.4	9.4
621	SARANA	3.15	2.98	10.3	9.4
622	KALYANPUR	3.15	2.77	10.4	9.5
623	MAGANA	3.15	2.51	10.2	9
624		3.15	2.56	10.2	9.1
625	PACHPADRA	3.15	2.67	9.8	9.3
626	PATODI	3.15	2.78	10.4	9.3
627	THOMBLI	3.15	2.71	10.5	9.2
628	KANOD	3.15	2.59	10.3	9.4
629		3.15	2.98	10.4	9
630	RATEU	3.15	2.16	10.4	9.4
631		3.15	3	10	9.3
632	BHAGWA	3.15	2.01	10	9.3
633	DHEERA	3.15	2.41	10.2	9.2
634	GLUDANAAL	3.15	2.74	10.2	9.4
635	GUNGRUT	5	4.23	10.5	9
636	INDRANA	3.15	2.92	10.5	9.4
637		3.15	2.45	10.5	9
638	KATHADI	3.15	2.67	10.5	9.2
639	KERLI NADI	3.15	2.46	10.2	9.1
640	MELI	3.15	2.71	10.2	9.3
641	MOKALSAR	5	4.52	10.1	9.5
642	MUTHAU	3.15	2.89	10.3	9.2
643	AJEET	3.15	2.91	10.2	9.2
644	KARMAWAS	3.15	2.65	10	9
645	RAKHI	3.15	2.91	10.3	9.5

Date: 30.06.2023

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Signature: 

Name: M.L. Benda Benda  
 (Project Officer) VNL, JU  
 (Authorized Representative)



693	BORCHARNAN	3.15	2.78	10	9.5
694	BHEDANA	3.15	2.78	9.4	9
695		3.15	2.45	9.4	9
696	GADEVI	3.15	2.83	10.2	9.1
697	LUNWA- CHARNAN	3.15	2.98	10.2	9.2
698	NAGAR	3.15	2.72	10.1	9
699	PANEL KI BERI	3.15	2.98	10.2	9.5
700	RAM JI GOAL	3.15	2.89	10.2	9.4
701	SALLU KI BERI	3.15	2.95	9.7	9.4
702	SINDHASWA-CH.	3.15	2.13	10.2	9.5
703		3.15	2.88	10.2	9.1
704	ANDANIYO KI BERI	3.15	2.05	10.2	9.3
705		3.15	3	10.2	9.5
706	JALI KHFRRA	3.15	2.96	10	9.4
707	MALPURA	3.15	2.68	10.3	9
708	NOXHARA	3.15	2.23	10.5	9.2
709		3.15	2.2	10.5	9.1
710	AKAI	3.15	2.91	9.5	9.3
711	GANGASARA	3.15	2.9	10.5	9.5
712	GORA	3.15	2.81	9.8	9
713	GJLE KI BERI	3.15	2.67	10.5	9
714	SOBHALA-DARSHAN	3.15	2.78	10.5	9.1
715	SONARI	5	4.5	10.3	9.2
716	BHANWAR	3.15	2	10.5	9
717		3.15	3	10.5	9.5
718	RISASAR	3.15	2.69	10.5	9.4
719	DHURAWA	3.15	2.5	10.1	9.4
720		3.15	2.52	10.1	9.5
721	FAGALIYA	3.15	2.78	10.5	9
722		3.15	2.28	10.5	9.1
723	HARPALIYA	3.15	2.56	10	9.3
724	JANPALIYA	3.15	2.63	10.5	9.3
725		3.15	2.6	9.9	9.2
726	MAN JI KA TALLA	3.15	2.06	9.9	9.4
727	SALARIYA	5	3.89	10.5	9
728	SARLA	3.15	2.94	10.1	9.4
729		3.15	2.57	10.5	9
730	SEDWA	5	4.1	10.5	9.2

Date: 30.06.2023

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Signature: 

Name: **Dr. Benda Benda**  
 (Project Nodal Officer) (N, JE)  
 (Authorized Representative)

As a constituent of NER grid, it is required to operate the power system as per IEGC Code and all equipment as specified by CEA Technical Standards Regulation (2010).

In order to increase the power factor (near to unity) and hence resulting in low losses, efficient system and better voltage profile, introduction of reactive (capacitors) component (kVAR) are the cheapest and simplest means of power compensation. Hence, the objective of the project is to give better power supply with better voltage regulation to the consumers in the Jodhpur DISCOM region.

The problem / constraint would be addressed through the project / scheme / activity:

- Introduction of Automatic Switched Capacitor Banks.
- Precise and real time compensation of reactive power.
- Establishment of reliable Reactive Power in System.
- Improvement in line losses.
- Existing infrastructure can accommodate more consumers.
- Less loading of transformers.
- Better utilization of Capacitors.

**Training System:** The Training System is an offline environment used for training users in the operation of the system. On-site training of equipment to users for operation of equipment's.

#### **Execution and Implementation**

While finalizing technical specifications of the system, care has been taken to realize 100% success and sustainability. Considering 24 x 7, 365 days working of system, system will be procured with 5 Years support scheme is with online monitoring facility, in case of failure of field equipment control station raise alarm. It will be helpful to take corrective action in time. Only authorized users will be permitted to change operating limits and other features of software. Also, one-year warranty for all hardware is ensured and there is a comprehensive AMC with executing agency for 5 years after 1-year warranty excluding communication link for reliable operation of scheme.

## **2.5 Executing Agency**

JdVVNL shall be the executing authority. Presently, JdVVNL owns and operate more than 2335 Power Stations of voltage level 33kv. It may be noted that JdVVNL has introduced SAS/SCADA and substation projects in past. Being the state distribution utility, JdVVNL has had vast experiences in executing dozens of such projects in energy sector under the fund made available by REC/PPC or through other government grants. Further, it is worth mentioning that JdVVNL has a track-record of maintaining the time-schedule for completion of its various projects with its strong engineering and commissioning staff.

## **2.6 Time line for Implementation of Project /Scheme/Activity**

<b>Time line of the Project / Scheme / Activity</b>	
Likely Duration of Project (in months)	24 (Twenty-Four) months
Likely Start Date	On accord of Administrative & Financial Approval
Likely Completion Date	June 2026


Date: 30.06.2023

Signature: 

Name: **M.L. Benda Benda**  
(Project ~~Responsible~~ Officer) VNL, JU  
(Authorized Representative)

# Timeline of Activities

Sl. No.	Description	2023-24				2024-2025				2025-2026	
		Year	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	
1	Project Approval										
2	Bid Preparation										
3	Bidding Period										
4	Evaluation, Contract Award and Mobilization										
5	1 <sup>st</sup> Disbursement										
6	Project Status Report										
7	2 <sup>nd</sup> Disbursement										
8	Project Status Report										

Signature:   
 Name: M. Malinda Sendra  
 (Project Administrator)  
 (Authorized Representative)





### Summary of Detailed Project Report (DPR)

The revised DPR is prepared for installation of reactive power solution on 33/11 kV substations in Jodhpur DISCOM with the ratings as per CEA's Regulations.

Summary of DPR given – Yes      Copy of DPR attached – Yes

### **Implementation Schedule / Milestones**

#### **Target for Physical Milestones**

Particulars (No. of)	Total	Quarter 1 of 2024-25 & Quarter 4 of 2024-25	Quarter 2&4 of 2024-25	Quarter 2 of 2025-26
11V APFC Panels		Completion of Supply	Erection	Testing & Commissioning

#### **Target for Financial Milestones (Min Crores)**


Description of Amount Required	Total	Quarter 1 of 2024-25	Quarter 2 of 2024-25	Quarter 4 of 2024-25 & Quarter 1 2025-26 out of which 10% through internal sources.	Quarter 1 of 2025-26
Supply and erection of materials and equipment covered under the scheme	216.38	10% of total project cost i.e. 21.64	20% of total project cost i.e. 43.28	60 % of total project cost i.e. 129.83 ( 108.19 from PSDF & 21.64 from internal sources)	10% of total project cost i.e. 21.64

### Financial Implication of the Scheme

#### **1. Summary**

Sl. No.	Item	Amount (Rs. 216.38 in Crore)
1.	Total Cost Estimate	216.38 Cr.
2.	Funding Proposed from PSDF	90%
3.15.	External Borrowing	Nil, being 90% funded under PSDF & 10% through internal funding.

Date: 30.06.2023


Signature:   
Name: **E. V. L. Banta**  
SE (R&S), JGVNL, JU  
(Project Nodal Officer)  
(Authorized Representative)

2. Details:

2.1 Cost Estimate: The detailed cost estimate prepared for implementation of the project is given below:

COST ESTIMATE FOR 1.98 & 3.96 MVAr									
Sl. No.	Item Description	Quantity	Units	Quoted Currency in INR / Other Currency	BASIC RATE include of F&I and erection charges in Rs.	Any Taxes/Duties/Levies	Other Taxes/Duties/Levies	TOTAL AMOUNT Without Taxes include of F&I and erection charges in Rs. P	TOTAL AMOUNT With Taxes include of F&I and erection charges
1	2	3	4	5	6	7	8	9	10
1	3.96MVAr	4	S						
2	12.65 kV, 3960 kVAr, 3-Phase, 50 C/s housed in Outdoor Type CRCA Panel, Capacitor bank having two variable step of 792 Kvar & two Variable steps of 1188 kVAr. Bank shall be complete with Capacitor units of 396/264 kVAr, Aluminium busbars, Epoxy insulators, HT HRC fuse, Surge Suppressor etc. with details as follows-(1) 11 kV, Aluminium Wound, Dry type Series reactors a) 0.528 kVAr for 792 kVAr step - 6 Nos., b) 0.792 kVAr for 1188 kVAr step - 6 Nos. (2) 11 kV, 3-Phase OIL COOLED Type RVT - 1 No. (3) 12 kV 3 Phase Indoor type metal enclosed Vacuum Contactor - 4 Nos. (4) Indoor Type Automatic Control Unit - 1 No. (5) IP 55, Outdoor CRCA cubicle Panel for accommodating capacitors, Series Reactor, Vacuum contactor, Surge Suppressor etc., along with FRP Catalogue - 1 set	13,000	Set	INR	3375355.78	0.00		3375355.78	43879625.14
3	1.98 MVAr								
4	12.65 kV, 1980 kVAr, 3-Phase, 50 C/s housed in Outdoor Type CRCA Panel,	717,000	Set	INR	2956766.12			2956766.12	2120001308.04

Date: 30.06.2023

Signature:   
 Narayan B. Benda  
 (Project Manager), CEMENTAL, JU  
 (Authorized Representative)

1	Capacitor bank having two variable step of 792 Kvar & one Variable steps of 396 KVar. Bank shall be complete with Capacitor units of 264/132 KVar, Aluminium busbars, Epoxy insulators, HT MRC fuse, Surge Suppressor etc. With details as follows-(1) 11 KV, Aluminium Wound, Dry type Series reactors (a) 0.528 KVar for 792 KVA, step-6 nos. (b) 0.264 KVar for 396 KVar step-3 nos. (2) 11 KV, 3-Phase Indoor OIL COOLED Type RVT-1 nos. (3) 12 KV 3 Phase Indoor type metal enclosed Vacuum Contactor-5 nos. (4) Indoor Type Automatic Control Unit-1 No. (5) IP 55, outdoor CRCA cubicle panel for accommodating capacitors, series reactors, vacuum contactor, surge suppressor etc., alongwith FRP canopy-I No.							
5	Annual Maintenance of 3.96 MVAR Capacitor Bank in all respect including material, installation, erection & FMS :- For 5 years	13.000	Set	INR	354000.00	354000.00	4602800.00	
6	Annual Maintenance of 1.98 MVAR Capacitor Bank in all respect including material, installation, erection & FMS :- For 5 years	717.000	Set	INR	295000.00	295000.00	21151500.00	
7	Total for Supply						216,38,80,933.18	
8	Total for AMC						21,61,17,000.00	
9	Total in Figures						237,99,97,933.18	

Date: 30.06.2023

Signature:



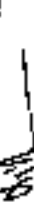
Name: **I.A. Bendra**  
 (Project No-141/Office/ANL, JLU  
 (Authorized Representative)

# COST ESTIMATE FOR 1.98 MVAR ONE SET

Sl. No.	Item Description	Item Code / Make	Quantity	Units	Currency in INR / Other Currency	BASIC RATE include of F&I and erection charges in Figures Rs. P	Any Taxes/Duties/Levies	TOTAL AMOUNT Without Taxes include of F&I and erection charges in Rs. P	TOTAL AMOUNT With Taxes include of F&I and erection charges
1	2	3	4	5	6	7	8	9	10
1	A 1.98 MVAR								
2	12.65 kV, 1980 kVAR, 3-Phase, 50 C/s housed in Outdoor Type CRCA Panel. Capacitor bank having two variable step of 792 Kvar & one Variable steps of 396 kVAR. Bank shall be complete with Capacitor units of 264/132 kVAR, Aluminium bushers, Epoxy insulators, HT JIRC fuse, Surge Suppressor etc. With details as follows-(1) 11 kV, Aluminium Wound, Dry type Series reactors (a) 0.528 kVAR for 792 kVAR step-6 nos. (b) 0.264 kVAR for 396 kVAR step-3 nos. (2) 11 kV, 3-Phase Indoor OIL COOLED Type RVT-1 nos. (3) 12 kV 3 Phase		1.000	Set	INR	1317055.00	237069.9000	1317055.00	1554124.9

Signature: \_\_\_\_\_  
 Name: M. L. Benda  
 (Project Nodal Officer)  
 (Authorized Representative)

	<p>Indoor type metal enclosed Vacuum Contactor-3 nos. (4) Indoor Type Automatic Control Unit-1 No. (5) IP 55, outdoor CRCA cubicle panel for accommodating capacitors, series reactors, vacuum contactor, surge suppressor etc., alongwith FRP canopy-1 No.</p>								
3	11 kV, 400 Amp, Oil Load Isolator with earth switch and mounting structure.	2	1.000	No.	ENR	56800.00	10224.0000	56800.00	67024.00
4	9 kV, 10 kA, Class III Lightning Arrestor	3	3.000	No.	ENR	4970.00	2683.8000	14910.00	17593.80
5	Control cables, lugs/jumble, Junction Box etc.	4	1.000	set	ENR	92300.00	16614.0000	92300.00	108914.00
6	11 KV 3 Core Al. XLPE Insulated 3x120 mm sq. Cable	5	90.000	Mtr	ENR	1562.00	25304.4000	140580.00	165884.40
7	11KV XLPE Cable (3x120 sq.mm.) Heat Shrinkable Jointing kit Indoor	6	1.000	No.	ENR	3550.00	639.0000	3550.00	4189.00
8	11KV XLPE Cable (3x120 sq.mm.) Heat Shrinkable	7	5.000	No.	ENR	3550.00	3195.0000	17750.00	20945.00

Signature:   
 Name: M. L. Bende  
 (Project Nodal Officer) &  
 (Authorized Representative)



# COST ESTIMATE FOR 3.96 MVAR ONE SET

Sl. No.	Item Description	Item Code / Make	Quantity	Units	Quoted Currency in INR / Other Currency	BASIC RATE include of F&I and erection charges in Figures Rs. P	Any Taxes/Duties/Levies	Other Taxes include of F&I and erection charges in Rs. P	TOTAL AMOUNT Without Taxes include of F&I and erection charges in Rs. P	TOTAL AMOUNT With Taxes include of F&I and erection charges in Rs. P
1	2	3	4	5	6	7	8	9	10	
1	A. 3.96MVar									
2	12.65 kV, 3960 kVAR, 3-Phase, 50 C/s housed in Outdoor Type CRCA Panel. Capacitor bank having two variable step of 792 Kvar& two Variable steps of 1188 kVAR. Bank shall be complete with Capacitor units of 396/264 KVAR, Aluminium busbars, Epoxy insulators, IIT HRC fuses, Surge Suppressor etc. with details as follows- (1) 11 kV, Aluminium Wound, Dry type Series reactors a) 0.528 KVAR for 792 kVAR step - 6 Nos., b) 0.792 kVAR for 1188 kVAR step - 6 Nos. (2) 11 kV, 3-Phase OIL COOLED Type RVT - 1 No. (3) 12 kV 3 Phase Indoor type metal enclosed Vacuum		1.000	Set	INR	1671792.00	301922.56	1671792.00	1972714.56	

Signature: 

Name: **M. M. Benda**  
 (Project Manager)  
 (Authorized Representative) U

Date: 30.06.2023





8	11KV XLPE Cable (3x120 sq.mm.) Heat Shrinkable Jointing kit Outdoor	7	5.000	No.	INR	3550.00	3195.00	17750.00	20945.00
9	11 - KV VCB/Kiosk Switchgear for Capacitor Bank with complete arrangement of connection.	8	1.000	No.	INR	651780.00	117320.40	651780.00	769100.40
10	Casting of Civil foundations	9	1.000	Job	INR	109340.00	19681.20	109340.00	129021.20
11	Cable trench for laying of power/control cables.	10	50.000	Rmt.	INR	403.00	3627.00	20150.00	23777.00
12	Earthing by Chemical pipe earthing	11	12.00	No.	INR	4970.00	10735.20	59640.00	70375.20
13	GI Strip of size-50 x 6 mm for Connection of Earthing with equipment	12	300.000	Rmt.	INR	72.93	3938.22	21879.00	25817.22
14	<b>Total for Supply</b>								3375355.78
15	<b>Annual Maintenance of 1.98 MVAR Capacitor Bank in all respect including material, repair, erection &amp; EMS</b>	13							
15.01	1st Year (Rs. per unit)	14	1	set	INR	50000.00	9000.00	50000.00	59000.00
15.02	2nd Year (Rs. per unit)	15	1	set	INR	55000.00	9900.00	55000.00	64900.00
15.03	3rd Year (Rs. per unit)	16	1	set	INR	60000.00	10800.00	60000.00	70800.00
15.04	4th Year (Rs. per unit)	17	1	set	INR	65000.00	11700.00	65000.00	76700.00
15.05	5th Year (Rs. per unit)	18	1	set	INR	70000.00	12600.00	70000.00	82600.00
	<b>Total for AMC</b>								354000.00
	<b>Total in Figures</b>								<b>3729355.78</b>

Date: 30.06.2023

Signature: 

Name: M. J. Benda  
 (Project Nodal Officer)  
 (Authorized Representative)

## 2.2 Cost Estimate

The detailed cost estimate prepared for implementation of the Project is given below.  
(Amount is in Crores)

**Rs. 216.38 crore**  
**(Say Rupees Two Hundred Sixteen Crores) only**

The BOQ of capacitor bank are attached as Annexure I. Also enclosed the list of Present & Proposed Status for capacitor bank of Sub Stations having more than 2.5 MVA Transformer in JdVVNL as per Annexure-II and the present voltage profile and anticipated voltage profile after installing the capacitor bank are attached as Annexure – III.

The costs for installation of 1980 kVAr and 3960 kVAr and their associated equipment are based on the rate of recent LOAs awarded by PVVNL and approved by PSDF in year 2021.

## 3.1 FUNDING

### 3.1.1 Funding Proposed from PSDF as grant

90% funding is being proposed through PSDF for implementation of 730 solution on 33/11 kV substation Jodhpur in the general interest for strengthening the medium voltage network of the state and to automate reactive power and to optimize the performance of the distribution grid of JdVVNL sub stations.


### 3.1.2 Contribution from Internal Sources

10% funding through internal funding.

### 3.1.3 External Borrowings

No external borrowing is envisaged as the project is planned for 90% funding through PSDF and 10% through internal funding.


Date: 30.06.2023

Signature:   
Name: **E.M. Benda**  
(Project Officer)  
(Authorized Representative)

**Brief Details of the Project Appraisal by CTU / STU / RPC**

Item	Details to be filled by Applicant Utility
Appraisal By:	CTU <input type="checkbox"/> STU <input type="checkbox"/> <input checked="" type="checkbox"/> RPC <input type="checkbox"/>
Date of Submission to CTU/STU/RPC for approval	Submitted on .....
Name of the Schematic	IMPLEMENTATION OF AUTOMATIC REACTIVE POWER SOLUTIONS AT 33/11kV SUBSTATIONS IN JODHPUR
Details of the Appraisal Report by CTU/STU/RPC	Reference no.- Date:
Summary of observation from CTU / STU / RPC Appraisal Report	<b>Summary of Proposal Appraised</b> The DPR has been prepared so as to improve & strengthen the operational reliability, enhancement of system, real-time data capturing and better management of volt-var.
	<b>Technical Observations</b> The system will enable to maintain proper voltage profile automatically at the respective 33/11 kV substation thereby reducing reactive power losses to the minimum and to strengthen the medium voltage network of the state which will in turn benefit the distribution licensee i.e. JdVVNL.
	<b>Financial Observations</b> The costs for installation of 1980kVAR and 3960 kVAR and their associated equipment are based on the rate of recent LOAs awarded by PVVNL and approved by PSDF in year 2021. The prices have been escalated @42% (Price Variation clause applicable only on capacitor cell but in PVVNL considered same PV escalation factor on complete panels) on allied equipment and in automatic capacitor panels due to inflation in raw material cost since the last order placed to the vendor in FY 20-21. The price inflation in raw material that is Aluminum and Copper since 2020 has been considered. Also, the drastically increased terrain factor has been inculcated for supply and commissioning of equipment's in the state.
	<b>Compliance of Grid Standards / Codes by the Applicant</b> All the grid standards as per IEGC, 2010 shall be complied.
	<b>Limitations / Shortcomings pointed out by CTU/STU/RPC if any</b> Installation process may take considerably time
	<b>Recommendations of CTU/STU/RPC</b>

Date: 30.06.2023

Signature:   
Name: M. A. Benda  
(Project Officer, JdVVNL, JU)  
(Authorized Representative)

### UNDERTAKING


I, Mr. Pranod Tak son of L.Sh. A.S. Tak resident of Jodhpur and presently working as Managing Director in Jodhpur Vidyut Vitran Nigam Ltd., Jodhpur hereby undertake to comply with the following terms and conditions with regard to funding of the "Installation of Reactive Power Solution on 33/11 kV substation in Jodhpur" with disbursement from PSDF:

- No tariff shall be claimed for the portion of the scheme funded from PSDF.
- Amount of grant shall be refunded in case of transfer/disposal of the facility being created under this proposal to any other scheme for funding.
- Shall specifically mention if for the scheme under the proposal, the grant from any other agency is being taken/proposed to be taken.

The scheme under the proposal has neither been applied for grant from any other agency nor being proposed to any agency.

- The grant shall be refunded back to PSDF in case of non-utilization of the grant within one year of release of installment.

Date: 30.06.2023


Signature: 

Name: M.V. Bendu  
(Project Nodal Officer), JU  
(Authorized Representative)

**BoQ for 1980 & 3960 kVAR Capacitor Panels Required on 33/11 kV Sub Station of Jolapur DISCOM**

Sr. No.	Name of Substations	Transformer Capacity (MVA)	1980 KVAR APFC	3960 KVAR APFC	11kV, 630 Amps Out door VCB Kiosk	11kV 630 Amp, OT Load Isolator with earth switch and mounting structure	9kV, 25 KA, Station class (III), Lightning Arrester	11 KV XLPE insulated 3x120 mm <sup>2</sup> Armoured	11 KV XLPE insulated 3x185 mm <sup>2</sup> Armoured	Control Cables, logs/trimble, Junction Box, 2 nos. Cable support structure etc.	Heat Shrinkable Joining Kit for 11 KV XLPE Cable (Indoor termination Kit)	Heat Shrinkable Joining Kit for 11 KVXLPE Cable (Outdoor termination Kit)	(Chv) work (including foundation, pits of Capacitor Cables) etc as per drawing	Cable trench for laying of Power / control cables	CHEMICAL Earth Pit	(b) Installation of Earthing Plates (Size 35X6sqmm)
1	MATHIANTA	5	1	-	1	1	1	1	1	1	1	5	1	50	6	300
2		5	1	-	1	1	1	1	1	1	1	5	1	50	6	300
3		5	1	-	1	1	1	1	1	1	1	5	1	50	6	300
4	RAMPURA+KICO	5	1	-	1	1	1	1	1	1	1	5	1	50	6	300
5		5	1	-	1	1	1	1	1	1	1	5	1	50	6	300
6	RAJASANI	3.15	1	-	1	1	1	1	1	1	1	5	1	50	6	300
7		3.15	1	-	1	1	1	1	1	1	1	5	1	50	6	300

Date: 30.06.2023

Signature:   
 Name: Mr. J. Benda  
 (Project Manager)  
 (Authorized Representative)



















































690	SACHU KI BERT	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
691	SAUAN KI BERT	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
692	BORCHARNAN	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
693	BHEDANA	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
694	GADEVI	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
695	LUNWA-CHARNAN	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
696	NAGAR	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
697	PANBL KI BERT	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
698	RAM JI GOAL	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
699	SALLO KI BERT	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
700	SINDHASWA-CHI	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
701	ANDANIYO KI BERT	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
702	JALI KHERA	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
703	MALPUKA	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
704	NOKIARA	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
705	AKAL	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
706	GANGASARA	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
707	GORA	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
708	GULE KI BERT	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
709	SOBIHALA-DARSHAN	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
710	SONARI	5	1	-	1	1	1	1	1	1	5	1	50	6	300
711	DHANWAR	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
712	BISASAR	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
713	DHURAWA	3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
714		3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
715		3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
716		3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
717		3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
718		3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
719		3.15	1	-	1	1	1	1	1	1	5	1	50	6	300
720		3.15	1	-	1	1	1	1	1	1	5	1	50	6	300

Date: 30.06.2023

Signature: 

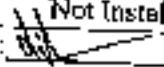
Name: M. M. Beddes  
 (Project Neta, Office No. 110)  
 (Authorized Representative)



Status of Existing Equipment Installed Under Jodhpur DISCOM:

Sr. No.	Name of Substations	Transformer Capacity (MVA)	Status of Capacitor Bank
1	MATHANIA	5	Not Installed
2		5	Not Installed
3	UMMED NAGAR (JOD)	5	Not Installed
4		5	Not Installed
5	RAMPURA+RUICO	5	Not Installed
6		5	Not Installed
7	RAJASANI	3.15	Not Installed
8		3.15	Not Installed
9	NEWRA ROAD	3.15	Not Installed
10		3.15	Not Installed
11	KIRMARSAIYA	3.15	Not Installed
12		5	Not Installed
13	BIHENSER KOOTRI	5	Not Installed
14		3.15	Not Installed
15	JOD	3.15	Not Installed
16		3.15	Not Installed
17	KHARDA	3.15	Not Installed
18		3.15	Not Installed
19	NEWRA GAON	3.15	Not Installed
20		3.15	Not Installed
21	GAGADI	5	Not Installed
22		3.15	Not Installed
23	MANDIYAI KALLA	3.15	Not Installed
24		5	Not Installed
25	BALARWA	5	Not Installed
26		3.15	Not Installed
27	MINTYARD TENWARI	3.15	Not Installed
28		3.15	Not Installed
29	GHEWARA	5	Not Installed
30		5	Not Installed
31	PANCHALA	3.15	Not Installed
32		5	Not Installed
33	BADA KOTECHA-II	3.15	Not Installed
34		3.15	Not Installed
35	BADIJA BASNI	3.15	Not Installed
36		3.15	Not Installed
37	MANDIYAI KHURD	3.15	Not Installed
38		3.15	Not Installed


Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 SE (R&S), Jodhpur, J.U.  
 (Authorized Representative)


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40	MALUNGA	3.15	Not Installed
41		3.15	Not Installed
42	GOPASARIYA	3.15	Not Installed
43		3.15	Not Installed
44	BHALASARIYA	3.15	Not Installed
45	THOB	3.15	Not Installed
46		3.15	Not Installed
47	HARLAYA	3.15	Not Installed
48	OSIAN	3.15	Not Installed
49	CHERAI	5	Not Installed
50		3.15	Not Installed
51	SINWARO KI DHANI (SIRMANDI)	3.15	Not Installed
52	SOMERI BHAKARI	3.15	Not Installed
53		3.15	Not Installed
54	BHIMSAGAR	3.15	Not Installed
55		3.15	Not Installed
56	BERDO KA BAS	3.15	Not Installed
57	RAWAT BERA	3.15	Not Installed
58	JAKHRO KI DHANI	3.15	Not Installed
59		3.15	Not Installed
60	BARAKALLA	3.15	Not Installed
61		3.15	Not Installed
62	DHANARI KALI A	3.15	Not Installed
63		5	Not Installed
64	CHINDARI	3.15	Not Installed
65	NANDIYA KHIRD	3.15	Not Installed
66		3.15	Not Installed
67	JBLAV NADI	3.15	Not Installed
68		3.15	Not Installed
69	JETIYAWAS	3.15	Not Installed
70		3.15	Not Installed
71	SELVINADI(RAIKORIYA)	3.15	Not Installed
72	TAPU	3.15	Not Installed
73		3.15	Not Installed
74	NOSER	3.15	Not Installed
75		5	Not Installed
76	KANKRALA	3.15	Not Installed
77		3.15	Not Installed
78		3.15	Not Installed
79	PADASALA	3.15	Not Installed
80		3.15	Not Installed
81		3.15	Not Installed
82	NIMBO KA TALAB	3.15	Not Installed

Date: 30.06.2023

Signature:   
Name: M. L. Benda  
(Project Social Officer)  
SE (GS), JVVNT, JU  
(Authorized Representative)

83			
84	KHEDAPA	3.15	Not Installed
85		5	Not Installed
86	ANWANA OLD	3.15	Not Installed
87		3.15	Not Installed
88	BIRAJ	3.15	Not Installed
89		3.15	Not Installed
90	DANWARA	3.15	Not Installed
91		3.15	Not Installed
92	BAORI	5	Not Installed
93	POONIYO KI BASNI	5	Not Installed
94		3.15	Not Installed
95	KAJNAU KHURD	3.15	Not Installed
96		3.15	Not Installed
97	KAJNAU KALLA	3.15	Not Installed
98		3.15	Not Installed
99	ANWANA NEW	3.15	Not Installed
100		3.15	Not Installed
101	MANAI	3.15	Not Installed
102	INDROKA	5	Not Installed
103	SALAWAS	3.15	Not Installed
104		5	Not Installed
105	DHANDHORA	5	Not Installed
106		5	Not Installed
107	HBERADESHAR	3.15	Not Installed
108		3.15	Not Installed
109	DHORU	3.15	Not Installed
110		3.15	Not Installed
111	RAJLANI	3.15	Not Installed
112	DEVARI	3.15	Not Installed
113	HINGOLI	5	Not Installed
114	GAJSINGHPURA	3.15	Not Installed
115		3.15	Not Installed
116	RAMPURA	5	Not Installed
117	ASOP	3.15	Not Installed
118		5	Not Installed
119	ARTIYA KALLAN	3.15	Not Installed
120	BARNI KHURD	3.15	Not Installed
121		5	Not Installed
122	MANGERIYA	3.15	Not Installed
123	BILARA	5	Not Installed
124		5	Not Installed
125	SOJATI GATE	5	Not Installed
126	DIWAN JI KJ PLAO	5	Not Installed
		3.15	Not Installed

Date: 30.06.2023

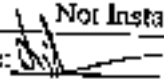
Signature: 

Name: M. L. Benda  
 (Project/Field Officer)  
 SE (R/S), JdWNL, WJ  
 (Authorized Representative)



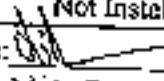
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129	KHARIYA MITHAPUR	5	Not Installed
130	JHAK	3.15	Not Installed
131		3.15	Not Installed
132	UDALIYAWAS	3.15	Not Installed
133		3.15	Not Installed
134	RANSI GAON	3.15	Not Installed
135		5	Not Installed
136	PIPAR CITY	5	Not Installed
137	SATHIN	5	Not Installed
138	KHARIYA KHANGAR	3.15	Not Installed
139		3.15	Not Installed
140	PABUNAGAR	3.15	Not Installed
141		3.15	Not Installed
142	RATORJ GAL (BASTWA)	3.15	Not Installed
143	CHIDWAI	3.15	Not Installed
144	NATHARAU	3.15	Not Installed
145		3.15	Not Installed
146	KERLI	3.15	Not Installed
147		5	Not Installed
148	RAMSAR	3.15	Not Installed
149	BHOMSAGAR	3.15	Not Installed
150	CHEELA	3.15	Not Installed
151	UNTHWALIYA	3.15	Not Installed
152		5	Not Installed
153	BABA KI	3.15	Not Installed
154	NIMBARI(DHEERPURA)	3.15	Not Installed
155	SEKHALA	3.15	Not Installed
156	BHALU KALLA	3.15	Not Installed
157	KHIRJAKHAS	3.15	Not Installed
158	SOMESAR	3.15	Not Installed
159	SOINTRA	3.15	Not Installed
160	KHIRJA TIBNA	3.15	Not Installed
161	DEVRAJGARH	3.15	Not Installed
162	NOKHDADA BHATIYA	3.15	Not Installed
163	RAD KA BERA	5	Not Installed
164	CHITTEBERA	3.15	Not Installed
165		3.15	Not Installed
166	CHADI	3.15	Not Installed
167		3.15	Not Installed
168	KRISHAN NAGAR	3.15	Not Installed
169		3.15	Not Installed
170	RIDMALSAR	3.15	Not Installed
	MANASAR	3.15	Not Installed

Date: 30.06.2023

Signature:   
Name: M. L. Benda  
(Project Nodal Officer)  
(Authorized Representative)

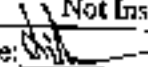
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172	BOONGADI	3.15	Not Installed
173		3.15	Not Installed
174	INDO KA BAS	3.15	Not Installed
175	IGNP PHALODI	3.15	Not Installed
176	(BAP) R.D.1120	3.15	Not Installed
177		3.15	Not Installed
178	DURGANI	3.15	Not Installed
179		3.15	Not Installed
180	SHEKHASAR	3.15	Not Installed
181		3.15	Not Installed
182	ANOP NAAGAR	3.15	Not Installed
183	RIN SALT	3.15	Not Installed
184		3.15	Not Installed
185	JHARASAR KALLA	3.15	Not Installed
186	RAMPURA( RANERI)	5	Not Installed
187		3.15	Not Installed
188	JETERI	3.15	Not Installed
189	POONASAR	3.15	Not Installed
190	PALINA	3.15	Not Installed
191	KUSHLAWA	3.15	Not Installed
192	BHOJAKOR	3.15	Not Installed
193	MORIYA	5	Not Installed
194	DELANA	3.15	Not Installed
195	CHAINPURA	3.15	Not Installed
196	SHIVSAR	3.15	Not Installed
197	BAORI KALJA	5	Not Installed
198		3.15	Not Installed
199	RAYADA	3.15	Not Installed
200	MARJAT	3.15	Not Installed
201		3.15	Not Installed
202	JALODA	3.15	Not Installed
203		3.15	Not Installed
204	MANDLA KHURD	3.15	Not Installed
205		3.15	Not Installed
206	KHARA	3.15	Not Installed
207	KOLU PABUJI	3.15	Not Installed
208		3.15	Not Installed
209	BENGTI KHURD	5	Not Installed
210		3.15	Not Installed
211	SIHRA	5	Not Installed
212		3.15	Not Installed
213	MANDLA KALLAN	5	Not Installed
214	JEMALA	5	Not Installed

Date: 30.06.2023

Signature:   
Name: M. L. Benda  
(Project Nodal Officer)  
SE (I&S), SOUVNL, JU  
(Authorized Representative)

215		3.15	Not Installed
216		3.15	Not Installed
217	GAJA	3.15	Not Installed
218		3.15	Not Installed
219	BARANADA	3.15	Not Installed
220		3.15	Not Installed
221	KAPADISAR	3.15	Not Installed
222	SADAWATA	3.15	Not Installed
223		3.15	Not Installed
224	GOYALJ ROAD	5	Not Installed
225	SIROHI CITY	3.15	Not Installed
226	SINDRATHI	5	Not Installed
227		3.15	Not Installed
228	JAWAL	5	Not Installed
229	PADIV	3.15	Not Installed
230	VARADA	3.15	Not Installed
231		3.15	Not Installed
232	SHEOGANJURICO	5	Not Installed
233	POSALIYA	3.15	Not Installed
234		3.15	Not Installed
235	PALARI	3.15	Not Installed
236	ANDOR	3.15	Not Installed
237	JHADOLI VEER	3.15	Not Installed
238	KALANDARI	3.15	Not Installed
239		3.15	Not Installed
240	KRISHNAGANJ	3.15	Not Installed
241		3.15	Not Installed
242	MER MANTWARA	3.15	Not Installed
243	TANWARI	3.15	Not Installed
244	SWAROOPGANJ	3.15	Not Installed
245		3.15	Not Installed
246	SIROHI ROAD	3.15	Not Installed
247	PINDWARA CITY	5	Not Installed
248	BANAS	5	Not Installed
249	VEERWADA	3.15	Not Installed
250	NADIYA	3.15	Not Installed
251	GANDHI NAGAR	10	Not Installed
252	IOCL	5	Not Installed
253	AMBAJINDAR	10	Not Installed
254	KHARA	10	Not Installed
255	MANPLR	10	Not Installed
256	DELDAR	10	Not Installed
257	KAROLI	3.15	Not Installed
258	MOOGIHALA	3.15	Not Installed

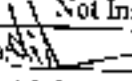
Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project) ~~Not a Project~~ Benda  
 (Authorized Representative) ~~Not a Representative~~ Benda

259			
260	GIRWAR	3.15	Not Installed
261	MAWAL	3.15	Not Installed
262		3.15	Not Installed
263	MT. ABU	5	Not Installed
264	REODAR	5	Not Installed
265	BANT	3.15	Not Installed
266		3.15	Not Installed
267	JETHAWADA	3.15	Not Installed
268		5	Not Installed
269	MORWADA	3.15	Not Installed
270	RAHUA	3.15	Not Installed
271	MAGRIVADA	3.15	Not Installed
272		3.15	Not Installed
273	GUSAISAR BADA	3.15	Not Installed
274		3.15	Not Installed
275	MANKRASAR	3.15	Not Installed
276	BINJASAR 1ST	3.15	Not Installed
277		3.15	Not Installed
278	BINJASAR 2ND	3.15	Not Installed
279		3.15	Not Installed
280	BENISAR	3.15	Not Installed
281		3.15	Not Installed
282	DUSARNA-1	3.15	Not Installed
283		3.15	Not Installed
284	JETASAR	5	Not Installed
285		3.15	Not Installed
286	TIUKRIYASAR-I	3.15	Not Installed
287	TIUKRIYASAR-II	3.15	Not Installed
288	JALSAR	3.15	Not Installed
289	GOPALSAR - I	3.15	Not Installed
290		3.15	Not Installed
291	SATTSAR	3.15	Not Installed
292	DHEERDESAR PURIHITAN	3.15	Not Installed
293		3.15	Not Installed
294	LIKHMADDESAR-I	5	Not Installed
295		3.15	Not Installed
296	LIKHMADDESAR-III	3.15	Not Installed
297		3.15	Not Installed
298	AADSAR	3.15	Not Installed
299		3.15	Not Installed
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301	LALASAR	3.15	Not Installed
302	SARNA JOHAD	3.15	Not Installed

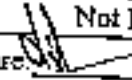
Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 (Authorized Representative), JU

303			
304	RAMDEVRA	3.15	Not Installed
305	SERUNA 1	3.15	Not Installed
306	SERUNA 2	5	Not Installed
307		5	Not Installed
308	DEBAJSAR - I	5	Not Installed
309	GOGANA	3.15	Not Installed
310	SARUNDA	3.15	Not Installed
311		3.15	Not Installed
312	SINIYALA - I	5	Not Installed
313	HANUMAN NAGAR	3.15	Not Installed
314	BHADLA	3.15	Not Installed
315	NATIUSAR	3.15	Not Installed
316		3.15	Not Installed
317	SAJSAR	3.15	Not Installed
318		3.15	Not Installed
319	RATRIYAPHANTA	3.15	Not Installed
320		3.15	Not Installed
320	LAIASARSATHRI	5	Not Installed
321	BHEDKJTALAJ	3.15	Not Installed
322	MAENSAR	5	Not Installed
323		5	Not Installed
324	JHARELI - I	5	Not Installed
325		3.15	Not Installed
326	GUNDUSAR	3.15	Not Installed
327		5	Not Installed
328	UDSAR	3.15	Not Installed
329		5	Not Installed
329	JHARELI-II	3.15	Not Installed
330	SHIV MANDIR	3.15	Not Installed
331	BHAGWATI KUND	3.15	Not Installed
332	AMBASAR	3.15	Not Installed
333		5	Not Installed
333	GIGASAR	3.15	Not Installed
334		3.15	Not Installed
335	1. K.D JATAN - II	3.15	Not Installed
336		3.15	Not Installed
336	1. NAPASAR	3.15	Not Installed
337		3.15	Not Installed
338	GUNSAJSAR-I	5	Not Installed
339		3.15	Not Installed
340	NAURANGDESAR	5	Not Installed
341		3.15	Not Installed
341	NAPASAR - II	3.15	Not Installed
342		3.15	Not Installed
343	2. RAMSAR - I	5	Not Installed
344		5	Not Installed
345	3. RAMSAR-II	3.15	Not Installed
346		3.15	Not Installed
346	1.K.D.Boran-I	3.15	Not Installed

Date: 30.06.2023

Signature:   
Name: M. L. Benda  
(Project Nodeal Officer) & a  
(Authorized Representative)

347	2.K.D. JATAN -J	5	Not Installed
348	1. K.D. JATAN-IV	3.15	Not Installed
349	2. KILCHU	5	Not Installed
350	1. TEJRASAR - I	5	Not Installed
351		3.15	Not Installed
352	2. TEJRASAR - III	5	Not Installed
353	4. BELASAR	5	Not Installed
354	2. TEJRASAR - II	5	Not Installed
355	RANISAR	5	Not Installed
356	LD MAGARA	5	Not Installed
357		3.15	Not Installed
358	ID MEGRA	5	Not Installed
359	MEGHASAR	5	Not Installed
360		5	Not Installed
361	BARSINGHSAR	5	Not Installed
362		5	Not Installed
363	SWAROOPDESAR	3.15	Not Installed
364	BHANEKA	3.15	Not Installed
365		3.15	Not Installed
366	RANERI	5	Not Installed
367		5	Not Installed
368	HADDA	3.15	Not Installed
369	LOHIYA	5	Not Installed
370	KHINDASAR	5	Not Installed
371	BHELU	5	Not Installed
372	SERPLRA	3.15	Not Installed
373	KISHANASAR	3.15	Not Installed
374		3.15	Not Installed
375	DANTOR	3.15	Not Installed
376	28 KJD	3.15	Not Installed
377	3 PWM	3.15	Not Installed
378	1 ADM	3.15	Not Installed
379	RANJEETPURA	3.15	Not Installed
380	JAMSAR	3.15	Not Installed
381	1. GADHWALA - I	3.15	Not Installed
382		5	Not Installed
383	2 GADHWALA - II	5	Not Installed
384		3.15	Not Installed
385	PUGAL	3.15	Not Installed
386	RD 710	3.15	Not Installed
387	RD 750	3.15	Not Installed
388	BADERAN	3.15	Not Installed
389	JETPUR	3.15	Not Installed
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
Date: 30.06.2023

Signature: 

Name: M.L. Benda  
 (Project Node Officer)  
 (Authorized Representative)

391	ARJUNSAR	3.15	Not Installed
392	LALERA	3.15	Not Installed
393	MAHAJAN	3.15	Not Installed
394		5	Not Installed
395	JAWAHARNAGAR	5	Not Installed
396		5	Not Installed
397		5	Not Installed
398	MAUSAM VIBHAG	8	Not Installed
399		5	Not Installed
400	MAHALAXMI ENCLAV	5	Not Installed
401	AGRAWAL COLONY	5	Not Installed
402	2 ML NATHAWALI	5	Not Installed
403		3.15	Not Installed
404		3.15	Not Installed
405	RIICO-I	8	Not Installed
406		5	Not Installed
407		5	Not Installed
408	RIICO-II	8	Not Installed
409		5	Not Installed
410	SHANTI MANDIR	5	Not Installed
411		5	Not Installed
412	SABJI MANDI	10	Not Installed
413		5	Not Installed
414	KUNJ VIHAR	3.15	Not Installed
415	JCT	10	Not Installed
416		5	Not Installed
417	3 PULI	10	Not Installed
418	BHAGAT SINGH CHOCK	8	Not Installed
419		8	Not Installed
420	KUMS	5	Not Installed
421		5	Not Installed
422	HOSPITAL	5	Not Installed
423		5	Not Installed
424	SADBHAVANA NAGAR	5	Not Installed
425		5	Not Installed
426	V.K. CITY	5	Not Installed
427	PHG	5	Not Installed
428		5	Not Installed
429	KALIYAN	3.15	Not Installed
430	KHATLADANA	3.15	Not Installed
431	DULAPURKERI	3.15	Not Installed
432	HINDUMALKOT	3.15	Not Installed
433	SADHUWALI	3.15	Not Installed
434	7A	3.15	Not Installed

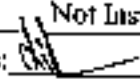
Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer) Benda  
 (Authorized Representative) L. JU

435	BURJAWALI	3.15	Not Installed
436	CHUNAWAD	3.15	Not Installed
437	152	3.15	Not Installed
438	HOMELAND	5	Not Installed
439	RISHI SIDHI	5	Not Installed
440	NETEWALA	3.15	Not Installed
441		3.15	Not Installed
442	7 ML	3.15	Not Installed
443		3.15	Not Installed
444	25 ML	3.15	Not Installed
445	DHINGAWALI	3.15	Not Installed
446	JODHEWALA	3.15	Not Installed
447	SADULSAHAR	2.5	Not Installed
448	RICO	5	Not Installed
449	4 KRW	3.15	Not Installed
450	PARTAP PURA	3.15	Not Installed
451	BUDIRWALI	3.15	Not Installed
452	PATAJ	3.15	Not Installed
453	MANNIWALI	3.15	Not Installed
454	JPDS KESRISINGHPUR	5	Not Installed
455	V HEAD	3.15	Not Installed
456	DHNOOR	3.15	Not Installed
457	DALPATISINGHPUR	3.15	Not Installed
458	KAMINPURA	3.15	Not Installed
459	ARAYAN	3.15	Not Installed
460	MALKANA	3.15	Not Installed
461	MERTIWALA	3.15	Not Installed
462	18F	3.15	Not Installed
463	KONI	3.15	Not Installed
464	DAULATPURA	3.15	Not Installed
465	MANFOOLSINGHIWALA	5	Not Installed
466	GANESHGARH	3.15	Not Installed
467	GANESHGARH	3.15	Not Installed
468	LALGARH	3.15	Not Installed
469	LALGARH	1.6	Not Installed
470	PANNIWALI	3.15	Not Installed
471	BANWALI	3.15	Not Installed
472	MAMMAR	3.15	Not Installed
473	KHARACHAK	3.15	Not Installed
474	5 LNP	3.15	Not Installed
475	SAMEJA	3.15	Not Installed
476	BAJUWALA	3.15	Not Installed
477	SATJANDA	3.15	Not Installed
478	DABLA	3.15	Not Installed

Date: 30.06.2023

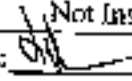
Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 (Authorized Representative)



479	MUKLAWA	3.15	Not Installed
480	LOONEWALA	3.15	Not Installed
481	16PS	3.15	Not Installed
482	UDSAR	3.15	Not Installed
483	BHOMPURA	3.15	Not Installed
484		8	Not Installed
485	RAISINGHNAGAR	3.15	Not Installed
486	BADA MANDIR	5	Not Installed
487	RIICO	5	Not Installed
488	PADAMPUR		Not Installed
489	24 BB	5	Not Installed
490	4 JJ	3.15	Not Installed
491	1 DD	3.15	Not Installed
492	CHANNADHAM	3.15	Not Installed
493	CC HEAD	3.15	Not Installed
494	3 RB	3.15	Not Installed
495	P S HEAD	3.15	Not Installed
496		3.15	Not Installed
497	JTVANDESAR	3.15	Not Installed
498	69 LNP	3.15	Not Installed
499	BINJHAYLA	3.15	Not Installed
500		3.15	Not Installed
501	GHAMURWALI	3.15	Not Installed
502	SAWANTSAR	3.15	Not Installed
503	MANJHUVASS	3.15	Not Installed
504		5	Not Installed
505	SKPR	3.15	Not Installed
506	39H	3.15	Not Installed
507	2FC	3.15	Not Installed
508	52GG	3.15	Not Installed
509	48GG	3.15	Not Installed
510	42F	3.15	Not Installed
511	5"O"	3.15	Not Installed
512		5	Not Installed
513	GAJSINGHPUR	5	Not Installed
514	SANGRANA	3.15	Not Installed
515	BALARAJPURA	3.15	Not Installed
516	JORAWAR	3.15	Not Installed
517	CCBF	3.15	Not Installed
518		3.15	Not Installed
519	PALIWALA	3.15	Not Installed
520	SARDARPURA BIKA	3.15	Not Installed
521	NIRWANA	3.15	Not Installed
522	DHABA	3.15	Not Installed

Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 SE (B&S), JdVYNL, JU  
 (Authorized Representative)

523	GURUSAR MODIA	3.15	Not Installed
524	BDOPAL ROAD GSS	5	Not Installed
525		5	Not Installed
526	RUICO GSS	5	Not Installed
527		5	Not Installed
528	PHED GSS	5	Not Installed
529	STADIUM GROUND GSS	5	Not Installed
530	SOMASAR	5	Not Installed
531		5	Not Installed
532	KALUSAR	3.15	Not Installed
533	THETHAR	3.15	Not Installed
534	RAIYAWALI	3.15	Not Installed
535	UDAI PUR	3.15	Not Installed
536	BIRMANA	3.15	Not Installed
537	2 GPN	3.15	Not Installed
538	19,600 RDR	3.15	Not Installed
539	RAJIASAR	3.15	Not Installed
540		3.15	Not Installed
541	DEEDWANA	3.15	Not Installed
542	BACHIRAR	3.15	Not Installed
543	BHOJUSAR	3.15	Not Installed
544		3.15	Not Installed
545	GOVINDSAR	3.15	Not Installed
546		3.15	Not Installed
547	RAGHUNATHPURA	3.15	Not Installed
548	SILWANI	3.15	Not Installed
549	SRI VIJAYNAGAR	5	Not Installed
550		5	Not Installed
551	29 GB	5	Not Installed
552	44 GB	3.15	Not Installed
553	KUPLI	3.15	Not Installed
554	PURANA BIJLI BOARD	5	Not Installed
555	2 DAM	5	Not Installed
556		3.15	Not Installed
557	ANOOPGARH	5	Not Installed
558		3.15	Not Installed
559	RUICO	5	Not Installed
560		3.15	Not Installed
561	PREM NAGAR	5	Not Installed
562	76GB	3.15	Not Installed
563	BANDA COLONY	3.15	Not Installed
564	10A	3.15	Not Installed
565	27A	3.15	Not Installed
566		3.15	Not Installed

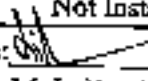
Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer) M. L. Benda  
 (Authorized Representative) VNL, JU

567	6IGB	3.15	Not Installed
568	RAMSINGHPUR	3.15	Not Installed
569	NHARAWALI	3.15	Not Installed
570	RAWLA MANDI	3.15	Not Installed
571		3.15	Not Installed
572	3 KD	3.15	Not Installed
573	7 KND	3.15	Not Installed
574	365 HED	3.15	Not Installed
575	NEW MANDI GHARSANA	3.15	Not Installed
576		3.15	Not Installed
577	OLD MANDI GHARSANA	3.15	Not Installed
578	6 DD	3.15	Not Installed
579	PATRODA	3.15	Not Installed
580	281 HEAD	3.15	Not Installed
581	JALWALI	3.15	Not Installed
582	ROJAKY	3.15	Not Installed
583	4 STR	3.15	Not Installed
584	CHAWA	3.15	Not Installed
585	KAWAS	3.15	Not Installed
586	BATADOO	3.15	Not Installed
587		3.15	Not Installed
588	BHMADA	3.15	Not Installed
589		3.15	Not Installed
590	KHANJI KA TALLA	3.15	Not Installed
591	JETANIYON KI DHANI	3.15	Not Installed
592		3.15	Not Installed
593	BHADAKHA	5	Not Installed
594		5	Not Installed
595	HADWA HADVECHA	3.15	Not Installed
596	SAJITARA	5	Not Installed
597		5	Not Installed
598	BHIYAND	3.15	Not Installed
599		3.15	Not Installed
600	CHOCHRA	3.15	Not Installed
601		3.15	Not Installed
602	DHEER JI KI DHANI	3.15	Not Installed
603	KANASAR	3.15	Not Installed
604		3.15	Not Installed
605	MOKHAB	5	Not Installed
606		5	Not Installed
607	PRAHLADPURA	3.15	Not Installed
608	ASOIRA	3.15	Not Installed
609	BITHUJA	3.15	Not Installed
610	BRAHMAJI KA MANDIR	3.15	Not Installed

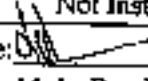
Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 SE (I&S) JdVVNI, JH  
 (Authorized Representative)

611			
612	BUDIWARA	3.15	Not Installed
613		3.15	Not Installed
614	JAGSA	3.15	Not Installed
615		3.15	Not Installed
616	JASOL	3.15	Not Installed
617		3.15	Not Installed
618	KANANA	3.15	Not Installed
619		3.15	Not Installed
620	PADROO-FANTA	3.15	Not Installed
621		3.15	Not Installed
622	SARANA	3.15	Not Installed
623	KALYANPUR	3.15	Not Installed
624		3.15	Not Installed
625	NAGANA	3.15	Not Installed
626		3.15	Not Installed
627	PACHPADRA	3.15	Not Installed
628		3.15	Not Installed
629	PATODI	3.15	Not Installed
630		3.15	Not Installed
631	THOMBLI	3.15	Not Installed
632		3.15	Not Installed
633	KANOD	3.15	Not Installed
634		3.15	Not Installed
635	RATEU	3.15	Not Installed
636		3.15	Not Installed
637	BIHAGWA	3.15	Not Installed
638		3.15	Not Installed
639	DHEERA	3.15	Not Installed
640		3.15	Not Installed
641	GUDANAAL	3.15	Not Installed
642		5	Not Installed
643	GUNGROT	3.15	Not Installed
644		3.15	Not Installed
645	INDRANA	3.15	Not Installed
646		3.15	Not Installed
647	KATHADI	3.15	Not Installed
648		3.15	Not Installed
649	KERLI NADI	3.15	Not Installed
650		3.15	Not Installed
651	MELI	3.15	Not Installed
652		5	Not Installed
653	MOKALSAR	3.15	Not Installed
654		3.15	Not Installed
655	MUTHALI	3.15	Not Installed
656		3.15	Not Installed
657	AJEET	3.15	Not Installed
658		3.15	Not Installed
659	KARMAWAS	3.15	Not Installed
660		3.15	Not Installed
661	RAKHI	3.15	Not Installed
662		3.15	Not Installed
663	SAMDARI	3.15	Not Installed
664		3.15	Not Installed
665	SILORE	3.15	Not Installed
666		3.15	Not Installed
667	DHARANA	3.15	Not Installed
668		3.15	Not Installed
669	ITAWAYA-FANTA	3.15	Not Installed
670		3.15	Not Installed
671		3.15	Not Installed
672		3.15	Not Installed
673		3.15	Not Installed
674		3.15	Not Installed
675		3.15	Not Installed
676		3.15	Not Installed
677		3.15	Not Installed
678		3.15	Not Installed
679		3.15	Not Installed
680		3.15	Not Installed
681		3.15	Not Installed
682		3.15	Not Installed
683		3.15	Not Installed
684		3.15	Not Installed
685		3.15	Not Installed
686		3.15	Not Installed
687		3.15	Not Installed
688		3.15	Not Installed
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690		3.15	Not Installed
691		3.15	Not Installed
692		3.15	Not Installed
693		3.15	Not Installed
694		3.15	Not Installed
695		3.15	Not Installed
696		3.15	Not Installed
697		3.15	Not Installed
698		3.15	Not Installed
699		3.15	Not Installed
700		3.15	Not Installed

Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 (Authorized Representative)  
 BSNL, JU

655		3.15	Not Installed
656	KUNDAL	3.15	Not Installed
657		3.15	Not Installed
658	MITHORA	3.15	Not Installed
659		3.15	Not Installed
660	RELO KI DHANI	3.15	Not Installed
661		3.15	Not Installed
662	SAILA	3.15	Not Installed
663		3.15	Not Installed
664	SINER	3.15	Not Installed
665		3.15	Not Installed
666	VAVNAGAR	3.15	Not Installed
667		3.15	Not Installed
668	ADEL	3.15	Not Installed
669		3.15	Not Installed
670	BHATTA	3.15	Not Installed
671		3.15	Not Installed
672	CHADON KI DHANI	3.15	Not Installed
673		3.15	Not Installed
674	CILAUDHARIYON KI DHANI	3.15	Not Installed
675		3.15	Not Installed
676	DHANWA-FANTA	3.15	Not Installed
677		5	Not Installed
678	DHUDIA MOTI S	3.15	Not Installed
679		3.15	Not Installed
680	J.M.K.	3.15	Not Installed
681		3.15	Not Installed
682	SARNI-PANI	3.15	Not Installed
683		3.15	Not Installed
684	BHATALA	3.15	Not Installed
685		3.15	Not Installed
686	BADON-KA-TALA	3.15	Not Installed
687		5	Not Installed
688	BAMNOR	5	Not Installed
689		5	Not Installed
690	HAMRLA	3.15	Not Installed
691		3.15	Not Installed
692	BHAG BHERE KI BERI	3.15	Not Installed
693		3.15	Not Installed
694	BISARNIYA	3.15	Not Installed
695		3.15	Not Installed
696	DHUDHU	3.15	Not Installed
697		3.15	Not Installed
698	KEKAR	3.15	Not Installed
699		3.15	Not Installed
700	KITHNORIYA	3.15	Not Installed
701		3.15	Not Installed
702	KOJA	3.15	Not Installed
703		3.15	Not Installed
704	LUKHU	3.15	Not Installed
705		3.15	Not Installed
706	RELO KI BERI	3.15	Not Installed
707		3.15	Not Installed
708	ROIILA (EAST)	3.15	Not Installed
709		3.15	Not Installed
710	SACHI KI BERI	3.15	Not Installed
711		3.15	Not Installed
712	SAUAN KI BERI	3.15	Not Installed
713		3.15	Not Installed
714	BORCHARNAN	3.15	Not Installed
715		3.15	Not Installed
716	BHEDANA	3.15	Not Installed
717		3.15	Not Installed
718	GADEVI	3.15	Not Installed
719		3.15	Not Installed
720	LUNWA- CHARNAN	3.15	Not Installed
721		3.15	Not Installed
722	NAGAR	3.15	Not Installed


Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 SE (AS), JVVN, JJ

699	PANEL KI BERI	3.15	Not Installed
700	RAM JI GOAL	3.15	Not Installed
701	SALLU KI BERI	3.15	Not Installed
702	SINDHASWA-CH.	3.15	Not Installed
703		3.15	Not Installed
704		3.15	Not Installed
705	ANDANIYO KI BERI	3.15	Not Installed
706	JALI KHERA	3.15	Not Installed
707	MALPURA	3.15	Not Installed
708	NOKHARA	3.15	Not Installed
709		3.15	Not Installed
710	AKAL	3.15	Not Installed
711	GANGASARA	3.15	Not Installed
712	GORA	3.15	Not Installed
713	GULE KI BERI	3.15	Not Installed
714	SOBHALA-DARSHAN	3.15	Not Installed
715	SONARI	5	Not Installed
716	BHANWAR	3.15	Not Installed
717		3.15	Not Installed
718	BISASAR	3.15	Not Installed
719	DHURAWA	3.15	Not Installed
720		3.15	Not Installed
721	FAGALIYA	3.15	Not Installed
722		3.15	Not Installed
723	HARPALIYA	3.15	Not Installed
724	JANPALIYA	3.15	Not Installed
725		3.15	Not Installed
726	MAN JI KA TALLA	3.15	Not Installed
727	SALARIYA	5	Not Installed
728	SARLA	3.15	Not Installed
729		3.15	Not Installed
730	SEDWA	5	Not Installed

Date: 30.06.2023

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 SE (R&S), JVVNL, JU  
 (Authorized Representative)

Sr. No.	Name of Substations	Before Installation of Capacitor Bank										After Installation of Capacitor Bank					
		Transformer Capacity (In MVA)	Sub Station/Transformer peak Loading (MVA)	Voltage during Average / No Load	Voltage during Peak Load	MY A	PF	Peak Amp. Loading	MVA Requirement	MVA Proposed	% Loading at Transformer (MVA)	Leq. (MVA)	Apparent Power on Loading (MVA)	Power Factor	Voltage	% Improvement in Voltage	% Remaining on Transformer (MVA)
1	MATHARIA	5	4.56	10.3	9.1	5.12	0.80	287	2.3	1.98	102.39	4.7	7.76	0.97	10.52	3.08	94.42
2		5	4.47	10.3	9.7	5.02	0.89	281.4	2.3	1.98	100.45	4.6	8.1	0.97	10.62	1.08	92.28
3	UNMED NAGAR (0027)	5	4.52	10.2	8.9	5.02	0.9	264.4	2.2	1.98	100.47	4.5	8.1	0.98	10.51	3.08	92.54
4	RAMBERMABICO	5	4.98	10.2	9.7	5.66	0.88	320.2	2.7	1.98	113.14	5.3	6.33	0.94	10.51	3.08	105.99
5		5	5	10.2	9.7	5.68	0.88	321.4	2.7	1.98	113.57	5.3	6.28	0.94	10.51	3.08	106.44
6	RAJASANI	3.15	2.38	10.2	8.9	3.12	0.88	176.8	1.4	1.98	99.17	2.8	8.1	1	10.25	3.44	88.26
7		3.15	2.82	10.2	9	3.18	0.89	182.1	1.5	1.98	100.58	2.8	11	1	10.55	3.5	89.87
8	NEVRA ROAD	3.15	3.12	10.5	8.9	3.39	0.87	197.2	1.8	1.98	113.85	3.1	13	1	10.95	4.27	90.05
9		3.15	3.08	10.5	9	3.43	0.9	188.5	1.5	1.98	108.85	3.1	10	1	10.88	3.61	97.95
10		3.15	3.05	10.5	9.1	3.35	0.9	186.4	1.5	1.98	109.61	3.1	10	1	10.87	3.57	96.85
11	KRAMASATVA	5	4.78	10.5	9.3	5.57	0.89	255.5	2.5	1.98	107.48	5	7.03	0.96	10.82	3.08	99.92
12		5	4.87	10.5	9.8	5.54	0.88	331.4	2.6	1.98	110.71	5.2	6.82	0.94	10.82	3.08	100.39
13		3.15	2.94	10.3	9	3.27	0.9	183.4	1.4	1.98	100.84	2.9	10	1	10.65	3.44	95.46
14	BHANSER KUCHRI	3.15	2.98	10.3	9	3.31	0.9	185.5	1.4	1.98	105.08	3	10	1	10.65	3.49	94.57
15		3.15	2.94	10.3	9	3.35	0.88	187.5	1.6	1.98	106.2	3	10	1	10.65	3.84	95.46
16	JODID	3.15	2.8	10.3	8.9	3.19	0.88	178.6	1.5	1.98	101.15	2.8	12	1	10.7	3.84	95.46
17		3.15	2.93	10.2	9	3.29	0.9	185.3	1.4	1.98	103.94	2.9	10	1	10.68	3.66	99.01
18	KHARDA	3.15	3.02	10.2	9	3.29	0.9	183.7	1.5	1.98	103.38	3	10	1	10.55	3.45	93.54
19	NEVRA GADN	3.15	3.06	10.3	8.9	3.33	0.9	180	1.5	1.98	102.61	3.1	10	1	10.56	3.53	95.75
20		3	3	10.3	8.9	3.33	0.9	186.8	1.5	1.98	102.61	3.1	10	1	10.67	3.57	96.85
21	GAGADI	3.15	2.82	10.5	8.2	3.2	0.88	176	1.5	1.98	101.39	2.8	13	1	10.89	2.26	99.97
22		3.15	2.8	10.5	9.2	3.18	0.88	174.9	1.5	1.98	100.94	2.8	12	1	10.88	3.65	88.86

Date: 30.06.2023

Signature: \_\_\_\_\_

Name: M. L. Benda  
 (Project Nodal Officer)  
 SE (G&S) Jodhpur, JU  
 (Authorized Representative)

23	MANDIYAI KALLA	5	4.78	10.5	8.9	5.44	0.88	208.0	2.6	1.98	108.1	5.1	6.87	40.82	3.08	701.23
24		5	6.82	10.5	9	5.41	0.89	207.7	2.5	1.98	108.28	5	6.93	10.82	3.08	103.77
25		3.15	2.75	10.5	9.2	3.03	0.9	167.8	1.1	1.98	96.85	2.7	10	12.84	3.21	57.17
26	BALARWA	3.15	2.66	10.5	9	2.99	0.9	164.5	1.3	1.98	94.98	2.7	10	10.83	3.15	85.48
27		3.15	2.83	10.5	9	3.15	0.9	175.2	1.4	1.98	99.77	2.8	10	10.85	3.32	89.58
28	MIRIYAKO THIRVARI	5	4.69	10.5	8.9	5.27	0.89	250	2.4	1.98	125.49	4.9	7.31	12.82	3.08	97.77
29		5	4.78	10.5	9.1	5.37	0.89	285.5	2.5	1.98	107.48	5	7.03	10.82	3.25	99.92
30	GHEWALA	3.15	2.74	10.2	9	3.18	0.86	180.1	1.6	1.98	100.98	2.7	14	10.6	3.92	86.85
31		5	4.34	10.2	8.9	5.05	0.86	265.7	2.6	1.98	100.95	6.6	8.01	10.51	3.08	92.85
32	JANCHALA	3.15	2.62	10.2	9	3.05	0.86	172.5	1.6	1.98	96.75	2.6	14	10.58	3.76	83.2
33		3.15	2.81	10.2	9.2	3.16	0.89	179	1.4	1.98	100.58	2.8	11	10.55	3.47	87.72
34	BADA KOTECARAI	3.15	2.76	10.2	9	3.1	0.89	175.7	1.4	1.98	96.56	2.8	11	10.55	3.47	87.72
35		3.15	2.81	10.3	9	3.23	0.87	180.9	1.6	1.98	102.46	2.8	13	10.7	3.84	89.14
36	BADJA RASNI	3.15	2.77	10.3	9.1	3.19	0.87	178.7	1.6	1.98	101.2	2.8	13	10.7	3.84	89.14
37		3.15	2.72	10.3	8.9	3.13	0.87	175.3	1.3	1.98	99.3	2.7	13	10.65	3.73	86.39
38	MANDIYAI RHOUD	3.15	2.64	10.2	9	3.27	0.9	186.9	1.4	1.98	100.72	2.9	30	10.55	3.44	83.35
39		3.15	3.08	10.2	9	3.53	0.9	189.4	1.5	1.98	106.22	3	10	10.55	3.92	95.6
40	MALIRNOA	3.15	3.1	10.2	8.9	3.49	0.89	197.3	2.6	1.98	110.67	3.1	11	10.59	3.84	90.5
41	GOPASARIYA	3.15	3.1	10.3	9	3.37	0.89	188.7	1.9	1.98	106.89	5	11	10.68	3.71	85.15
42		3.15	3.05	10.3	8.5	3.46	0.88	194.2	1.6	1.98	110	3	12	10.71	3.98	96.8
43	RHALASARIYA	3.15	3.09	10.2	9	3.43	0.9	194.3	2.5	1.98	108.84	3.1	10	10.57	3.61	91.95
44	THOD	3.15	2.82	10.2	9.3	3.24	0.87	183.3	1.6	1.98	102.8	2.8	13	10.59	3.98	89.43
45		3.15	2.73	10.2	8.9	3.14	0.87	177.9	2.5	1.98	99.77	2.7	13	10.58	3.74	86.8
46	HARLAYA	3.15	3.01	10.5	9	3.35	0.9	184.2	2.5	1.98	106.52	3	10	10.87	3.53	95.69
47	OSDAY	3.15	2.99	10.5	9.1	3.32	0.9	182.4	1.4	1.98	105.92	3	10	10.87	3.49	94.78
48		5	4.7	10.5	9	5.23	0.9	287.4	2.3	1.98	104.35	4.8	7.45	10.82	3.08	96.76
49	CEERAI	3.15	2.77	10.5	9	3.15	0.88	173.3	1.5	1.98	100.95	2.8	12	10.88	3.62	88.04
50	SIRWAKO KITHARI (SIRMANDI)	3.15	2.85	10.3	8.9	3.2	0.89	179.4	1.5	1.98	101.59	2.8	11	10.66	3.52	90.41
51		3.15	2.88	10.3	9.2	3.24	0.89	181.5	1.5	1.98	102.8	2.9	11	10.67	3.57	91.49
52	SOMEDI BHAKARI	3.15	2.88	10.3	9	3.24	0.89	181.5	1.5	1.98	102.8	2.9	11	10.67	3.57	91.49
53	BIRISAGAR	3.15	2.92	10.4	8.9	3.25	0.9	180.3	1.4	1.98	103.1	2.9	10	10.76	3.44	92.79

Signature: *[Signature]*

Name: M. L. Benda  
 (Project Nodal Officer: M.L., Benda  
 (Authorized Representative), JAY/WL/JL)

Date: 30.06.2023



54		3.15	3.01	30.4	0	2.25	0.9	185.8	1.2	1.98	105.22	3	10	10.77	3.52	95.0
55	BERDO KA GAS	3.15	2.78	10.3	8.9	3.31	0.5	185.4	1.4	1.98	104.97	3	10	10.66	3.48	94.48
56		3.15	2.89	10.3	9	3.21	0.9	179.5	1.4	1.98	101.35	2.9	10	10.63	3.38	91.66
57	RAWAL BERA	3.15	2.77	10.4	8.9	3.12	0.89	173	1.4	1.58	98.72	2.8	11	10.75	3.43	88.04
58	JAGERO KOTIANI	3.15	2.78	10.4	9.3	3.12	0.89	173.4	1.4	1.98	99.17	2.8	11	10.76	3.46	88.20
59		3.15	2.54	10.5	5.3	2.95	0.86	182.3	1.5	1.98	98.73	2.5	14	10.88	3.04	80.6
60	BARAKALJA	3.15	2.59	10.5	9.7	3.01	0.86	186.5	1.5	1.98	95.54	2.6	14	10.89	3.71	82.16
61		3.15	2.75	10.5	9	3.24	0.85	178.1	1.7	1.98	102.8	2.9	13	10.91	4.12	87.38
62	DHANASJ KALLA	3	4.31	10.5	6.2	3.07	0.85	178.6	2.7	1.98	101.32	4.7	7.95	10.87	3.88	93.28
63		3.15	2.71	10.2	9	3.05	0.85	172.5	1.4	1.98	95.75	2.7	11	10.54	3.36	86.11
64	CHONDART	3.15	2.75	10.2	9	3.09	0.89	176.7	1.4	1.98	97.95	2.7	11	10.55	3.4	87.18
65	NANDIYA KEBURD	3.15	3.01	10.3	9.3	3.53	0.9	187.7	1.5	1.98	105.52	3	10	10.66	3.53	95.69
66		3.15	2.91	10.2	9.2	3.24	0.9	183.3	1.4	1.98	102.8	2.9	10	10.55	3.41	92.52
67	JELAY NADI	3.15	2.66	10.2	9	2.95	0.9	167.1	1.3	1.98	91.73	2.1	10	10.52	3.11	84.35
68	JETIYAWAS	3.15	2.91	10.3	8.3	3.51	0.88	185.2	1.6	1.98	105.05	2.5	12	10.68	3.8	92.44
69		3.15	3.03	10.3	9	3.45	0.88	193.2	1.6	1.98	109.43	3	12	10.71	3.96	96.3
70	SELVI	3.25	2.98	10.3	8.9	3.79	0.88	189.8	1.6	1.98	107.47	3	12	10.1	3.88	94.57
71	MADIRAKORIYA	3.15	3.08	10.4	9.3	3.47	0.89	192.4	1.6	1.98	110.01	3.1	11	10.9	3.82	97.91
72	TAPU	3.15	3.15	10.6	9.1	3.54	0.89	196.8	1.6	1.98	112.51	3.2	11	10.81	3.9	103.14
73		3.15	3.09	10.2	8.9	3.47	0.89	195.2	1.6	1.98	110.05	3.1	11	10.59	3.52	97.95
74	NOSER	5	4.75	10.4	9	3.33	0.89	191.9	2.4	1.98	106.67	5	7.15	10.51	3.68	99.01
75		3.15	2.8	10.5	9.1	3.18	0.88	174.9	1.5	1.98	101.98	2.8	12	10.88	3.65	88.86
76	KANDARALA	3.15	2.95	10.5	9	3.35	0.88	184.3	1.6	1.98	105.42	3	12	10.9	3.65	93.65
77		3.15	2.77	10.5	9	3.14	0.88	172.8	1.5	1.98	99.77	2.8	12	10.88	3.51	87.8
78		3.15	2.62	10.2	9	3.24	0.81	180.3	1.9	1.98	102.5	2.6	19	10.67	4.19	83.27
79	PADASALA	3.15	2.76	10.2	8.6	3.43	0.81	194.1	2	1.98	108.44	2.8	15.36	10.69	4.78	86.86
80		3.15	2.68	10.2	9	3.31	0.81	187.6	1.9	1.98	105.22	2.7	19	10.68	4.7	85.22
81	NIMBO KATAJAB	3.15	2.82	10.2	9.2	3.24	0.87	183.3	1.6	1.98	102.8	2.8	13	10.99	3.86	89.43
82		3.15	3.02	10.2	9	3.47	0.87	196.2	1.7	1.98	110.05	3	13	10.62	4.13	95.75
83	KFEDAZA	3.15	2.63	10.5	9.3	2.95	0.89	162.3	1.9	1.98	93.73	2.6	11	10.84	3.25	83.42

Date: 30.06.2023

Signature: 

Name: M. L. Benda  
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 (Authorized Representative)

84		5	4.24	10.5	9.3	4.70	0.89	201.8	2.2	1.06	95.24	4.0	9.05	0.98	19.82	1.06	86.61
85	ANWARA OLD	3.15	2.85	10.4	5	3.2	0.9	177.7	1.4	1.58	121.59	2.9	10	1	10.75	3.37	91.45
86		3.15	2.83	10.4	5.1	3.10	0.9	174.5	1.4	1.58	55.77	2.8	10	1	10.74	3.31	89.8
87	BIZALI	3.15	2.5	10.2	9	3.22	0.9	182.1	1.4	1.98	102.12	2.9	10	1	10.55	3.19	91.91
88		3.15	2.85	10.2	9	3.18	0.9	173.8	1.4	1.58	100.85	2.5	10	1	10.54	3.35	90.76
89	DANWARA	3.15	2.70	10.2	9	3.14	0.87	171.9	1.5	1.58	99.77	2.7	13	1	10.55	3.74	86.8
90		3.15	2.82	10.2	9.1	3.24	0.87	183.3	1.6	1.98	102.8	2.8	11	1	10.50	3.26	89.43
91	RADRI	3	4.74	10.5	8.5	5.27	0.9	289.9	2.3	1.98	105.14	4.9	7.32	0.97	10.82	3.08	91.72
92		3	4.83	10.5	9	5.37	0.9	325.5	2.3	1.98	107.45	5	7.14	0.97	10.82	3.08	91.85
93	POJINTO XI BARIT	3.15	2.91	10.3	9	3.74	0.9	181.4	1.4	1.98	102.72	2.9	10	1	10.65	3.41	92.44
94		3.15	2.86	10.5	8.9	3.24	0.89	178.1	1.5	1.58	101.8	2.9	11	1	10.87	3.57	91.09
95	KAINANU KUFORD	3.15	2.4	10.5	9	3.14	0.89	172.8	1.4	1.98	99.77	2.8	11	1	10.86	3.46	88.8
96		3.15	3.02	10.3	9.3	3.45	0.93	152.2	1.6	1.98	108.84	3	12	1	10.71	3.93	93.73
97	KALINGU KALIA	3.15	2.72	10.3	9	3.09	0.88	173	1.5	1.98	97.56	2.7	12	1	10.66	3.54	91.2
98		3.15	2.94	10.4	9.2	3.21	0.89	183.6	1.5	1.58	105.01	2.9	11	1	10.78	3.64	93.45
99	KAMAL	3.15	2.86	10.5	9	3.22	0.89	177	1.5	1.98	102.19	2.9	11	1	10.87	3.55	90.94
100		3.15	2.72	10.5	8.9	3.02	0.7	155.3	1.3	1.98	96	2.7	10	1	10.83	3.18	86.0
101	INDROKA	3	6.94	10.3	9	5.49	0.9	301.6	2.4	1.58	139.71	5.1	5.74	0.97	10.82	3.08	102.32
102		3.15	3.14	10.2	9	3.48	0.9	197.2	1.5	1.98	110.62	3.1	10	1	10.57	3.67	99.56
103	SALAWAS	3	5.04	10.2	9	5.6	0.9	317	2.4	1.38	112	5.2	6.45	0.96	10.51	3.09	104.77
104		3	5.13	10.2	8.7	5.7	0.9	323.9	2.5	1.98	114.07	5.3	6.22	0.96	10.51	3.08	105.98
105	DEJANDHURA	3	4.08	10.5	9.2	4.26	0.84	287.1	2.5	1.98	97.14	4.4	8.69	0.92	10.82	3.08	98.7
106		3.15	2.46	10.2	9.3	3.05	0.94	172.5	1	1.98	96.75	3.9	6	1	10.46	2.51	97.94
107	HEERADISHAR	3.15	2.78	10.2	9	3.17	0.89	176.3	1.4	1.98	98.99	2.8	11	1	10.55	3.43	88.1
108		3.15	2.69	10.2	8.8	3.06	0.88	173.2	1.5	1.98	97.83	2.7	12	1	10.56	3.51	85.48
109	RAJANT	3.15	2.77	10.2	9	3.08	0.9	174.4	1.3	1.98	97.82	2.8	10	1	10.55	3.24	88.04
110		3.15	2.6	10.2	8.9	2.89	0.7	163.5	1.3	1.98	91.71	2.6	10	1	10.58	3.04	82.91
111	DEVADE	3.15	2.83	10.2	8.5	3.14	0.9	177.9	1.4	1.38	94.7	2.8	10	1	10.54	3.31	89.8
112		3	4.47	10.2	9	4.97	0.9	281	2.2	1.58	99.3	4.6	8.3	0.98	12.51	3.08	91.05
113	GAJINGHURA	3.15	2.98	10.2	9.1	3.31	0.9	297.4	1.4	1.98	103.08	1	10	1	10.56	3.49	94.57
114		3.15	2.72	10.2	9	3.02	0.9	170.8	1.3	1.98	95.81	2.7	10	1	10.82	3.18	86.23

Signature: 

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 (Project Nopri-Orang) B 11113  
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Date: 30.06.2023

115	TASHPURA	5	4.56	30.2	8.9	5.06	0.9	286.6	2.2	1.98	101.75	4.7	7.97	2.98	10.51	3.08	91.18
116	ASOP	3.15	2.89	10.7	8.9	3.21	0.9	181.9	1.4	1.98	101.90	2.9	10	1	13.55	3.38	91.79
117		5	4.56	10.2	9.1	5.06	0.9	286.6	2.2	1.98	101.25	4.7	7.97	0.91	10.51	3.08	93.18
118	ARTVA KALLAN	3.15	2.74	10.2	9	3.06	0.9	123.5	1.3	1.98	96.75	2.7	10	-	10.51	3.21	92.07
119		3.15	2.91	10.2	9.1	3.24	0.9	181.1	1.4	1.98	102.72	2.9	10	1	10.51	3.41	92.44
120	BAZANI KHURUP	5	4.51	10.2	8.9	5.01	0.9	583.4	2.2	1.98	100.15	4.6	8.15	0.98	10.51	3.08	91.56
121	MANGERIYA	3.15	2.68	10.3	9	3.01	0.89	168.7	1.4	1.98	95.54	2.7	11	1	10.64	3.32	85.03
122		5	4.43	10.5	9	4.98	0.89	273.6	2.3	1.98	99.52	4.6	8.26	0.97	10.52	3.08	91.3
123	RIJAZA	5	4.34	10.5	8.9	4.88	0.89	268.1	2.2	1.98	97.53	4.5	8.61	0.97	10.82	3.08	89.83
124	SMATI GORTE	5	4.58	10.5	9	5.21	0.88	286.3	2.5	1.98	104.14	4.8	7.51	0.95	10.82	3.08	96.32
125		5	4.66	10.5	8.9	5.29	0.88	293.9	2.5	1.98	105.82	4.9	7.27	0.95	10.82	3.08	98.13
126	DUMANJI KI ZAO	3.15	2.67	10.5	5	3.14	0.85	172.8	1.7	1.98	99.77	2.7	15	1	10.92	4	80.81
127		3.15	2.51	10.5	9.1	2.95	0.85	162.3	1.6	1.98	99.73	2.5	15	1	10.89	3.76	79.67
128		3.15	2.78	10.5	9	3.24	0.86	178.1	1.7	1.98	101.8	2.8	14	1	10.92	3.99	88.41
129	KHARIYA MICHAUR	5	4.5	10.5	9.2	5.24	0.86	288	2.7	1.98	104.76	4.8	7.42	0.93	10.82	3.08	96.39
130	JHAK	3.15	2.94	10.5	9	3.26	0.9	179.5	1.4	1.98	109.82	2.9	10	1	10.86	3.44	93.26
131		3.15	2.69	10.5	9.5	2.99	0.9	164.1	1.3	1.98	94.77	2.7	10	1	10.83	3.14	85.29
132	UDALIYAWAS	3.15	2.63	10.5	9	2.93	0.9	161	1.3	1.98	92.93	2.5	10	1	10.82	3.08	83.64
133		3.15	2.71	10.5	8.9	3.05	0.89	167.6	1.4	1.98	96.75	2.7	11	1	10.85	3.36	86.31
134	ZANSL GADN	5	4.27	10.5	9	4.8	0.89	263.9	2.2	1.98	96	4.4	8.9	0.98	10.82	3.08	87.45
135	PEPAR CITY	5	4.75	10.5	8.9	5.28	0.9	290.5	2.3	1.98	105.65	4.9	7.29	0.97	10.82	3.08	97.95
136		5	4.66	10.5	9	5.18	0.9	284.9	2.3	1.98	103.62	4.8	7.59	0.91	10.82	3.08	95.75
137		1.6	1.46	10.5	2.5	1.66	0.88	91.4	0.8	1.98	101.9	1.5	12	1	10.5	0	91.43
138	SATJIN	3.15	2.94	10.5	9	3.35	0.88	184	1.6	1.98	106.2	2.9	12	1	10.9	3.84	93.46
139	KHARLYA KHANIGAR	3.15	2.71	10.2	8.9	3.05	0.89	172.5	1.4	1.98	96.75	2.7	11	1	10.54	3.26	85.11
140	TADUNAGAR	3.15	2.74	10.5	8.9	3.22	0.85	177	1.7	1.98	102.19	2.5	15	1	10.93	4.1	85.85
141	AMRIT NAGAR	3.15	3.14	10.5	9.1	3.43	0.9	191.6	1.5	1.98	110.62	3.1	10	1	10.89	3.67	94.56
142	KATORIDAL (BASTWA)	3.15	3.06	10.5	9	3.4	0.9	187	1.2	1.98	107.98	3.1	10	1	10.88	3.56	97.19
143		3.15	3.08	10.5	9.9	3.42	0.9	188.2	1.5	1.98	108.04	3.1	10	1	10.88	3.6	97.78
144	CHODWAL	3.15	2.72	10.2	9	3.2	0.85	181.1	1.7	1.98	101.59	2.7	15	1	10.62	4.07	85.35
145	NERIYA	3.15	2.67	10.4	9	3.1	0.86	172.4	1.6	1.98	98.56	2.7	14	1	10.8	3.83	84.76

Signature: 

Name: M. L. Benda  
 (Project Nodal Office) M. L. Benda  
 (Authorized Representative) VNL

Date: 30.06.2023


145	KERUJI	3.15	2.85	10.5	8.9	3.26	0.88	178.7	1.98	102.3	2.8	12	1	10.89	5.72	90.46
147	GRJDEJAJ	3.5	2.68	10.3	9.2	3.05	0.88	170.3	1.96	98.73	2.7	12		10.66	3.3	85.14
148	BIOMASAGAR	3.15	2.88	10.5	9	3.35	0.86	184.3	1.98	105.42	2.9	14	1	10.95	4.15	91.53
149	GUMASUPURA	3.15	2.93	10.4	9	3.2	0.89	181.2	1.98	104.6	2.5	11	1	10.88	3.63	93.1
150	UMTIPHALIYA	5	4.15	10.2	9	5.07	0.82	230.6	1.98	101.33	4.7	7.95	0.89	10.51	3.38	93.28
151	PATUBAGAR UNTIPHALIYA	3.15	2.8	10.3	9.1	3.26	0.85	182.6	1.96	103.4	2.8	13	1	10.67	3.65	89.34
152	PABA KJ NIMBASACHEERUR	3.15	3.03	10.6	5	5.27	0.9	184.7	1.98	104.01	2.9	2	1	10.89	3.76	91.53
153	A)	3.15	3.1	10.6	9.2	3.45	0.9	187.8	1.98	100.95	3.1	10	1	10.98	3.55	95.69
154	KANODIYA BURCHETAN	3.15	2.82	10.2	9	3.24	0.87	182.3	1.98	103.4	2.8	11	1	10.67	3.41	92.44
155	BHALUP KALLA	3.15	2.88	10.5	9.2	3.28	0.88	180.1	1.98	102.8	2.8	13	1	10.59	3.46	89.43
156	KHUMAKHAS	3.15	3.01	10.5	9.2	3.25	0.9	184.7	1.98	104.01	2.9	2	1	10.89	3.76	91.53
157	CHABA	3.15	2.91	10.5	9	3.24	0.9	181.5	1.98	102.8	2.9	11	1	10.67	3.57	91.49
158	SOINTRA	3.15	2.9	10.3	8.9	3.26	0.89	182.6	1.98	100.95	3.1	8.01	0.98	10.72	3.68	92.85
159	KERJA TIRNA	3.15	2.95	10.1	8.9	3.31	0.89	183.5	1.98	101.59	2.8	11	1	10.66	3.52	90.41
160	NOXHADA DHATIYA	3.15	2.81	10.3	8.9	3.16	0.88	177.2	1.98	100.38	2.8	11	1	10.66	3.48	89.34
161		3.15	2.84	10.3	9	3.24	0.89	181.5	1.98	102.8	2.9	11	1	10.67	3.57	91.49
162	ZAD KA BERA	5	4.54	10.4	9.1	5.05	0.9	280.2	1.98	100.95	3.1	8.01	0.98	10.72	3.68	92.85
163		3.15	2.85	10.3	9	3.2	0.89	175.4	1.98	101.59	2.8	11	1	10.66	3.52	90.41
164	CHEITORBERA	3.15	2.76	10.3	9	3.1	0.88	174	1.98	98.56	2.8	11	1	10.55	3.42	87.72
165	CHADI	3.15	2.85	10.4	8.9	3.14	0.9	174.3	1.98	92.66	2.8	10	1	10.24	3.31	89.29
166		3.15	2.93	10.4	9	3.25	0.9	180.7	1.98	103.53	2.9	10	1	10.76	3.49	92.99
167	KURSIHAN NAGAR	3.15	3.02	10.2	9.1	3.40	0.85	194.1	1.98	100.84	3	12		10.6	3.93	95.78
168		3.15	3.05	10.2	9	3.47	0.84	196.2	1.98	110.05	3.1	13	1	10.61	3.98	96.85
169		3.15	2.78	10.4	8.9	3.12	0.89	173.4	1.98	99.17	2.8	11	1	10.75	3.44	88.26
170	UDHALSAR	3.15	2.71	10.4	9.3	3.05	0.89	169.2	1.98	96.75	2.7	11	1	10.75	3.36	89.11
171		3.15	2.7	10.5	8.9	3.14	0.86	172.8	1.98	95.13	2.7	14	1	10.91	3.87	85.8
172	MANASAR	3.15	2.55	10.5	8.9	3.01	0.86	165.5	1.98	95.54	2.6	14	1	10.89	3.78	82.16
173	ROJINGADI	3.15	2.59	10.3	5	3.09	0.84	174.7	1.98	97.86	2.6	16	1	10.61	4.04	92.29
174		3.15	2.52	10.2	9.1	3.2	0.82	181.1	1.98	101.59	3.6	13	1	10.55	4.42	89.5
175	INDO KA BAS	3.15	2.62	10.2	9	3.2	0.82	181.1	1.98	101.59	2.6	18	1	10.65	4.42	89.5

Signature: 

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(Project Model Officer)  
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176	ICNP PIRAJODE	3.15	2.27	30.8	8.9	2.67	0.35	342.6	1.4	1.98	84.55	2.3	15	1	11.17	3.39	71.56
177	(DAP) R.D. 1126	3.15	3.01	20.2	3	3.34	0.5	189.2	1.3	1.98	106.1	3	10	1	10.55	3.52	95.49
178	DUROANI	3.15	2.75	10.2	9.2	3.20	0.86	183.5	1.7	1.98	102.3	2.8	14	1	10.61	3.99	88.64
179		3.15	2.82	10.2	9	3.28	0.95	185.4	1.7	1.98	104.01	2.8	14	1	10.61	4.04	89.45
180	SHEKRESAR	3.15	2.75	10.5	8.9	3.24	0.83	178.1	1.7	1.98	102.8	2.8	15	1	10.99	4.12	87.38
181		3.15	2.8	10.5	9	3.2	0.85	181.2	1.7	1.98	104.61	2.8	15	1	10.94	4.19	88.52
182	ANUP PASGAR	3.15	2.88	10.2	9.1	3.24	0.89	183.3	1.5	1.98	102.8	2.9	11	1	10.55	3.57	91.49
183		3.15	2.85	10.2	9	3.2	0.89	181.1	1.5	1.98	101.59	2.8	11	1	10.56	3.52	90.41
184	RIN SALT	3.15	2.59	10.3	9	3.21	0.9	180.1	1.6	1.98	101.99	2.9	10	1	10.65	3.98	91.79
185		3.15	2.7	10.2	9.3	3.14	0.86	177.9	1.6	1.98	99.17	2.7	14	1	10.6	3.87	85.8
186	TJAJASAR KALLA	3.15	2.62	10.2	9.2	3.03	0.86	172.5	1.6	1.98	96.75	2.6	14	1	10.58	3.76	83.2
187		5	4.65	10.3	9	5.1	0.91	286.3	2.1	1.58	102.1	4.7	7.83	0.99	10.62	3.68	84.1
188	JETERI	3.15	2.85	10.3	8.9	3.24	0.85	181.5	1.5	1.98	102.8	2.8	12	1	10.68	3.72	90.46
189		3.15	2.85	10.3	8.3	3.24	0.88	181.5	1.5	1.98	102.8	2.8	12	1	10.68	3.72	90.46
190	PACIRIA	3.15	2.82	10.2	9.1	3.24	0.87	183.3	1.6	1.98	102.8	2.8	13	1	10.59	3.86	82.43
191		5	4.61	10.3	9.2	5.24	0.88	293.7	2.3	1.98	104.75	4.9	7.42	0.95	10.62	3.68	97.02
192	RINDAROR	3.15	2.83	10.5	9.1	3.24	0.89	178.1	1.5	1.98	102.8	2.9	11	1	10.47	3.57	91.49
193		3.15	3.02	10.3	9	3.43	0.84	192.2	1.5	1.98	108.84	3	12	1	10.71	3.95	95.73
194	AMILA	5	4.7	10.4	8.9	5.22	0.9	289.7	2.3	1.98	101.36	4.8	7.48	0.97	10.72	3.08	96.56
195		3.15	2.8	10.5	8.9	3.23	0.84	183.3	1.8	1.98	105.82	2.8	16	1	10.96	4.37	88.89
196	SUTYAR	5	4.08	10.5	9	4.86	0.84	269.1	2.6	1.98	97.14	4.4	8.69	0.92	10.82	3.68	83.7
197		3.15	2.45	10.5	9.2	2.94	0.84	162.3	1.6	1.98	93.73	2.5	16	1	10.91	3.87	78.75
198	BAGUR KALLA	5	4.46	10.2	8.9	4.95	0.9	283.3	2.2	1.98	99.05	6.3	4.34	0.94	10.31	3.08	90.79
199		3.15	2.98	10.2	9	3.34	0.85	189.3	1.5	1.98	106.15	3	11	1	10.88	3.58	94.48
200	RAYADA	3.15	3.01	10.2	9.1	3.28	0.89	191.5	1.5	1.98	107.42	3	11	1	10.38	3.73	95.6
201		3.15	2.77	10.2	9	3.68	0.9	174.4	1.3	1.98	97.82	2.8	10	1	10.53	3.24	86.04
202	JALIXDA	3.15	2.85	10.2	8.9	3.14	0.9	177.9	1.4	1.98	96.77	2.8	10	1	10.84	3.31	88.8
203		3.15	2.85	10.2	9	3.2	0.9	181.1	1.4	1.98	101.59	2.9	10	1	10.54	3.37	91.43
204	MANDLA KHURO	3.15	2.85	10.2	9	3.25	0.89	183.6	1.5	1.98	103.14	2.9	11	1	10.57	3.58	91.75
205		3.15	2.98	10.2	8.1	3.15	0.89	185.5	1.5	1.98	105.26	3	11	1	10.38	3.69	94.57
206	KIBADA	3.15	2.98	10.2	9	3.29	0.88	191.6	1.6	1.98	107.47	3	12	1	10.6	3.83	94.57

Signature: 

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 (Project Nodal Officer)  
 (Authorized Representative), JOYVNL, JU

Date: 30.06.2023


207		3.15	2.65	10.2	8.5	3.39	0.88	186	1.6	1.98	104.31	2.9	12	1	10.58	3.77	91.79
208	KOLU PABUIC	3.15	2.56	10.2	9	3.4	0.87	192.7	1.7	1.98	108.07	3	13	1	10.61	4.05	94.02
209	BUNGTI KENDUD	3.15	2.89	10.2	9	3.25	0.89	183.9	1.5	1.98	100.14	2.9	11	1	10.57	3.58	91.79
210		5	4.56	10.2	5	5.12	0.89	287.8	2.5	1.98	102.39	4.7	7.78	0.97	10.51	3.08	94.42
211	SILHBA	3.15	2.91	10.2	9	3.42	0.85	191.7	1.8	1.98	108.64	2.9	15	1	10.64	4.36	97.35
212		3	4.01	10.2	8.9	5.02	0.85	306.9	2.9	1.98	140.44	5	6.91	0.91	10.51	3.08	100.95
213	MANDELA KALLAN	3.15	2.95	10.2	9.2	3.23	0.9	185.4	1.4	1.98	104.01	2.9	10	1	10.55	3.45	93.61
214	EKA BEATIYA	3.15	2.91	10.2	9	3.24	0.9	183.1	1.4	1.98	102.72	2.9	10	1	10.55	3.41	92.44
215		5	4.54	10.3	8.9	5.1	0.89	286.1	2.3	1.98	102.1	4.7	7.83	0.97	10.52	3.08	94.42
216	JEMALA	3.15	2.85	10.3	9	3.2	0.89	179.4	1.5	1.98	101.99	2.8	11	1	10.56	3.52	93.41
217	GAJJA	3.15	2.94	10.5	8.9	3.27	0.9	179.7	1.4	1.98	103.72	2.9	10	1	10.86	3.44	91.55
218		3.15	2.91	10.5	8.9	3.35	0.9	184	1.5	1.98	105.22	1	10	1	10.87	3.58	95.6
219	BARSANADA	3.15	2.94	10.5	9	3.27	0.9	179.9	1.4	1.98	103.84	2.9	10	1	10.85	3.44	93.46
220		3.15	3	10.5	9.2	3.37	0.9	183.1	1.5	1.98	105.7	3	10	1	10.87	3.51	95.13
221	KAPADISAR	3.15	2.87	10.5	9.3	3.14	0.85	172.8	1.7	1.98	99.77	2.7	15	1	10.92	4	84.81
222		3.15	2.7	10.5	8.9	3.18	0.85	174.9	1.7	1.98	100.98	2.7	15	1	10.93	4.05	85.84
223	SADAWATA	3.15	2.78	10.5	9.3	3.24	0.86	178.1	1.7	1.98	102.8	2.8	14	1	10.92	3.99	88.41
224		5	4.12	10.58	9.5	4.55	0.85	264.5	2.6	1.98	56.94	4.4	8.72	0.93	10.91	3.48	85.88
225	Gajeti Road	3.15	3	10.58	9.7	3.33	0.85	192.6	1.9	1.98	112.04	3	15	1	11.06	4.49	95.24
226	Sinchi City	5	4.74	10.62	9.6	5.39	0.83	292.8	2.6	1.98	107.73	5	7	0.95	10.95	3.68	100.18
227	Sindelli	3.15	2.71	10.43	9.6	3.34	0.82	185.5	1.9	1.98	106.06	2.7	18	1	10.89	4.52	86.98
228		5	4	10	9.5	4.82	0.83	278.2	2.7	1.98	96.39	4.4	8.85	0.91	10.81	3.08	87.87
229	Jhwal	3.15	2.78	10	9.7	3.35	0.83	193.4	1.9	1.98	106.73	2.8	17	1	10.45	4.51	88.25
230	Padiy	3.15	2.5	10	9.7	2.91	0.86	167.8	1.5	1.98	97.28	2.5	14	1	10.36	3.58	79.37
231	Varaha	3.15	2.7	10	9.5	3.34	0.86	181.3	1.6	1.98	99.67	2.7	14	1	10.39	3.87	85.71
232		5	4.34	10	9.6	5.11	0.85	254.8	2.7	1.98	102.82	4.7	7.83	0.92	10.81	3.08	94.15
233	Sheeraj Tuiko	3.15	2.78	10	9.6	3.27	0.85	188.3	1.7	1.98	103.83	2.8	15	1	10.42	4.16	88.25
234		3.15	2.7	10	9.6	3	0.9	173.2	1.5	1.98	95.24	2.7	10	1	10.32	3.16	85.71
235	Pillai	3.15	2.71	10	9.6	3.09	0.9	178.5	1.3	1.98	98.06	2.8	10	1	10.33	3.25	88.25
236		3.15	2.6	10	8.7	2.89	0.9	168.8	1.3	1.98	91.71	2.6	10	1	10.3	3.04	82.54
237	Sheeffi	3.15	2.5	10	9.5	2.94	0.85	169.3	1.5	1.98	93.77	2.5	15	1	10.37	3.74	79.37

Signature: 

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 (Authorized Representative)  
 P.W.N.L. JU

Date: 30.06.2023

238	Kulankun	3.15	2.8	10	9.5	3.29	0.85	199.2	1.7	1.98	104.58	2.8	15	1	10.42	4.19	88.89
239		3.25	2.83	10	9.6	2.52	0.85	151.5	1.4	1.91	83.29	2.2	15	1	10.33	5.34	70.79
240	Krishnaganj	3.15	2.55	10	9.5	2.91	0.88	168	1.4	1.93	92.35	2.6	12	1	10.35	3.34	81.27
241		3.15	2.7	10	9.7	3.07	0.88	177.7	1.5	1.98	97.4	2.7	12	1	10.35	3.42	82.71
242	Mkr Mandirajaz	3.15	2.5	10	9.6	2.87	0.87	165.9	1.4	1.98	91.22	2.5	13	1	10.34	3.42	79.37
243		3.15	2.4	10	9.6	2.75	0.87	159.3	1.4	1.98	87.58	2.4	13	1	10.33	3.29	76.19
244	Thacuar.	3.15	2.25	10	9.6	2.51	0.88	140.3	1.2	1.98	85.45	2.2	17	1	10.29	2.91	70.79
245		3.15	2.5	10	9.6	2.84	0.88	164	1.3	1.98	90.75	2.5	12	1	10.33	3.26	75.37
246	Sivoli Road	3.15	2.6	10	9.5	2.95	0.88	170.6	1.4	1.98	93.8	2.6	12	1	10.34	3.29	82.54
247		5	4.65	10	9.7	5.22	1.55	301.7	2.4	1.98	191.49	4.8	7.46	0.96	10.31	3.06	96.7
248	Indram City	5	4.34	10	9.7	4.99	0.87	288	2.5	1.98	99.77	4.6	8.21	0.95	10.31	3.08	91.57
249	Burus	5	4.6	10	9.5	5.23	0.88	301.8	2.5	1.98	104.55	4.8	7.45	0.95	10.31	3.08	96.76
250	Veerwads	3.15	2.38	10	9.6	2.67	0.89	154.4	1.2	1.98	84.85	2.4	1	1	10.29	2.95	75.56
251	Nadiya	3.15	2.4	10	9.5	3.18	0.88	183.7	1.5	1.98	101.01	2.8	12	1	10.37	3.65	88.89
252	Gazdhi Nagar	10	6.2	9.78	9.7	6.97	0.89	411.3	3.2	3.96	69.55	6.7	4.12	0.53	9.34	1.61	66.19
253	TOCL	5	3.2	9.7	9.6	3.6	0.89	214	1.6	1.98	71.91	3.2	11	1	9.95	2.55	64
254	Ambaji Ind Ar	10	7.8	9.7	9.6	8.86	0.88	527.6	4.2	3.96	88.64	8.6	2.53	0.9	9.36	1.61	86.4
255	Kzone	10	7.38	9.7	9.5	8.2	0.9	488.1	3.6	3.96	92	8	2.96	0.93	9.85	1.61	79.57
256	Manpur	10	3.87	10.5	9.8	4.3	0.9	255.9	1.9	3.96	43	3.9	10	1	9.85	1.53	38.7
257	Netar	3.15	2.25	9.7	9.6	2.5	0.9	148.8	1.1	1.98	79.37	2.3	10	1	9.96	2.68	71.43
258	Karoli	3.15	2.94	9.7	9.7	2.6	0.9	154.3	1.1	1.98	82.54	2.3	10	1	9.97	2.74	74.29
259	Muaghtho	2.15	2.4	9.7	9.5	2.67	0.9	158.7	1.2	1.98	84.66	2.4	10	1	9.97	2.81	76.15
260		3.15	5.4	9.7	9.5	6	0.9	397.1	2.6	1.98	193.48	5.7	5.6	0.95	10.15	4.78	179.81
261	Ghwar	3.15	2.40	9.7	9.5	2.7	0.9	160.7	1.3	1.91	85.71	2.4	10	1	9.98	2.84	77.14
262	Mawal	3.15	1.98	9.7	9.7	2.2	0.9	200.9	1	1.98	69.84	2	10	1	9.92	2.32	62.86
263	Mt Abu	4	3.5	9.7	9.6	3.93	0.89	234.1	1.3	1.98	78.55	3.5	11	1	9.97	2.79	70
264		5	3.4	9.7	9.6	3.78	0.9	224.9	1.6	1.98	75.56	3.4	10	1	9.55	2.56	68
265	Mindar	3.15	2.81	10.2	9.4	3.2	0.9	181.1	1.4	1.98	101.59	2.9	10	1	10.54	3.37	91.43
266	Barr	3.15	2.35	10.2	9.6	2.61	0.9	147.8	1.3	1.98	82.89	2.4	10	1	10.48	2.75	74.6
267	Jethwads	3.15	2.5	9.8	9.6	2.78	0.9	163.7	1.2	1.98	84.18	2.3	10	1	10.09	2.93	79.37
268		5	4.5	9.8	9.6	5	0.9	294.6	2.2	1.98	100	4.6	8.17	0.98	10.1	3.08	91.82

Signature: 

Name: **M. L. Bendat**, **M. L. Benda**  
 (Project Nodal Officer (I&S), JdVWV, JJ)  
 (Authorized Representative)

Date: 30.06.2023

269		3.15	2.45	9.6	9.7	2.75	0.99	162.2	1.3	1.98	87.39	2.5	11		3.03	77.78
270	Membun	3.15	2.7	9.8	9.5	3	0.5	176.7	1.3	1.98	55.24	2.7	10		3.16	83.71
271		3.15	2.81	9.4	9.7	2.87	0.89	158.8	1.3	1.98	90.96	2.6	11		3.16	80.95
272	Mingimusin	3.15	2.46	9.8	9.5	3.18	0.9	187.2	1.1	1.98	160.88	2.9	10		3.25	90.79
275		3.15	2.67	9.8	9	3.14	0.85	185.1	1.7	1.98	99.72	2.7	15		4	84.76
274	Gaspar Babu	3.15	2.78	9.8	9.1	3.27	0.85	192.7	1.7	1.98	101.83	2.8	15		4.16	88.25
275		3.15	2.97	9.8	8.9	3.49	0.85	203.9	1.8	1.98	110.92	3	15		4.15	94.25
276	Mtakmar	3.15	3	9.8	9	3.53	0.85	207.9	1.9	1.98	112.04	3	15		4.49	95.24
277	Binjasar Iar	3.15	2.37	9.8	9.2	2.75	0.85	164.3	1.5	1.98	88.32	2.4	15		3.55	75.21
278		3.15	2.27	9.8	8.9	2.7	0.84	159.2	1.5	1.98	84.79	2.3	16		3.54	72.66
279	Bijasar 2nd	3.15	2.47	9.8	9	2.91	0.85	171.2	1.5	1.98	92.25	2.5	15		3.7	78.41
280		3.15	2.4	10	8.9	2.82	0.85	163	1.5	1.98	80.64	2.4	15		3.29	76.19
281	Jenlar	3.15	2.78	10	9	3.27	0.85	188.8	1.7	1.98	101.81	2.8	15		4.16	88.25
282		3.15	2.46	10	9.1	3.4	0.81	166.6	1.8	1.98	103.05	2.9	16		4.46	90.79
283	Dumamec	3.15	2.8	10	9.3	3.29	0.85	190.2	1.7	1.98	104.58	2.8	15		4.19	88.19
284		3	4	10	8.9	4.71	0.85	271.7	2.5	1.98	54.12	4.3	9.28		3.08	85.08
285	Jenlar	3.15	2.7	10	5	3.25	0.81	187.8	1.8	1.98	103.27	2.7	17		4.38	85.71
286	TRUKRIYASAR-I	3.15	2.61	9.9	9	3.26	0.8	190.3	2	1.98	109.57	2.6	20		4.23	86.05
287	TRUKRIYASAR-II	3.15	2.8	10	9	3.5	0.8	202.1	2.1	1.98	111.1	2.9	20		4.23	86.05
288	Jenlar 5m	3.15	2.33	10	8.9	2.74	0.85	155.3	1.4	1.98	87.02	2.3	15		4.78	91.62
289		3.15	2.71	9.9	5	3.25	0.84	184.2	1.8	1.98	102.62	2.7	16		3.49	73.97
290	Gopabari - I	3.15	2.66	9.9	8.9	3.13	0.85	182.5	1.6	1.98	99.35	2.7	15		3.98	84.44
291		3.15	2.62	10	9	3.08	0.85	178	1.6	1.98	97.83	2.6	15		3.92	83.17
292	SATTSAR	3.15	2.35	10	8.5	2.8	0.85	162.7	1.5	1.98	88.89	2.4	15		3.56	75.55
293	DORDESAR PLURBITAN	3.15	2.58	10.1	9.2	3.04	0.85	173.5	1.6	1.98	96.36	2.4	15		3.86	81.9
294		4	3.47	10.1	9.2	4.46	0.8	255.1	2.7	1.98	89.25	4	10.38		3.08	79.98
295	LIKUNADESAR-I	3.15	2.89	10.1	8.9	3.16	0.8	192.2	2	1.98	106.73	2.7	19.18		4.78	96.28
296		3.15	2.78	10	9	3.27	0.85	188.8	1.7	1.98	101.83	2.8	15		4.16	88.25
297	LIKUNADESAR-II	3.15	2.42	10	9.1	2.85	0.85	164.4	1.5	1.98	90.36	2.4	15		3.62	76.83
298		3.15	2.52	10	9	3.15	0.8	181.9	1.9	1.98	100	2.5	20		4.57	86
299	AACSAR	3.15	2.6	10	9	3.25	0.8	187.6	2	1.98	103.77	2.6	20		4.71	92.54

Signature: 

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300		3.15	2.4	2.0	3.9	3	0.8	173.2	1.8	1.98	95.24	2.4	20	1	10.43	4.35	76.19
301	UBARAK	3.15	2.85	1.0	8.1	1.35	0.85	191.6	1.8	1.98	106.04	2.9	15	1	10.43	4.27	90.48
302	TALASAR	3.15	2.71	1.0	9	3.19	0.85	184.1	1.7	1.94	101.21	2.7	15	1	10.41	4.06	86.02
303	SARNA JOHAD	3.15	2.37	1.0	8.9	3.59	0.8	207.1	2.2	1.98	113.89	3	16.51	0.96	10.48	4.78	74.97
304	Roadsara	3.15	2.47	1.0	9	2.91	0.85	167.8	1.5	1.98	92.23	2.5	15	1	10.37	3.7	78.41
305		3.15	2.5	1.0	9.2	3.02	0.86	174.6	1.5	1.98	95.98	2.6	14	1	10.37	3.73	82.54
306	Sirawai	3	4.2	1.0	9.7	0.83	0.80	282	2.4	1.98	97.67	4.5	8.55	0.94	10.31	3.08	89.29
307	Siranc 2	3.15	2.4	1.0	9.1	2.79	0.80	161.1	1.4	1.98	88.59	2.4	14	1	10.36	3.44	75.19
308	Demajar - 1	3	4.73	1.0	8.9	4.98	0.85	287.3	2.6	1.98	99.59	4.6	8.25	0.93	10.31	3.08	91.31
309	Coganz	3.15	2.19	1.0	8.9	2.54	0.85	148.8	1.4	1.98	81.76	2.2	15	1	10.33	3.78	69.52
310		3.15	2.47	1.0	9	2.91	0.85	167.8	1.5	1.98	92.23	2.5	15	1	10.37	3.7	78.41
311	Saruda	3.15	2.4	1.0	8.9	3	0.8	173.2	1.8	1.98	95.24	2.4	20	1	10.43	4.35	76.19
312	Sihyo - 1	3	4.36	1.0	9	5.15	0.85	295.2	2.7	1.98	102.89	4.7	7.75	0.92	10.31	3.08	94.62
313		3.15	2.5	1.0	8.9	2.94	0.85	169.8	1.5	1.98	92.37	2.5	15	1	10.37	3.74	79.31
314	Pihemat Noda	3.15	2.4	1.0	9	2.82	0.85	167	1.5	1.98	89.64	2.4	15	1	10.36	3.58	76.19
315	Uhadia	3.15	2.13	1.0	8.9	2.51	0.85	144.7	1.3	1.98	79.55	2.1	15	1	10.32	3.19	67.62
316	Mokuar	3.15	2.35	1.0	9	2.54	0.8	169.6	1.8	1.98	90.25	2.4	20	1	10.43	4.35	76.19
317	Suzar	3.15	2.39	1.0	8.9	2.99	0.8	172.5	1.8	1.98	91.84	2.4	20	1	10.43	4.35	76.19
318		3.15	2.49	1.0	9.1	2.93	0.84	169.1	1.5	1.98	93	2.5	15	1	10.37	3.73	75.05
319	Pirnyo pawa	3.15	2.4	1.0	8.9	2.82	0.85	163	1.5	1.98	89.64	2.4	15	1	10.36	3.59	76.19
320		3.15	2.8	1.0	9	3.29	0.85	180.2	1.7	1.98	104.58	2.8	15	1	10.42	4.19	88.89
321	Lalasar Sahr	3	4.29	1.0	9.4	5.29	0.8	305.3	3.2	1.98	105.75	4.9	7.38	0.96	10.31	3.08	92.06
322	Pinedhi Mbi	3.15	2.32	1.0	8.9	2.73	0.85	157.6	1.6	1.98	86.65	2.5	15	1	10.35	3.47	73.65
323	Mairar	3	4.24	1.0	9	4.99	0.85	288	2.6	1.98	99.76	4.5	8.22	0.93	10.31	3.08	91.57
324		3	4.45	1.0	8.9	5.24	0.85	302.3	2.8	1.98	104.71	4.8	7.42	0.92	10.31	3.08	96.93
325	Jasri - 3	3.15	2.4	1.0	8	2.82	0.85	163	1.5	1.98	89.64	2.4	15	1	10.36	3.59	76.19
326		3.15	2.5	1.0	9.1	2.71	0.85	156.2	1.4	1.98	83.5	2.3	15	1	10.34	3.44	73.02
327	Guidsar	3	4.3	1.0	8.5	5.06	0.85	292.1	2.7	1.98	101.18	4.7	7.98	0.92	10.31	3.08	93.1
328		3.15	2.6	1.0	9	3.1	0.84	178.7	1.7	1.98	98.26	2.6	16	1	10.41	4.56	82.34
329	Udau	3	2.4	1.0	9.2	2.82	0.85	163	1.5	1.98	86.47	2.4	15	1	10.35	3.31	48
330	Zant 2	3.15	2.85	1.0	8.9	3.35	0.85	193.6	1.4	1.98	106.44	2.9	15	1	10.40	4.27	92.48

Signature: 

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331	Shiv Mandir	3.15	2.19	10	9	2.53	0.85	143.8	1.4	1.98	81.79	2.2	1.5	1	10.33	3.78	69.52
332	Bhagwati Kund	3.15	2.7	10	8.9	3.13	0.85	133.4	1.7	1.98	100.84	2.7	1.5	1	10.4	4.04	85.71
333	SUMASAR	3.15	2.67	10	9.1	3.04	0.8	152.7	2	1.98	105.75	2.7	19.5	0.99	10.48	4.78	85.29
334	2. SURUDERA - II	3.15	2.85	10	9	3.56	0.8	205.7	2.1	1.98	113.1	3	16.87	0.96	10.48	4.78	94.02
335	K. JATAM - II	3.15	2.8	10	8.9	3.5	0.8	202.1	2.1	1.98	111.11	2.9	17.54	0.97	10.48	4.78	91.62
336	1. NADASAK	3.15	2.7	10	8.9	3.18	0.85	182.4	1.7	1.98	100.34	2.7	1.5	1	10.4	4.04	85.71
337	Chintamani	3.15	2.47	10	9	2.91	0.85	167.8	1.5	1.98	92.25	2.5	1.5	1	10.37	3.7	78.41
338	Chintamani	5	4.27	10	8.9	5.34	0.8	208.2	3.2	1.98	136.74	5	7.14	0.86	10.31	3.08	99.13
339	Chintamani	3.15	2.13	10	9.2	2.74	0.8	158.1	1.6	1.98	86.9	2.2	20	1	10.4	3.97	69.52
340	Manunggar	5	4.25	10	9.2	5.45	0.8	214.7	3.3	1.98	109	5.1	6.83	0.86	10.31	3.08	101.53
341	Manunggar	3.15	2.75	10	8.9	3.25	0.85	187.5	1.7	1.98	103.08	2.8	1.5	1	10.41	4.13	87.62
342	NAPASAR - II	3.15	2.41	10	9	2.87	0.85	168.7	1.5	1.98	91.13	2.4	1.5	1	10.37	3.63	77.46
343	2 RAMSAR - I	5	4.25	10	9.1	5.12	0.85	209.5	2.7	1.98	102.35	4.7	7.79	0.92	10.31	3.08	94.38
344	2 RAMSAR - I	5	4.48	10	9	5.27	0.85	204.3	2.8	1.98	105.41	4.9	7.32	0.92	10.21	3.08	97.69
345	3 RAMSAR - II	3.15	2.67	10	9	3.24	0.8	192.7	2	1.95	105.95	2.7	19.5	0.99	10.48	4.78	85.29
346	3 RAMSAR - II	3.15	2.5	10	8.9	3.13	0.8	180.4	1.9	1.98	99.21	2.4	20	1	10.45	4.53	79.37
347	1. K. D. Banta - I	3.15	2.43	10	9.1	2.86	0.85	165.1	1.5	1.98	93.76	2.4	1.5	1	10.36	3.64	71.14
348	2. K. D. Banta - I	5	4.34	10	9	5.04	0.85	208.4	2.8	1.98	106.82	5	7.12	0.92	10.31	3.08	99.21
349	1. K. D. Banta - IV	3.15	2.31	10	8.9	3.14	0.8	181.1	1.9	1.98	99.6	2.5	20	1	10.45	4.55	79.54
350	2. KIMCHU	5	3.8	10	9	4.87	0.85	228.1	2.4	1.98	89.41	4	10.34	0.95	10.31	3.08	80.16
351	2. TEJASAR - I	5	3.89	10	9.2	4.58	0.85	254.2	2.4	1.98	91.53	4.1	9.84	0.94	10.31	3.08	82.52
352	2. TEJASAR - I	3.15	2.44	10	9.2	2.87	0.85	166.7	1.5	1.98	91.13	2.4	1.5	1	10.37	3.65	71.46
353	2. TEJASAR - III	5	4.57	10	9.5	5.71	0.8	329.8	3.4	1.94	114.25	3.4	6.2	0.83	10.31	3.08	107.17
354	4. BELASAK	5	3.42	10	9	4.78	0.8	206.8	2.6	1.98	85.5	3.8	11.37	0.9	10.31	3.08	75.78
355	2. TEJASAR - II	5	4.57	10	9.5	5.71	0.8	329.1	3.4	1.98	114.25	3.4	6.2	0.83	10.31	3.08	107.17
356	2. SINTHAL	3.15	2.37	10	9	3.02	0.85	174.6	1.6	1.98	95.99	2.6	1.5	1	10.38	3.85	81.59
357	L. D. MAGARA	5	4.38	10	9.5	5.48	0.8	316.1	3.3	1.96	109.5	3.3	6.77	0.86	10.31	3.05	100.09
358	L. D. MAGARA	3.15	2.37	10	9.2	3.21	0.8	185.5	1.4	1.96	101.98	2.6	20	1	10.47	4.66	81.59
359	10. MEDRA	5	3.8	10	9.8	4.47	0.85	278.1	2.4	1.98	89.41	4	10.34	0.95	10.31	3.08	80.16
360	MEKASAR	5	3.9	10	9.2	4.88	0.8	281.5	2.9	1.98	97.5	4.5	8.62	0.88	10.31	3.08	82.1
361	MEKASAR	5	4.25	10	8.9	5.29	0.8	305.1	3.2	1.98	105.75	4.9	7.28	0.86	10.31	3.08	94.06

Signature: 

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 SE (R&S), JVV/NL, JU  
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362	BARISINGSAR	5	4.69	10	9	5.6	0.8	324	3.4	1.98	112.25	5.7	6.43	0.85	10.31	3.08	105.03
363		5	4.71	20	8.9	5.43	0.8	3.32	3.3	1.98	108.5	5.1	4.9	0.85	10.31	3.05	101.92
364	SWAROP-DESAH	3.15	2.25	10	9.3	2.79	0.3	160.9	1.7	1.98	33.49	2.2	3.0	1	10.4	4.04	30.79
365	RIANERJA	3.15	2.40	10	9.2	3.11	0.8	199.7	1.9	1.98	98.81	2.5	2.0	1	10.45	4.31	70.05
366		3.15	2.60	10	9	3.06	0.8	170.8	1.8	1.98	97.22	2.5	2.0	1	10.44	4.46	77.28
367	RAMERJ	5	4.41	10	9	5.29	0.84	305.2	2.9	1.58	101.71	4.9	7.28	0.91	10.31	3.08	98.02
368		5	4.28	10	9.1	5.15	0.8	308.9	3.7	1.08	107	5	7.7	0.86	10.31	3.08	95.4
369	HALWA	3.15	2.28	10	8.9	2.68	0.85	191.9	3.4	1.98	85.15	2.0	2.5	1	10.34	3.41	22.38
370	LOHTYA	5	3.81	10	9.2	4.76	0.8	274.9	2.9	1.98	95.24	4.3	9.05	0.88	10.31	3.08	36.61
371	KHONDASAR	5	#	10	9.2	5	0.8	283.7	3	1.28	150	4.5	3.17	0.87	10.31	3.08	91.33
372	BIECU	5	4.57	10	9.5	5.71	0.8	329.9	3.4	1.98	114.29	5.4	6.2	0.89	10.31	3.08	107.21
373	SIJURJA	3.15	3.71	10	9.6	4.37	0.85	252.3	2.3	1.98	338.72	5.9	10.85	0.95	10.48	4.78	123.65
374	KISHANASAR	3.15	2.73	10	8.9	3.21	0.85	185.4	1.7	1.98	101.96	2.7	1.5	1	10.41	4.09	36.57
375		3.15	2.46	10	9	2.89	0.85	167.1	1.5	1.98	91.88	2.5	1.5	1	10.37	3.68	78.1
376	DANTOR	3.15	2.67	10	9.1	3.31	0.8	192.5	2	1.98	105.82	2.7	19.55	0.99	10.48	4.78	85.13
377	28 KID	3.15	2.48	10	9.2	3.1	0.8	178.7	1.9	1.98	93.25	2.5	2.0	1	10.45	4.49	78.61
378	3 PWM	3.15	2.29	10	9	2.86	0.8	165	1.7	1.98	90.7	2.3	2.0	1	10.41	4.14	72.86
379	1 ADNA	3.15	3.67	10	9.1	3.14	0.85	18.1	1.7	1.98	99.6	2.7	1.5	1	10.4	3.99	84.66
380	Jansar	3.15	2.36	10	9	2.78	0.85	166.3	1.5	1.98	88.14	2.4	1.5	1	10.35	3.51	74.92
381		3.15	2.9	10	8.9	2.71	0.85	156.2	1.4	1.98	85.9	2.3	1.5	1	10.34	3.44	73.02
382		3.15	2.45	10	9	2.88	0.85	166.4	1.5	1.98	91.5	2.5	1.5	1	10.37	3.67	77.78
383	1. GADHPALA - I	5	4	10	9.1	4.71	0.85	271.7	2.5	1.98	94.12	4.3	9.28	0.94	10.31	3.08	85.38
384		5	3.81	10	9.3	4.68	0.85	258.3	2.4	1.98	89.55	4	10.29	0.95	10.31	3.08	80.43
385	2 GADHPALA - II	3.15	2.5	10	8.9	2.94	0.85	169.8	1.5	1.58	93.37	2.5	1.5	1	10.17	3.74	79.37
386	Page	3.15	2.48	10	9	3.1	0.3	178.7	1.9	1.98	98.26	2.5	2.0	1	10.45	4.49	78.61
387	RD 710	3.15	2.48	10	9	2.91	0.85	168.2	1.5	1.98	92.48	2.5	1.5	1	10.37	3.71	78.61
388	RD 750	3.15	2.29	10	9	2.86	0.8	155	1.7	1.98	90.7	2.3	2.0	1	10.41	4.14	72.55
389	BADEGAN	3.15	2.5	10	8.9	2.94	0.85	169.8	1.5	1.98	93.37	2.5	1.5	1	10.37	3.74	79.37
390		3.15	2.34	10	8.9	2.91	0.8	168.9	1.8	1.98	90.7	2.3	2.0	1	10.41	4.14	72.55
391	JETPUR	3.15	2.19	10	9	2.58	0.85	148.8	1.4	1.58	81.79	2.2	1.5	1	10.33	3.74	76.29
392	AUTONSAR	3.15	2.45	10	8.9	2.88	0.85	166.4	1.5	1.58	91.5	2.5	1.5	1	10.37	3.67	77.78

Signature: 

Name: M. L. Benda  
 (Project Nodal Officer) M. L. Benda  
 (Authorized Representative of MVNL JU)

Date: 30.06.2023

Sl. No.	Labors	3.15	2.35	1.0	8	2.76	0.85	1.96	1.5	1.58	37.77	2.4	15	1	16.35	5.52	74.6
394	Mastion	3.15	1.71	10	8.9	2.62	0.85	1.98	1.1	2.08	04.63	1.7	15	1	10.26	2.57	54.42
395		3	4.45	10	9	5.55	0.4	1.98	3.3	1.98	11.25	5.2	6.55	0.86	10.31	3.08	103.56
396	JAWAHARNAGAR	5	4.36	10	9	5.43	0.4	1.98	3.3	1.98	108.5	5.1	6.9	0.85	10.31	3.08	101.02
397		3	4.3	10	9.1	5.38	0.8	1.98	3.2	1.98	107.5	5	7.09	0.85	10.51	3.08	99.94
398		5	4.3	10.5	9.2	4.78	0.9	1.98	2.1	1.98	95.56	6.3	4.99	0.99	10.82	3.08	86.76
399	MAUSAM VIHAR	8	6.3	10.5	9.8	7	0.9	3.96	3.3	3.96	87.5	6.7	4.01	0.94	10.71	2.01	53.95
400		5	4.2	10.5	5.5	4.67	0.9	1.98	7	1.98	93.33	4.2	9.45	0.94	10.82	3.08	84.59
401	MAHALAKSHI ENCLAV	5	6.15	10.5	9.4	4.94	0.9	1.98	2.2	1.98	98.89	6.5	8.37	0.98	19.82	3.08	90.61
402	AGRAWAL COLONY	5	3.02	10.5	9.4	3.8	0.9	1.98	1.7	1.98	76	3.4	13	1	10.77	2.58	68.4
403		5	2.88	10.5	9.5	3.2	0.9	1.98	1.4	1.98	64	2.9	30	1	10.73	2.17	57.6
404	2 MIT. NATLA WALL	3.15	2.3	10.5	9	2.56	0.9	1.98	1.1	1.98	81.19	2.3	10	1	10.78	2.69	73.02
405		3.15	2.4	10.5	9.1	2.67	0.9	3.96	1.2	3.96	84.66	2.4	10	1	10.79	2.81	76.19
406	RINCO-I	8	5.89	10.5	9.8	6.60	0.89	1.98	1	1.98	82.72	6.3	4.58	0.93	10.71	2.01	78.94
407		3	4.17	10.5	9.3	4.69	0.89	1.98	2.1	1.98	93.71	4.2	9.37	0.98	10.82	3.08	84.53
408		3	4.3	10.5	9.7	4.83	0.89	1.98	2.2	1.98	96.63	4.4	8.78	0.98	10.82	3.08	88.14
409	DECO-II	8	6.7	10.5	9.0	7.53	0.89	3.96	3.4	3.96	94.3	7.3	3.52	0.92	16.71	2.61	90.79
410		5	4.58	10.5	9	4.87	0.9	1.98	2.1	1.98	97.33	4.3	8.66	0.97	10.82	3.08	88.91
411	SHANTI NAGAR III	5	4.44	10.5	9.4	4.93	0.9	1.98	2.2	1.98	98.67	4.5	8.41	0.98	10.82	3.08	92.37
412		5	4.34	10.5	9	4.82	0.9	1.98	2.1	1.98	98.44	4.4	8.82	0.99	10.82	3.08	87.94
413	SARU MANDI	10	8.78	10.5	9.2	9.76	0.9	3.96	4.3	3.96	97.96	9.6	2.08	0.92	10.67	1.61	95.53
414		5	3.8	10.5	9.1	4.22	0.9	1.98	1.8	1.98	84.44	5.8	10	-	10.8	2.86	76
415	KUNJ VIBAR	3.15	3	10.5	9.3	3.93	0.9	1.98	1.5	1.98	105.82	3	10	1	10.87	3.51	95.24
416	JCT	10	7.8	10.5	9.5	8.57	0.9	3.96	3.5	3.96	86.67	8.4	2.91	0.92	10.57	1.61	84.37
417		5	4.3	10.5	9.2	4.78	0.9	1.98	2.1	1.98	95.96	4.5	8.59	0.95	10.82	3.08	86.56
418	S PULI	10	8	10.5	5.2	8.89	0.9	3.96	3.9	3.96	88.89	8.7	2.51	0.92	19.67	1.51	86.66
419	DHAGAT SINGH CHOCK	8	6.6	10.5	9.8	7.42	0.89	3.96	3.4	3.96	92.7	7.1	3.02	0.92	10.71	2.01	89.33
420		8	6.5	10.5	9.2	7.3	0.89	3.96	3.3	3.96	91.29	7	3.35	0.92	10.71	2.01	87.57
421	KUMS	5	4.15	10.5	9	4.66	0.89	1.98	2.2	1.98	93.86	4.3	9.34	0.97	10.82	3.08	83.1
422		5	3.89	10.5	9.1	4.42	0.89	1.98	2.1	1.98	88.41	4	10.59	0.98	10.82	3.08	79.04
423	HOSPITAL	5	3.9	10.5	9.3	4.88	0.8	1.98	2.9	1.98	97.5	4.5	8.68	0.88	10.82	3.08	89.2

Signature: M.L.

Name: M. L. Benda  
 (Project Nodal Officer): M. L. Benda  
 (Authorized Representative), JAYVNL, JU

Date: 30.06.2023

424		5	4.67	10.5	5.8	5.84	0.8	321	3.5	1.98	116.75	5.5	5.93	0.85	10.82	3.08	109.83
425	SADBIKAWANA MADAR	5	4.52	10.5	5	5.36	0.85	299	2.8	1.98	107.29	5	7.06	0.91	10.82	3.08	99.72
426		5	4.35	10.5	3	5.12	0.85	283.4	2.7	1.98	102.35	4.7	7.79	0.92	10.82	3.08	94.78
427	V.K. CITY	5	4.18	10.5	3	5.03	0.87	276.8	2.3	1.98	100.67	4.6	8.06	0.97	10.82	3.08	92.56
428		5	4.45	10.5	3	5	0.59	274.9	2.3	1.98	100	4.6	8.17	0.97	10.82	3.08	91.83
429	PUG	5	4	10.5	3.1	4.49	0.89	247.8	2	1.98	89.89	4	10.23	0.99	10.82	3.08	80.69
430	Kalijan	3.15	2.5	10.5	3.5	3.11	0.9	171.1	1.4	1.98	98.77	2.8	10	1	10.84	3.28	88.69
431	KecilPemat.	3.15	2.9	10.8	3.6	3.22	0.9	172.3	1.4	1.98	102.29	2.9	10	1	11.17	3.39	92.66
432	dajapur 2nd	3.15	3.03	10.6	3.6	2.76	0.9	122.9		1.98	71.6	2	10	1	10.85	2.58	61.48
433	Indurambel	3.15	2.86	10.7	3.6	2.73	0.9	147.5	1.2	1.98	86.77	2.5	10	1	11.01	2.88	78.1
434	sachuwali	3.15	2.6	10.9	3.6	2.83	0.5	153	1.3	1.98	91.71	2.6	10	1	11.73	3.04	82.51
435	TA	3.15	2.6	10.8	3.5	2.89	0.9	154.4	1.3	1.98	91.71	2.6	10	1	11.13	3.04	82.54
436	BRUNAWAL	3.15	1.8	10.6	3.6	2.11	0.9	115	0.9	1.98	67.02	1.9	10	1	10.84	2.22	60.32
437	CRUNAWAD	3.15	1.4	10.7	3.6	1.56	0.9	83.9	0.7	1.98	49.38	1.4	10	1	10.88	1.64	46.44
438	..SZ	3.15	2.2	10.9	3.6	2.44	0.9	129.5	1.1	1.98	77.6	2.2	10	1	11.18	2.57	69.84
439	HOMELAND	5	3.4	10.8	3.6	3.78	0.9	202	1.6	1.98	75.55	3.4	10	1	11.08	2.55	68
440	RISHI SIDHI	5	3.7	10.8	3.4	4.11	0.9	219.8	1.8	1.98	82.22	3.7	10	1	11.1	2.79	74
441	MELEWALA	3.15	2.4	10.7	3.6	2.67	0.9	143.9	1.2	1.98	84.66	2.4	10	1	11	2.81	76.19
442		3.15	2.8	10.7	3.1	3.11	0.9	167.9	1.4	1.98	98.77	2.8	10	1	11.05	3.28	88.85
443	T ML	3.15	2.6	10.9	3.3	2.89	0.9	153	1.5	1.98	92.71	2.6	10	1	11.23	3.04	82.54
444		3.15	2.5	10.9	3.5	2.78	0.9	147.1	1.3	1.98	84.18	2.5	10	1	11.22	2.93	79.37
445	25 ML	3.15	2.8	10.6	3.4	3.13	0.9	169.5	1.4	1.98	98.77	2.8	10	1	10.95	3.28	88.89
446	DIUNGAWALI	3.15	2.1	10.7	3	2.33	0.9	123.9	1	1.98	74.57	2.1	10	1	10.95	2.46	62.67
447	JOURNEWALA	3.15	1.2	10.5	3.2	1.23	0.9	70.6	0.6	1.58	42.33	1.2	10	1	11.05	1.4	38.1
448	SADUSMEAR	2.5	1.6	10.5	3.1	1.78	0.9	97.8	0.8	1.58	71.11	1.6	10	1	10.75	2.26	64
449	RUCO	5	4.11	10.8	3.3	4.57	0.9	244.1	2	1.98	91.33	4.1	9.89	1	11.13	3.08	82.3
450	4 XERY	3.15	2.74	10.9	3.5	3.04	0.9	170.7	1.3	1.98	96.65	2.7	10	1	10.63	3.21	86.98
451	PARTAP PURA	3.15	2.22	10.5	3	2.47	0.9	133.6	1.1	1.98	78.31	2.2	10	1	10.77	2.6	70.48
452	BRUNAWALI	3.15	1.57	10.5	3	1.52	0.9	81.7	0.7	1.98	48.32	1.4	10	1	10.57	1.6	43.49
453	PATALI	3.15	2.06	10.3	3.1	2.58	0.9	121.7	1	1.98	72.31	2.1	10	1	10.55	2.4	63.08
454	MANNEWALE	3.15	1.97	10.3	3.2	1.52	0.9	83.3	0.7	1.58	45.32	1.4	10	1	10.47	1.5	43.49


Signature: 

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 (Project Nodal Officer) J. Benda  
 (Authorized Representative) VNL, JU

Date: 30.06.2023



486	TRADA MANDIR	5	4.24	10.3	9.3	4.71	0.9	204.1	2.1	1.98	94.22	4.3	2.26	0.95	10.62	1.08	55.5
487	TRICO	5	4.21	10.3	9.5	4.68	0.9	202.2	2	1.98	97.56	4.2	0.4	0.99	10.62	1.02	54.76
488	PADAMPUR	5	4	10.3	9	4.49	0.89	251.9	2	1.98	39.89	4	10.23	0.99	10.62	3.33	80.69
489	24 DB	5	3	10.3	9	5.33	0.9	186.9	1.5	1.98	66.67	3	7.0	1	10.53	2.26	60
490	47	3.15	2.5	10.3	9.1	2.78	0.9	155.7	1.2	1.98	88.18	2.5	1.0	1	10.6	2.93	39.37
491	4.00	3.15	2.3	10.3	9.7	2.56	0.9	143.3	1.1	1.98	81.13	2.3	1.0	1	10.55	2.69	33.02
492	CHANNADHAM	3.15	2.7	10.3	9	3	0.9	168.2	1.5	1.98	95.24	2.7	1.0	1	10.67	1.16	55.7
493	CC/ESAD	3.15	2	10.3	9.5	2.22	0.9	124.6	1	1.98	30.55	2	1.0	1	10.44	2.46	66.67
494	1.20	3.15	2.2	10.3	9.4	2.44	0.9	137	1.1	1.98	77.5	2.2	1.0	1	10.58	2.69	33.02
495	J'S HEAD	3.15	2.5	10.3	9.4	2.58	0.89	104.9	1.2	1.98	82.04	2.3	3.1	1	10.59	2.65	73.02
496		3.15	2.5	10.3	9.5	2.78	0.9	155.7	1.2	1.95	88.88	2.5	3.0	1	10.6	2.95	79.37
497	JVANDASAD	3.15	2.1	10.3	9	2.33	0.9	130.8	1	1.98	74.07	2.1	1.0	1	10.44	2.46	66.67
498	69 JNP	3.15	2.3	10.3	9.1	2.50	0.9	143.3	1.1	1.98	81.13	2.3	1.0	1	10.58	2.69	33.02
499		3.15	2.9	10.3	9.3	3.22	0.9	180.6	1.4	1.98	102.29	2.9	1.0	1	10.65	3.39	92.06
500	BOMBAYLA	3.15	2.5	10.3	9.3	2.84	0.85	139.2	1.3	1.98	98.19	2.4	1.2	1	10.64	3.26	79.37
501	GHANOLIWALI	3.15	2.19	10.3	9.2	2.43	0.9	136.4	1.1	1.98	77.25	2.2	1.0	1	10.56	2.56	69.32
502	SARWANTAR	3.15	2.1	10.3	9.4	2.33	0.9	130.8	1	1.98	74.07	2.1	1.0	1	10.55	2.45	66.67
503	MANJURWASS	3.15	2.3	10.3	9	2.56	0.9	143.3	1.1	1.98	81.13	2.3	1.0	1	10.58	2.69	33.02
504	SREER	5	4.1	10.3	5.3	4.55	0.9	255.4	2	1.95	91.11	4.1	9.94	1	10.62	3.08	82.66
505		3.15	2.9	10.3	9.2	3.22	0.9	180.6	1.4	1.98	102.29	2.9	1.0	1	10.65	3.39	92.06
506	3PH	3.15	2.8	10.3	9.4	3.11	0.9	174.4	1.4	1.98	98.77	2.8	1.0	1	10.64	3.28	88.89
507	25C	3.15	2.75	10.3	9	3.06	0.9	177.3	1.3	1.98	97	2.8	1.0	1	10.63	3.22	87.3
508	21NG	3.15	2.95	10.3	9.4	3.28	0.9	181.7	1.4	1.98	101.06	3	1.0	1	10.55	3.45	93.65
509	480G	3.15	2.9	10.3	9.1	3.22	0.9	182.6	1.4	1.98	102.29	2.9	1.0	1	10.65	3.39	92.06
510	42F	3.15	2.7	10.3	9.3	3	0.9	151.2	1.3	1.96	95.24	2.7	1.0	1	10.69	3.15	85.71
511	37D	3.15	2.7	10.3	9.5	3	0.9	169.2	1.3	1.98	95.24	2.7	1.0	1	10.63	3.15	85.71
512	GANGINGPUR	3	3.5	10.3	9	3.89	0.9	218	1.7	1.98	77.68	3.5	1.0	1	10.57	2.64	70
513		5	4.6	10.3	9	5.11	0.9	236.5	2.2	1.98	102.29	4.7	7.81	0.98	10.62	1.03	34.24
514	SUMERANA	3.15	1.9	10.3	9.1	2.11	0.9	118.3	0.9	1.95	67.02	1.9	1.0	1	10.53	2.32	60.32
515	BALABAJURA	3.15	2.28	10.3	9.2	2.51	0.9	142	1.1	1.98	80.42	2.3	1.0	1	10.57	2.67	72.38
516	JORAWAR	3.15	2	10.3	9	2.22	0.9	124.6	1	1.98	70.55	2	1.0	1	10.54	2.34	63.49

Signature: 

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(Project Nodal Officer), M. L. Benda  
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Date: 30.06.2023

517	CCDF	3.15	2.7	10.3	9.5	3	0.9	168.2	1.3	1.98	93.24	2.7	10	10.53	3.76	85.77
518	PALUWALA	3.15	2.57	10.3	9.4	2.89	0.89	161.9	1.3	1.98	91.67	2.6	11	10.63	3.18	81.49
519		3.15	2.63	10.3	9.4	2.96	0.89	165.6	1.3	1.98	93.81	2.6	11	10.69	3.25	87.49
520		3.15	2.01	10.3	9.5	2.26	0.9	126.4	1.3	1.98	71.6	2	10	10.54	2.31	61.44
521	KERWANA	3.15	2.46	10.3	9.1	2.73	0.9	133.2	1.2	1.98	86.77	2.3	10	10.6	2.83	78.1
522	DEHABA	3.15	2.54	10.3	9.4	2.82	0.9	158.1	1.2	1.98	89.59	2.5	10	10.57	2.97	80.63
523	GURUSAR MODA	3.15	2.46	10.3	9	2.73	0.9	153.2	1.2	1.98	86.77	2.5	10	10.6	2.88	78.1
524		5	4.49	10.3	9.2	4.59	0.9	279.7	2.2	1.98	99.78	4.6	8.21	10.62	3.68	91.58
525	KOPAL ROAD OSS	5	4.34	10.3	9.1	4.82	0.9	270.3	2.1	1.98	96.44	4.4	8.82	10.62	3.08	87.94
526		5	4.67	10.3	9.3	5.25	0.89	254.1	2.4	1.98	104.94	4.9	7.37	10.62	3.08	97.39
527	DUCID OSS	5	4.52	10.3	9.5	5.08	0.89	284.7	2.3	1.98	101.57	4.7	7.9	10.62	3.08	95.54
528		5	4.6	10.3	9	5.17	0.89	282.7	2.4	1.98	103.37	4.8	7.63	10.62	3.08	95.48
529	STADIUM GROUND OSS	5	3.23	10.3	8	3.74	0.86	200.7	1.3	1.98	74.83	3.3	11	10.57	2.65	66.6
530		5	4.42	10.3	9.1	4.91	0.9	273.3	2.1	1.98	98.22	4.5	8.49	10.62	3.08	91.89
531	SOMASAR	5	3.98	10.3	9.2	4.42	0.9	247.9	1.9	1.98	88.44	4	10	10.61	3	79.6
532		3.15	2.5	10.3	9	2.78	0.9	155.7	1.2	1.98	88.18	2.5	10	10.6	2.93	79.37
533	THEHAR	3.15	2.44	10.3	9.5	2.71	0.9	152	1.2	1.98	86.07	2.4	10	10.59	2.85	77.46
534		3.15	2.67	10.3	9.4	2.97	0.9	155.3	1.3	1.98	94.18	2.7	10	10.62	3.12	84.76
535	LOJAPUR	3.15	2.7	10.3	9.4	3	0.9	168.7	1.3	1.98	95.24	2.7	10	10.63	3.16	85.71
536		3.15	2.6	10.3	9.5	2.89	0.9	161.9	1.3	1.98	91.71	2.6	10	10.61	3.04	82.54
537	ZUFN	3.15	2.62	10.3	9	2.91	0.9	163.2	1.3	1.98	92.42	2.6	10	10.62	3.07	83.17
538		3.15	2.5	10.3	9.1	2.78	0.9	155.7	1.2	1.98	88.18	2.5	10	10.6	2.93	79.37
539	BAJESAR	3.15	2.38	10.3	9.3	2.64	0.9	148.2	1.2	1.98	85.95	2.4	10	10.59	2.78	78.56
540		3.15	2.58	10.3	9.3	2.87	0.9	160.7	1.2	1.98	91.01	2.6	10	10.63	2.92	81.9
541	DEEWANA	3.15	2.4	10.3	9.2	2.67	0.9	162.5	1.2	1.98	84.66	2.4	10	10.59	2.81	78.19
542		3.15	2.22	10.3	9.4	2.47	0.9	138.3	1.3	1.98	78.31	2.2	10	10.57	2.6	70.68
543	BHOJESAR	3.15	2.4	10.3	9	2.57	0.9	149.5	1.2	1.98	84.66	2.4	10	10.59	2.81	78.19
544		3.15	2.3	10.3	9.3	2.56	0.9	140.3	1.1	1.98	81.13	2.3	10	10.58	2.69	73.02
545	GUVINESAR	3.15	2.7	10.3	9.5	2.56	0.9	143.5	1.1	1.98	81.13	2.3	10	10.58	2.69	73.02
546		3.15	2.35	10.3	9.2	2.61	0.9	146.4	1.1	1.98	82.89	2.4	10	10.58	2.75	74.6
547	RACHUNATEPURA	3.15	2.15	10.1	9.2	2.39	0.9	139.9	1.1	1.58	75.84	2.2	10	10.56	2.52	65.25


Signature: 

Name: M. L. Benda  
 (Project Nodal Officer)  
 (Authorized Representative)  
 S.E. (S&S), JdWNL, JU

Date: 30.06.2023



548	SIEWANI	3.15	2.5	30.3	9	2.78	0.9	155.7	1.2	1.94	84.18	2.5	10	1	10.6	2.91	79.37
549	SRU VILAYNAGAR	5	4.17	20.3	9.3	4.09	0.89	262.6	2.1	1.94	90.7	4.2	9.17	0.98	10.62	3.08	81.93
550		5	4.11	10.3	9.2	4.57	0.9	286	2	1.98	91.33	4.1	9.89	1	10.62	3.08	82.3
551	29 GD	5	3.8	10.9	9.5	4.21	0.9	216.7	1.8	1.98	84.34	3.8	10	1	10.59	2.95	76
552		44 GB	3.15	4.3	10.3	9.8	4.78	0.9	267.8	2.1	1.98	151.68	4.3	8.99	0.99	10.79	4.78
553	KUPLI	3.15	1.7	10.3	9.4	1.74	0.9	81	0.6	1.98	45.86	1.3	10	1	10.46	1.52	48.27
554	PURANA EDI Z BOARD	5	4.1	10.3	9	4.56	0.9	255.4	2	1.96	91.11	4.1	9.94	1	10.62	3.08	82.06
555		2 DALI	5	4.45	13.3	9.2	5	1.85	280.3	2.3	1.98	105	4.6	8.17	0.97	10.62	3.08
556	ANOCINGARU	3.15	2.12	10.3	9.1	2.37	0.9	132.7	1	1.98	75.19	2.1	10	1	10.56	2.49	57.62
557		5	4.43	10.3	10.3	9.5	4.98	0.89	279	2.5	1.98	99.55	4.6	8.25	0.97	10.62	3.08
558	RUICO	3.15	2.3	10.5	9.4	2.78	0.9	152.7	1.2	1.95	84.18	2.5	10	1	10.81	2.93	79.37
559		5	1.24	10.5	10.5	9	4.82	0.9	265.2	2.1	1.93	96.44	4.4	8.82	0.99	10.82	3.08
560	PNEK NAGAR	3.15	2.65	10.5	9.2	2.94	0.9	161.9	1.3	1.98	93.47	2.7	10	1	10.81	3.1	84.13
561		5	4.45	10.5	10.5	9.1	4.91	0.9	271.9	2.2	1.98	98.89	4.5	8.37	0.98	10.82	3.08
562	BANDA COLONY	3.15	2.5	10.7	9.3	2.78	0.9	149.9	1.2	1.98	84.18	2.5	10	1	11.01	2.93	79.37
563		3.15	2.6	10.7	9.5	2.89	0.9	155.9	1.2	1.98	91.71	2.6	10	1	11.03	1.64	82.54
564	27A	3.15	2.68	10.7	9	2.94	0.9	158.9	1.1	1.93	93.47	2.7	10	1	11.05	2.1	84.13
565		3.15	2.45	10.7	9	2.75	0.89	148.5	1.3	1.94	87.39	2.5	11	1	11.02	3.03	77.78
566	610B	3.15	2.5	10.7	9.1	2.78	0.9	149.9	1.2	1.98	84.18	2.5	10	1	11.01	2.93	79.37
567		3.15	2.5	10.9	9.2	2.78	0.9	147.1	1.2	1.98	84.18	2.5	10	1	11.22	2.93	79.37
568	RAMSINGHPUR	3.15	2.5	10.9	9	2.78	0.9	147.1	1.2	1.98	84.18	2.5	10	1	11.22	2.93	79.37
569		3.15	2.53	10.9	9.5	2.87	0.9	151.5	1.2	1.98	91.01	2.6	10	1	11.23	3.02	81.9
570	NEABAWALI	3.15	2.5	10.5	9.4	2.78	0.9	152.7	1.2	1.91	84.13	2.5	10	1	10.81	2.93	79.37
571		3.15	2.45	10.5	9.4	2.75	0.85	151.4	1.3	1.93	87.39	2.5	11	1	10.82	3.03	77.78
572	3 KD	3.15	2.45	10.5	5.5	1.45	0.9	88.6	0.7	1.93	51.15	1.5	10	1	10.68	1.7	46.03
573		7 KND	3.15	2.08	10.5	9	2.26	0.9	124	1	1.98	71.5	2	10	1	10.75	2.38
574	365 HED	3.15	2.46	10.5	9.1	2.73	0.9	150.3	1.2	1.98	84.13	2.5	10	1	10.81	2.93	79.37
575		3.15	2.4	10.5	9.3	2.67	0.9	146.6	1.2	1.98	84.13	2.4	10	1	10.82	2.93	79.37
576	NEW MANDI GARSAWA	3.15	2.6	10.5	9.3	2.89	0.9	158.9	1.3	1.98	91.71	2.6	10	1	10.82	3.04	82.54
577		3.15	2.4	10.5	9.2	2.67	0.9	146.6	1.2	1.98	84.13	2.4	10	1	10.79	2.81	76.19
578	6 DII	3.15	2.15	10.5	9.4	2.39	0.9	151.4	1	1.98	75.84	2.2	10	1	10.76	2.52	68.25

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 (Authorized Representative) JCV

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575	BATHOJA	3.15	2.45	10.5	9	2.72	0.9	149.7	1.2	1.95	86.42	2.5	10	10.8	2.97	77.78
580	ZOI HEAD	3.15	2.35	10.8	9.4	2.61	0.9	143.6	1.1	1.98	82.85	2.4	10	10.79	2.75	74.5
581	JALWALI	3.15	1.98	10.5	9.3	2.2	0.9	121	1	1.95	69.84	2	10	10.74	2.32	62.86
582	ROMARY	3.15	2.95	10.5	9.3	3.23	0.9	180.2	1.4	1.98	104.06	3	10	10.86	3.42	93.65
583	4 STR	3.15	2.82	10.5	9.2	1.13	0.9	172.3	1.4	1.95	99.47	2.8	10	10.85	3.3	85.52
584	CHAWA	3.15	2.77	10.2	9.4	3.02	0.9	171.1	1.3	1.98	95.94	2.7	10	10.52	3.18	86.35
585	KAWAS	3.15	2.83	10.4	9	1.15	0.9	174.6	1.4	1.96	99.86	2.4	10	10.74	3.21	89.87
585	BACADON	3.15	2.45	9.8	9.8	2.72	0.9	160.4	1.2	1.98	86.42	2.5	10	10.08	2.87	77.78
587		3.15	2.8	9.8	9.5	1.11	0.9	143.2	1.4	1.96	98.74	2.8	10	10.12	3.28	83.86
588	BRENGADA	3.15	2.5	9.8	5	2.41	0.9	165.5	1.3	1.95	87.17	2.5	11	10.1	3.09	79.37
589		3.15	2.05	9.5	9	2.72	0.9	165.4	1.2	1.98	86.42	2.5	10	9.77	2.87	77.78
590	XIAMI KA TALLA	3.15	2.75	10.5	9.2	3.05	0.9	167.8	1.3	1.95	96.45	2.7	10	10.84	3.27	87.17
591	JETANIYON KI DHANI	3.15	2.39	10.1	9.2	2.55	0.9	151.8	1.2	1.98	84.5	2.4	10	10.38	2.8	75.87
592		3.15	2.5	10.1	9	2.78	0.9	158.8	1.2	1.95	88.14	2.5	10	10.4	2.93	79.37
593	BOJADAKHA	3	2.45	10.2	9.5	2.75	0.89	153.8	1.3	1.98	85.06	2.5	11	10.4	1.95	49
594		3	2.3	10.2	9.4	2.58	0.85	146.3	1.2	1.98	81.69	2.3	11	10.39	1.83	45
595	HAZWA HALVACHA	3.15	2.5	10.5	9.4	2.81	0.89	156.5	1.1	1.98	89.17	2.5	11	10.82	3.09	79.37
596		3	2.7	10.2	9.5	3.03	0.89	171.7	1.4	1.98	100.67	2.7	11	10.42	2.15	51
597	5-ATTABA	3	2.67	10.2	9	3.03	0.88	191.7	1.4	1.98	104.26	2.9	12	10.58	3.77	91.75
598		3.15	2.24	9.0	9.1	2.64	0.88	156.7	1.3	1.98	84.82	2.7	12	10.43	2.24	53.4
599	RHYAND	3.15	2.45	9.8	9.3	2.78	0.88	164	1.3	1.96	88.33	2.5	12	10.1	3.05	74.29
600	CHOCJIRA	3.15	2.89	10.7	9.3	3.28	0.18	185.9	1.6	1.98	104.26	2.9	12	10.11	3.19	72.78
601		3.15	2.45	10.2	9.2	2.72	0.9	154.1	1.2	1.98	86.42	2.1	12	10.58	3.77	91.75
602	DHEERJI KIDRANI	3.15	2.63	9.8	5.4	2.95	0.9	173.7	1.5	1.98	93.61	2.7	10	10.49	2.87	77.78
603		3.15	2.7	10.2	9	3.07	0.85	173.7	1.5	1.98	97.4	2.7	10	10.1	3.11	84.24
604	KANASAR	3.15	3.9	10.2	9.6	4.33	0.5	245.3	1.9	1.58	137.57	3.9	10	10.56	3.52	88.71
605		3	4.45	10.1	9	5	0.89	285.4	2.3	1.98	109	4.6	10	10.67	4.55	123.81
606	MOKHAB	3	4.6	10.1	9.1	5.11	0.9	292.2	2.2	1.98	102.22	4.7	8.17	10.44	3.68	91.83
607	FRAILADHURA	3.15	2.81	10.3	9.3	3.12	0.9	174.9	1.4	1.95	99.63	2.8	10	10.41	3.05	91.24
608	ASOTRA	3.15	2.85	10.3	9.4	3.16	0.9	171.4	1.4	1.98	100.46	2.8	10	10.64	3.29	89.14
608	POTRUJA	3.15	2.88	10.1	9	3.2	0.9	185	1.4	1.98	101.68	2.9	10	10.44	3.37	91.49

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 SE (SS), JAVVNL, JU  
 (Authorized Representative)

610	BLARIMATIKA MANDUK	3.15	2.54	10.1	9.4	2.82	0.9	161.3	1.1	1.98	85.59	2.5	10	1	10.4	2.97	80.63
611		3.15	2.7	10.4	9.1	3	0.9	166.5	1.3	1.98	95.24	2.7	10	1	10.73	3.16	85.71
612	HUDHWABA	3.15	2.45	10.4	9.3	2.72	0.9	151.1	1.2	1.98	86.42	2.5	10	1	10.7	2.87	77.78
613		3.15	2.56	10.2	9.5	2.88	0.89	162.8	1.3	1.98	91.31	2.5	11	1	10.92	3.17	81.27
614	JAGSO	3.15	2.45	10.2	9	2.72	0.9	154.1	1.2	1.98	86.42	2.5	10	1	10.40	2.87	77.78
615		3.15	2.68	10.7	9	3.05	0.88	164.3	1.4	1.98	96.58	2.7	12	1	11.07	3.49	85.08
616	JASOL	3.15	2.7	10.7	9.1	3.07	0.88	165.6	1.5	1.98	97.4	2.7	12	1	11.08	3.52	85.71
617	KAMANA	3.15	2.88	10.3	9.2	3.27	0.88	183.6	1.6	1.98	108.96	2.9	12	1	10.68	3.76	91.49
618	KOTIBOND	3.15	2.92	10.4	9	3.25	0.9	180.1	1.4	1.98	100.1	2.9	10	1	10.75	3.42	92.79
619	JADAGOT-FANTA	3.15	3	10.4	9.5	3.33	0.9	185.1	1.5	1.98	105.82	3	10	1	10.77	3.51	95.24
620		3.15	2	10.4	9.4	2.22	0.9	133.4	1	1.98	70.55	2	10	1	10.64	2.34	63.49
621	SARANA	3.15	2.98	10.3	9.4	2.31	0.9	185.4	1.4	1.98	104.97	3	10	1	10.66	3.48	91.48
622	KACYANPUR	3.15	2.77	10.4	9.5	3.35	0.87	177	1.6	1.98	101.2	2.8	13	1	10.79	3.8	85.04
623	MAGANA	3.15	2.91	10.2	9	2.79	0.9	157.9	1.2	1.98	88.54	2.3	10	1	10.5	2.94	79.68
624	JACHPADRA	3.15	2.56	10.7	9.1	2.88	0.89	163.8	1.3	1.98	91.31	2.6	11	1	10.42	3.17	81.27
625		3.15	2.67	9.8	8.2	3.07	0.87	130.8	1.5	1.98	97.43	2.7	13	1	10.36	1.86	44.76
626	PAJODI	3.15	2.78	10.4	9.3	3.08	0.9	171.5	1.3	1.98	98.07	2.8	16	1	10.74	3.23	88.25
627	TITONDOL	3.15	2.71	10.5	8.2	3.05	0.89	167.6	1.4	1.98	96.75	2.7	11	1	10.85	3.36	96.11
628	KANOD	3.15	2.59	10.3	9.4	2.91	0.89	169	1.3	1.98	92.32	2.6	11	1	10.63	3.2	82.16
629	BATBU	3.15	2.98	10.4	9	3.35	0.89	185.9	1.5	1.98	106.3	3	11	1	10.78	3.69	94.6
630		3.15	2.36	10.4	9.4	2.45	0.89	134.7	1.1	1.98	77.05	2.2	11	1	10.68	2.67	63.57
631	BRAGWA	3.15	3	10	9.7	3.35	0.9	192.3	1.9	1.98	105.82	3	10	2	10.35	3.51	95.24
632		3.15	2.01	10	9.3	3.23	0.9	138.9	1	1.98	70.9	2	10	1	10.24	2.35	63.82
633	DHERA	3.15	2.41	10.2	9.2	2.68	0.9	151.6	1.2	1.98	88.01	2.4	10	1	10.49	2.82	76.51
634	GUJANAL	3.15	2.76	10.2	9.4	3.08	0.89	174.3	1.4	1.98	97.73	2.7	11	1	10.55	3.39	86.98
635	GUMGROT	5	4.25	10.5	9	4.7	0.9	258.4	2	1.98	96	4.3	11	1	10.99	3.08	85.25
636	INDRANA	3.15	2.92	10.5	9.4	3.24	0.9	178.1	1.4	1.98	102.83	2.9	10	1	10.86	3.41	92.37
637		3.15	2.45	10.5	9	2.72	0.9	149.7	1.2	1.98	86.42	2.5	10	1	10.8	2.87	77.78
638	KATJADI	3.15	2.67	10.5	9.2	2.97	0.5	163.1	1.3	1.98	94.18	2.7	10	1	10.83	3.12	84.76
639	KERUJNADI	3.15	2.46	10.2	9.1	2.76	0.89	156.5	1.3	1.98	87.25	2.5	11	1	10.61	3.04	78.1
640	MELI	3.15	2.71	10.2	9.3	3.05	0.89	172.5	1.4	1.98	98.75	2.7	11	1	10.54	3.36	96.11

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641	MAKALSAR	5	4.32	10.5	9.5	5.24	0.84	295.6	2.4	1.98	102.73	0.7	7.73	0.95	10.42	3.08	94.75
642	MUTIALI	3.15	2.89	10.3	9.2	3.29	0.88	164.2	1.6	1.98	104.31	2.0	7.2	1	10.69	2.77	91.79
643	AJEET	3.15	2.91	10.2	9.2	3.27	0.89	185.4	1.5	1.98	103.95	2.9	11	1	10.57	3.67	92.52
644	KARMAWAS	3.15	2.65	10	9	2.99	0.89	172.4	1.4	1.98	94.78	2.7	11	1	10.33	3.29	84.33
645	RAMJI	3.15	2.91	10.3	9.5	3.19	0.86	180.8	1.7	1.98	107.45	2.9	14	1	10.73	4.17	92.44
646	SANDARI	3.15	2.75	10.2	9	3.2	0.86	181	1.6	1.98	101.51	2.8	19	1	10.6	3.94	87.3
647		3.15	2.55	10.7	9.1	2.98	0.86	168.5	1.5	1.98	94.5	2.6	14	1	10.37	1.67	81.27
648	STLORD	3.15	2.74	10.3	9.3	3.26	0.84	182.1	1.8	1.98	103.93	2.7	15	1	10.71	4.21	86.98
649	DIJABARA	3.15	2.69	10.4	9.4	2.73	0.84	153.7	1.7	1.98	101.65	2.7	16	1	10.84	4.2	85.4
650		3.15	2.25	10.4	9	2.76	0.82	155	1.6	1.98	86.55	2.3	16	1	10.77	1.57	72.7
651	ITAWAYA-PANTA	3.15	2.88	10.4	9.2	3.51	0.82	192	2	1.98	87.5	2.3	18	1	10.8	3.81	71.75
652		3.15	2.87	10.7	9.3	3.38	0.81	191.3	2	1.98	111.5	2.5	17.11	0.99	10.9	4.78	92.09
653	KJANKHI	3.15	2.55	10.2	9.3	3.01	0.85	170.5	1.8	1.98	107.19	2.9	15	1	10.24	4.3	93.11
654		3.15	2.53	10.4	9.3	2.98	0.85	165.8	1.6	1.98	95.61	2.6	15	1	10.39	3.83	81.27
655	KUNDAL	3.15	2.4	10.6	9.3	2.82	0.85	156.8	1.5	1.98	94.45	2.5	15	1	10.79	3.79	80.32
656	MITHORA	3.15	2.9	10.5	9.5	3.22	0.9	177.2	1.4	1.98	89.64	2.4	15	1	10.77	3.59	76.29
657		3.15	2.05	10.5	9.3	3.29	0.9	121.9	1	1.98	102.29	2.9	10	1	10.86	3.39	92.05
658	RELO XI DEHANI	3.15	2.77	10	9.4	3.22	0.86	185.7	1.6	1.98	72.66	2.1	10	1	10.75	2.41	65.4
659	SAILA	3.15	2.62	10.2	9	3.05	0.85	172.6	1.6	1.98	102.09	2.8	14	1	10.4	3.96	87.8
660	SIVER	3.15	2.67	9.78	9.2	3.1	0.86	183.3	1.6	1.98	96.52	2.6	14	1	10.58	3.76	83.27
661		3.15	2.61	9.78	9.1	3.01	0.86	179.2	1.5	1.98	98.56	2.7	14	1	10.15	3.33	84.76
662	VAV NANGAR	3.15	2.68	10	9.3	3.16	0.85	182.4	1.7	1.98	96.35	2.6	14	1	10.15	3.74	82.46
663	ALHET	3.15	2.82	10.7	9.5	3.31	0.85	187.5	1.7	1.98	100.26	2.7	15	1	10.4	4.02	85.22
664	BHATTA	3.15	2.43	10.1	9.1	2.73	0.80	196.1	1.2	1.98	105.42	2.8	15	1	10.65	4.12	89.42
665		3.15	2.75	10.1	9.1	3.12	0.89	179.2	1.4	1.98	86.68	2.4	11	1	10.4	3.08	77.14
666	CHADONI DEHANI	3.15	2.91	10.3	9.5	3.27	0.88	183.6	1.5	1.98	59.52	2.8	11	1	10.45	3.45	84.57
667	CHACHARAYON RI DEHANI	3.15	2.61	10.5	9.4	2.9	0.9	159.5	1.3	1.98	100.95	2.9	11	1	10.67	3.68	92.52
668	DEHANTA-PANTA	3.15	2.03	10.5	9	2.52	0.8	160.5	1.3	1.98	52.66	2.6	10	1	10.42	3.05	82.86
669	DIRUDIA MOTI B	5	4.74	10	9.2	4.71	0.9	271.9	2.3	1.98	92.83	2.6	10	1	10.82	3.07	83.42
670	J.M.K.	3.15	2.23	10.4	9.1	2.48	0.9	137.6	1.1	1.98	94.18	4.3	9.27	0.99	10.31	3.08	85.45
671		3.15	2.23	10.4	9.1	2.48	0.9	137.6	1.1	1.98	74.65	2.2	10	1	10.67	2.61	70.79

Date: 30.06.2023

Signature: 

Name: M. L. Benda

(Project Nodal Officer)  
(Authorized Representative (R&S), JVVNL, JU)

672			3.15	2.25	10.4	0.3	2.5	0.9	138.8	1.1	1.58	79.37	2.3	10.67	2.61	71.47
673	SARUWANTI		3.15	2.83	10	9.5	3.14	0.9	181.5	1.4	1.98	55.77	2.8	10.33	3.31	89.8
674	BRATAJA		3.15	2.86	10.3	9	3.18	0.9	178.1	1.4	1.98	102.85	9.5	10.64	3.35	90.75
675	BAJONGKA-TALA		3.15	2.78	10.2	9	3.04	0.9	172	1.3	1.98	56.45	2.7	10.33	3.2	85.8
676	BAMBOL		5	4.23	10.1	9.4	4.7	0.9	268.7	2	1.98	54	4.3	10.44	3.08	85.25
677	BAMBILA		5	4.52	10.5	9.2	5.13	0.9	282.3	2.2	1.98	102.67	4.7	10.82	3.08	94.72
678	BERANGHENE KURU		3.15	2.3	10.4	9	2.58	0.89	143.5	1.2	1.95	82.04	2.5	10.7	2.85	23.02
679	BESARANTA		3.15	2.57	10.3	9.5	2.83	0.89	127.5	1.3	1.98	89.89	2.5	10.7	2.85	23.02
680			3.15	2	10.3	9.4	2.25	0.89	125	1	1.98	71.14	2	10.55	2.48	63.49
681	DHURU		3.15	3	9.9	9.4	3.01	0.88	138.8	1.6	1.98	101.23	3	10.39	3.91	95.24
682			3.15	2.23	9.0	9.5	2.53	0.88	147.8	1.2	1.98	80.45	2.2	10.19	2.91	70.79
683	KEKAR		3.15	2.28	9.8	9	2.89	0.88	132.6	1.2	1.98	82.23	2.3	10.09	2.97	72.98
684			3.15	3	9.8	9.4	3.41	0.85	202.8	1.6	1.98	108.23	3	10.18	3.91	95.34
685	KITENOMINA		3.15	2.94	10.4	9.3	3.35	0.88	185.7	1.6	1.98	106.2	2.9	10.8	3.84	93.46
686	KOJA		3.15	2.86	10.5	9.3	3.14	0.81	194.5	2.1	1.98	112.28	2.9	11	4.78	95.03
687	LUKURU		3.15	2.65	10.5	9.2	3.23	0.81	179.9	1.9	1.98	103.86	2.7	10.99	4.04	84.83
688	RELO KIBERI		3.15	2.8	9.6	9.4	1.46	0.81	207.9	2	1.98	109.74	2.8	10.06	4.78	89.95
689	ROHILA (BAST)		3.15	2.82	10.2	9	3.24	0.87	183.5	1.6	1.98	102.9	2.8	10.59	3.86	89.52
690	SACHI KIBERI		3.15	2.81	10.5	9.4	3.23	0.87	177.6	1.6	1.98	102.54	2.8	10.9	3.85	89.21
691	SADAN KIBERI		3.15	2.45	10.2	9.1	3.05	0.87	172.4	1.5	1.98	96.7	2.7	10.57	3.63	84.13
692			3.15	2.85	10.2	9.3	2.76	0.85	156.5	1.5	1.98	87.77	2.4	10.55	3.32	74.6
693	BORCFARMAN		3.15	2.38	10	9.5	3.26	0.82	188.4	1.7	1.98	103.65	2.8	10.42	4.16	88.25
694	BREDAJA		3.15	2.78	9.4	9	3.27	0.85	200.7	1.7	1.98	103.83	2.8	9.79	4.16	88.25
695			3.15	2.43	9.4	9	2.75	0.89	180.1	1.3	1.98	87.59	2.5	9.65	3.30	77.78
696	GADENT		3.15	2.83	10.2	9.1	3.18	0.89	179.7	1.4	1.98	100.89	2.8	11	3.3	89.8
697	LUNWA-CABRMAN		3.15	2.38	10.1	9.2	3.31	0.9	187.4	1.4	1.98	105.08	3	10.56	3.3	89.8
698	NAGAR		3.15	2.72	10.1	9	3.62	0.9	172.5	1.3	1.98	93.81	2.7	10.56	3.45	84.77
699	PANGL KIBERI		3.15	2.58	10.2	9.5	3.31	0.9	187.4	1.4	1.98	106.31	3	10.42	3.18	86.23
700	RAMJI GOAL		3.15	2.87	10.2	9.4	3.21	0.9	181.9	1.4	1.98	100.99	2.9	10.55	3.49	94.6
701	SALIU KIBERI		3.15	2.95	9.7	9.4	3.39	0.87	201.8	1.7	1.98	107.64	3	10.55	3.38	91.79
702	SUNDANSWA-LIH		3.15	2.15	10.2	9.5	2.45	0.87	138.6	1.2	1.98	77.72	2.3	10.09	4.04	93.85
																67.62

Date: 30.06.2023

Signature:

Name: M. L. Benda

(Project Nodal Officer) M. L. Benda  
(Authorized Representative)

703		3.15	2.68	10.2	9.3	3.31	2.87	187.4	1.6	1.98	102.09	2.9	10.6	3.94	91.12
704	ANDANIVO XI BERU	3.15	2.05	10.2	9.9	2.28	0.9	128.9	1	1.98	72.31	2.1	10.44	2.4	65.08
705		3.15	3	10.2	9.5	3.33	0.9	189.7	1.5	1.98	105.82	3	10.56	3.51	95.24
706	JALI KEHERA	3.15	2.96	10	9.4	3.29	0.9	189.9	1.4	1.98	104.41	3	10.95	3.46	93.97
707	MALPURA	3.15	2.68	10.3	9	2.98	0.9	166.8	1.3	1.98	94.48	2.7	10.62	3.15	85.03
708	NORLEBARA	3.15	2.25	10.5	9.2	2.5	0.66	137.5	1.1	1.98	79.51	2.2	10.79	2.76	70.75
709		3.15	2.2	10.5	5.1	2.47	0.89	135.9	1.1	1.98	78.87	2.2	10.79	2.72	69.84
710	AKAL	3.15	2.91	9.5	9.2	3.27	0.20	199.7	1.5	1.98	103.8	2.9	10.84	3.6	92.38
711	GANGASAZA	3.15	2.9	10.5	9.5	3.3	0.88	181.2	1.6	1.98	104.52	2.9	10.8	3.78	92.06
712	GORA	3.15	2.81	5.8	9	3.19	0.38	183.1	1.5	1.98	101.37	2.8	10.76	3.66	89.23
713	CIUB XI BERU	3.15	2.67	10.5	9	2.57	0.9	163.2	1.0	1.98	94.21	2.7	10.83	3.13	84.81
714	SODHALA-DARSHAN	3.15	2.78	10.5	9.1	3.09	0.5	170.1	1.3	1.98	98.23	2.5	10.86	3.26	88.41
715	SOVARI	5	4.5	10.3	9.2	5.61	0.9	280.6	2.2	1.98	100.11	4.6	10.75	3.08	91.04
716	BIPAPWAR	3.15	2	20.5	9	2.35	0.89	121.6	1	1.98	71.34	2	10.89	2.48	63.49
717		3.15	3	10.5	9.5	3.37	0.86	181.4	1.5	1.98	107.01	3	10.82	3.75	95.21
718	BISASAR	3.15	2.69	10.5	9.4	2.99	0.9	164.1	1.3	1.98	94.77	2.7	10.82	3.14	83.29
719	DHLRAWA	3.15	2.5	10.1	9.4	2.78	0.9	158.8	1.3	1.98	88.18	2.5	10.4	2.90	79.37
720		3.15	2.57	10.1	9.5	2.8	0.9	160.1	1.2	1.98	88.89	2.5	10.4	2.95	80
721	PAGALTYA	1.15	2.78	10.5	9	3.12	0.89	171.8	1.4	1.98	99.16	3.2	10.86	3.04	88.25
722		3.15	2.78	10.5	9.1	2.56	0.89	140.9	1.2	1.98	81.33	2.9	10.8	2.82	72.34
723	HARPALIYA	3.15	2.55	10	9.3	3.05	0.84	176	1.7	1.98	96.75	2.6	10.6	3.99	81.27
724		3.15	2.63	10.5	9.3	2.92	0.9	160.3	1.9	1.98	92.77	2.6	10.82	3.01	83.49
725	JANPALIYA	5.15	2.6	9.5	9.2	2.89	0.9	168.5	1.3	1.98	91.71	2.6	10.2	3.04	82.54
726	MAINDIKA TALLA	3.15	2.06	9.9	9.4	2.29	0.9	133.5	1	1.98	72.66	2.1	10.14	2.41	65.4
727	ZALARIYA	5	3.89	10.5	9	4.52	0.9	237.7	1.9	1.98	86.44	3.5	10.83	2.93	77.8
728		3.15	2.94	10.1	9.4	2.27	0.9	187	1.4	1.98	100.84	2.9	10.45	3.44	93.46
729	SARLA	3.15	2.57	10.5	5	2.86	0.9	157	1.2	1.98	50.65	2.6	10.82	3.08	81.59
730	SUDWA	5	4.1	10.3	9.2	4.56	0.9	210.5	2	1.98	91.11	4.1	10.82	3.68	92.06

Date: 30.06.2023

Signature:



Name: M.L. Benda  
 (Project Nodal Officer)  
 SE (SS) DIVISION  
 (Authorized Representative) - JU

Name of the Section/Division in CEA, New Delhi: NRPC, New Delhi				
S.No	Objective Head	Estimated Budget 2023-24	Expenditure Done till 03.08.2023	Balance
1	Salary	19500000	5516609	13983391
2	Rewards	120000	0	120000
3	Medical Treatment	500000	114694	385306
4	Allowances	13500000	3928333	9571667
5	LTC	850000	146004	703996
6	Training Expenses	100000	0	100000
7	DTE	1000000	161013	838987
8	OE	8800000	4862406	3937594
9	RENT&TAXES	380000	0	380000
10	Digital Equipments	500000	24445	475555
11	Minor civil & Electrical Works	23300000	0	23300000
12	Repair & Maintenance	2500000	33350	2466650
13	OTHER REVENUE EXPENDITURE [ 49 ]	500000	15633	484367
14	Machinery & Equipment	2600000	0	2600000
15	Information ICT Equipments	1500000	64093	1435907
16	Furniture & Fixtures	1200000	0	1200000
17	Rent for others	650000	0	650000

<b>Total</b>	<b>77500000</b>	<b>14866580</b>	<b>62633420</b>
<b>Balance till 4th August 2023</b>			<b>26188938.6</b>
<b>Additional amount Required</b>			<b>41055519</b>
			<b>36444481</b>



भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

Annexure-V

Annexure-E

संख्या: NRPC/SER/ 301 /2022/ 2032-2034

Dated: 23.02.2022

To,

Joint Secretary (OM),  
Ministry of Power,  
Room No-408,  
4th Floor, Shram Shakti Bhawan,  
Rafi Marg, New Delhi

**विषय:** Regarding long outstanding overdues of J&K State Power Development Corporation Ltd (JK PDCL) and Power Development Department (JKPDD)

**References:** NRPC letters to Secretary (Power) PDD, dated 07.02.2022, 29.12.2021, 26.07.2021, 11.09.2020, 28.01.2020, 31.10.2019 & 16.09.2019. NRPC letters addressed to MD, J&K State Power Development Corporation Ltd., dated 28.01.2020, 31.10.2019, 08.03.2019, 25.10.2018, 16.10.2018, 30.08.2017, 20.10.2015, 28.04.2015, 10.03.2015 & 30.12.2014.

Sir,

In accordance to the MoP communication to CEA vide letter no. A-60016/59/2005 Adm-I dated 23<sup>rd</sup> February 2006 (copy enclosed) which stipulates that

*"The activities of the Regional Power Committees (RPCs) will be fully financed by the constituent Members with effect from 01.04.2006 and Central Electricity Authority will take immediate steps in this regard."*

NRPC constituent members are to pay annual contribution as decided in NRPC meetings from time to-time, for reimbursing NRPC expenditure to GoI and meeting the expenditure for meetings at Secretariat and other expenditure as approved by Chairperson.

However, contribution from some members i.e J&K State Power Development Corporation Ltd (JK PDCL) and Power Development Department (JKPDD) is pending from a long time. NRPC is constantly following up with the officials of JKPDD & JKPDC through above referred letters. Details of pending outstanding contribution fees is shown below:



Sl. No.	Name of the constituent	Period (FY)	Outstanding amount (RS)	Late payment penalty amount (Rs)	Total outstanding amount (Rs)
1	JKPCL / JKPDD	2021-22	10,00,000/-	10,000/-	10,10,000/-
		2019-20	10,00,000/-	-	10,00,000/-
Total outstanding amount					20,10,000/-

2.	JKPCL / JKPDC	2018-19	10,00,000/-	-	10,00,000/-
		2015-16	11,00,000/-	-	11,00,000/-
		2014-15	11,00,000/-	-	11,00,000/-
Total outstanding amount					32,00,000/-

**Grand total**

**52,10,000/-**

This is for you kind information and kind assistance in the subject matter.

न. भंडारी  
(नरेश भंडारी) 23/02/22  
सदस्य सचिव

**Encl: As above**

**Copy to:**

1. Managing Director, JKPCL, SLDC Building, 1<sup>st</sup> Floor Gladni Grid Station, Narval Bala, Jammu-180004

2. Chief Engineer, JKPCL, SLDC Building, 1<sup>st</sup> Floor Gladni Grid Station, Narval Bala, Jammu-180004

Date: February 23, 2006

To  
The Chairperson  
Central Electricity Authority,  
Sewa Bhawan, R.K.Puram,  
New Delhi.

(Attention: Shri Ajit Singh, Under Secretary)

**Subject:** Establishment of Regional Power Committees under the provisions of the Electricity Act, 2003 - matter regarding.

Sir,  
I am directed to refer to your letter No. 1/2/2005-PP (CEA), dated 13.07.2005 on the subject mentioned above and to say that consequent on setting up of Regional Power Committees (RPCs) under the aegis of the Electricity Act, 2003 in place of the erstwhile Regional Electricity Boards, the matter relating to administrative and financial set up of the RPCs has been considered by the Ministry in consultation with the Central Electricity Authority and the Internal Finance Wing of the Ministry.

2. The President is pleased to declare the Member Secretaries of the Regional Power Committees (RPCs) as 'Head of Department' under SR 2(10) of the Fundamental & Supplementary Rules. They shall exercise all the powers of Heads of Department under General Financial Rules, 1963, subject to the observance of instructions and restrictions contained in the Delegation of Financial Power Rules, 1978 and such other Rules and Orders issued by the Central Government from time to time applicable to 'Head of Departments'.

3. Further, with the approval of the Competent Authority in the Ministry of Power, it has been decided that, henceforth, the functioning of the RPCs shall be regulated as per the following arrangement

- (a) Member Secretaries of the Regional Power Committees (RPCs) will be under the administrative and financial control of the Chairman of the respective Regional Power Committee (RPCs) for all matters including sanction of leave, tour etc. of the Member Secretary.

(b) The Annual confidential Report of the Member Secretaries of the Regional Power Committees (RPCs) shall be initiated by the respective Chairman of the Regional Power Committee (RPCs) and shall be reviewed by the Chairperson, Central Electricity Authority.

(c) The activities of the Regional Power Committees (RPCs) will be fully financed by the constituent Members with effect from 01.04.2006 and the Central Electricity Authority will take immediate steps in this regard.

(d) The manpower for the Secretariat of the Regional Power Committees (RPCs) shall continue to be provided by the Central Electricity Authority.

4. This issues with the concurrence of the Internal Finance Wing vide their diary No. 7657/JSFA06, dated 16.02.2006.

Yours faithfully,

Sd/-

(R.C.Arora)

Under Secretary to the Government of India

Tel No. 2371-9637

Copy to:

1. Member Secretary of All Regional Power Committees
2. Controller of Accounts, Ministry of Power.
3. Secretary, CE/UIS(Vig), CEA
4. Director (R & R) / US(Trans), Ministry of Power.
5. Finance/Budget V & S Desk, Ministry of Power.

Sd/-

(R.C.Arora)

Under Secretary to the Government of India

Tel No. 2371-9637



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

संख्या: NRPC/SER/ 301 /2022/

Dated: 15.03.2022

To,

The Principal Secretary,  
Power Development Department,  
J&K, Civil Secretariat, Jammu- 180001

**विषय:** Regarding long outstanding overdues of J&K State Power Development Corporation Ltd (JK PDCL) and Power Development Department (JKPDD)

**References:** NRPC letters to Secretary (Power) PDD, dated 07.02.2022, 29.12.2021, 26.07.2021, 11.09.2020, 28.01.2020, 31.10.2019 & 16.09.2019. NRPC letters addressed to MD, J&K State Power Development Corporation Ltd., dated 28.01.2020, 31.10.2019, 08.03.2019, 25.10.2018, 16.10.2018, 30.08.2017, 20.10.2015, 28.04.2015, 10.03.2015 & 30.12.2014.

Sir,

In accordance to the MoP communication to CEA vide letter no. A-60016/59/2005 Adm-I dated 23<sup>rd</sup> February 2006 (copy enclosed) which stipulates that

*"The activities of the Regional Power Committees (RPCs) will be fully financed by the constituent Members with effect from 01.04.2006 and Central Electricity Authority will take immediate steps in this regard."*

NRPC constituent members are to pay annual contribution as decided in NRPC meetings from time to-time, for reimbursing NRPC expenditure to GoI and meeting the expenditure for meetings at Secretariat and other expenditure as approved by Chairperson.

However, contribution from some members i.e J&K State Power Development Corporation Ltd (JK PDCL) and Power Development Department (JKPDD) is pending from a long time. NRPC is constantly following up with the officials of JKPDD & JKPDC through above referred letters. Details of pending outstanding contribution fees is shown below:

Sl. No.	Name of the constituent	Period (FY)	Outstanding amount (RS)	Late payment penalty amount (Rs)	Total outstanding amount (Rs)
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Total outstanding amount					20,10,000/-
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		2015-16	11,00,000/-	-	11,00,000/-
		2014-15	11,00,000/-	-	11,00,000/-
Total outstanding amount					32,00,000/-
<b>Grand total</b>					<b>52,10,000/-</b>

In view of the above, you are requested to kindly intervene in the subject matter and advise the concerned officials of JKPCL to settle the long outstanding contribution amount.

न. शंडारी  
(नरेश भंडारी) 15/3/22  
सदस्य सचिव

Encl: As above

Copy to:

1. Joint Secretary (OM), MOP, New Delhi
2. Managing Director, JKPCL, SLDC Building, 1<sup>st</sup> Floor Gladni Grid Station, Narval Bala, Jammu-180004
3. Chief Engineer, JKPCL, SLDC Building, 1<sup>st</sup> Floor Gladni Grid Station, Narval Bala, Jammu-180004

Date: February 23, 2006

To  
The Chairperson  
Central Electricity Authority,  
Sewa Bhawan, R.K. Param,  
New Delhi.

(Attention: Shri Ajit Singh, Under Secretary)

**Subject: Establishment of Regional Power Committees under the provisions of the Electricity Act, 2003 - matter regarding.**

Sir,

I am directed to refer to your letter No. 1/2/2005-PP (CEA), dated 13.07.2005 on the subject mentioned above and to say that consequent on setting up of Regional Power Committees (RPCs) under the aegis of the Electricity Act, 2003 in place of the erstwhile Regional Electricity Boards, the matter relating to administrative and financial set up of the RPCs has been considered by the Ministry in consultation with the Central Electricity Authority and the Internal Finance Wing of the Ministry.

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3. Further, with the approval of the Competent Authority in the Ministry of Power, it has been decided that, henceforth, the functioning of the RPCs shall be regulated as per the following arrangement
  - (a) Member Secretaries of the Regional Power Committees (RPCs) will be under the administrative and financial control of the Chairman of the respective Regional Power Committee (RPCs) for all matters including sanction of leave, tour etc. of the Member Secretary.

- (b) The Annual confidential Report of the Member Secretaries of the Regional Power Committees (RPCs) shall be initiated by the respective Chairman of the Regional Power Committee (RPCs) and shall be reviewed by the Chairperson, Central Electricity Authority.
- (c) The activities of the Regional Power Committees (RPCs) will be fully financed by the constituent Members with effect from 01.04.2006 and the Central Electricity Authority will take immediate steps in this regard.
- (d) The manpower for the Secretariat of the Regional Power Committees (RPCs) shall continue to be provided by the Central Electricity Authority.

4. This issues with the concurrence of the Internal Finance Wing vide their diary No. 7657/JSFA06, dated 16.02.2006.

Yours faithfully,

Sd/-

(R.C.Arora)

**Under Secretary to the Government of India**

**Tel No. 2371-9637**

Copy to:

1. Member Secretary of All Regional Power Committees
2. Controller of Accounts, Ministry of Power.
3. Secretary, CEA/US(Vig),CEA
4. Director (R & R)/ US(Trans),Ministry of Power.
5. Finance/Budget/ V & S Desk, Ministry of Power.

Sd/-

(R.C.Arora)

**Under Secretary to the Government of India**

**Tel No. 2371-9637**



भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
उत्तर क्षेत्रीय विद्युत समिति  
Northern Regional Power Committee

No. NRPC /AS/NRPC Fund/2021-22/1419-20

Date:07.02.2022

To,

Secretary (Power),  
Power Development Department,  
Civil Secretariat Srinagar  
0194-2506053/2506198

**Subject: Pending Contribution towards NRPC fund for the years 2019-20 and 2021-22.**

- References: (i) Reminder-5 Letter no. NRPC/AS/NRPC Fund/2021-22/11926 dated 29.12.2021  
(ii) Reminder-4 Letter no. NRPC/AS/NRPC Fund/2021-22/6940 dated 26.07.2021  
(iii) Reminder-3 Letter no. NRPC/AS/NRPC Fund/2020-21/9010-9012 dated 11.09.2020  
(iv) Reminder-2 Letter no. NRPC/AS/NRPC Fund/2019-20/837 dated 28.01.2020  
(v) Reminder-1 Letter no. NRPC/AS/NRPC Fund/2019-20/13367 dated 31.10.2019  
(vi) Letter no. NRPC/AS/NRPC Fund/2019-20/10396 dated 16.09.2019

Sir,

This is in continuation to NRPC's earlier communications as referred above. Copies of the same are also enclosed for ready reference. Despite our regular follow ups, NRPC Fund contribution of Rs. 10 Lakh for the previous year (FY 2019-20) and Rs.10.2 Lakh for current F.Y. 2021-22 is still awaited from PDD.

It was intimated by the reminder letter No. 5, that in case of late payment beyond 31/12/2021, for the FY 2021-22, simple interest @ 1% per month shall also be levied, as per decision taken in 49<sup>th</sup> NRPC meeting. Accordingly, the penalty amount for late payment beyond 31/12/2021 works out Rs.20,000/- Therefore, due NRPC contribution for FY 2021-22 becomes Rs 10.20 lakh.

Power Development Department is requested to make payments of Rs. 10 Lakh for the previous year (FY 2019-20) and Rs.10.20 Lakh for current F.Y. 2021-22 before 28.02.2022 positively to avoid further levy of penalty charges (for FY 2021-22) as per the decision taken in 49<sup>th</sup> NRPC meeting.



In view of the above, it is again requested to expedite the process for clearance of aforesaid contribution amount. The contribution can be made through Demand Draft, drawn in favour of "NRPC Fund" and may be forwarded to us. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 308300 0105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300

Encl: As above

*Draft* 11/2/2022

(दिलप्रीत कौर)

(Dilpreet Kaur)

नोडल ऑफिसर-एन आर पी सी फण्ड

Nodal Officer-NRPC Fund

Copy to:

Chairman, NRPC

**REMINDER-5**

भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
उत्तर क्षेत्रीय विद्युत समिति  
Northern Regional Power Committee

No. NRPC /AS/NRPC Fund/2021-22/11925

Date: 29.12.2021

To,

Sh. Rohit Kansal (IAS)  
Secretary Power,  
Power Development Department,  
Civil Secretariat Srinagar  
0194-2506053/2506198

Subject: Pending Contribution towards NRPC fund for the years 2019-20 and 2021-22  
- reg.

- References: (i) Reminder-4 Letter no. NRPC/AS/NRPC Fund/2021-22/6940 dated 26.07.2021  
(ii) Reminder-3 Letter no. NRPC/AS/NRPC Fund/2020-21/9010-9012 dated 11.09.2020  
(iii) Reminder-2 Letter no. NRPC/AS/NRPC Fund/2019-20/837 dated 28.01.2020  
(iv) Reminder-1 Letter no. NRPC/AS/NRPC Fund/2019-20/13367 dated 31.10.2019  
(v) Letter no. NRPC/AS/NRPC Fund/2019-20/10396 dated 16.09.2019

Sir,

This is in continuation to NRPC's earlier communications as referred above. Copies of the same are also enclosed for ready reference. Despite our regular follow ups, the contribution amount of Rs. 10 Lakh for the previous year (FY 2019-20) and Rs.10 Lakh for F.Y. 2021-22 from your organisation is still awaited.

In case of late payment beyond 31/12/2021, for the FY 2021-22, simple interest @ 1% per month shall also be levied, as per decision taken in 49<sup>th</sup> NRPC meeting. Accordingly, Power Development Department is requested to make payments before 31.12.2021 positively.

In view of the above, it is again requested to expedite the process for clearance of aforesaid contribution amount. The contribution can be made through Demand Draft, drawn in favour of "NRPC Fund" and may be forwarded to us. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 308300 0105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300

Encl: As above

*Dilpreet Kaur*  
(दिलप्रीत कौर)

(Dilpreet Kaur)

नोडल ऑफिसर-एन आर पी सी फण्ड

Nodal Officer-NRPC Fund



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

REMINDER-4

No. NRPC /AS/NRPC Fund/2021-22 / 6940

Date:26.07.2021

To,

Sh. Rohit Kansal (IAS)  
Secretary Power,  
Power Development Department,  
Civil Secretariat Srinagar  
0194-2506053/2506198

Subject: Pending Contribution towards NRPC fund for the years 2019-20 – reg.

- References: (i) Reminder-3 Letter no. NRPC/AS/NRPC Fund/2020-21/9010-9012 dated 11.09.2020  
(ii) Reminder-2 Letter no. NRPC/AS/NRPC Fund/2019-20/837 dated 28.01.2020  
(ii) Reminder-1 Letter no. NRPC/AS/NRPC Fund/2019-20/13367 dated 31.10.2019  
(iii) Letter no. NRPC/AS/NRPC Fund/2019-20/10396dated 16.09.2019

Sir,

This is in continuation to NRPC's earlier communications as referred above. Copies of the same are also enclosed for ready reference. Despite our regular follow up, the contribution amount of Rs. 10 lakh for the year 2019-20 from your organisation is still awaited.

In view of the above, it is again requested to expedite the process for clearance of aforesaid contribution amount. The contribution can be made through Demand Draft, drawn in favour of "NRPC Fund" and may be forwarded to us. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 308300 0105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300.

Encl: As above

*Vandita*

(वन्दिता शर्मा)

(Vandita Sharma)

VANDITA SHARMA  
Nodal Officer  
N.R.P.C., Fund

नोडल ऑफिसर-एन आर पी सी फण्ड

Nodal Officer-NRPC Fund

**REMINDER**

भारत सरकार  
Government of India

विद्युत मंत्रालय  
Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

**Northern Regional Power Committee**

No. NRPC/AS/NRPC Fund/2020-21 / 9010-9012

Dated: 11.09.2020

To

Sh. Rohit Kansal (IAS)  
Principal Secretary (Power),  
New Secretariat Srinagar, Govt. of UT of J&K  
0194-2506053/2506198 <md@jkspdcil.com>

**Subject:** Pending Contribution towards NRPC fund pertaining to PDD, J&K and J&K PDCL - reg.

- References:**
- (i) Reminder letters of even no. dated 17.01.2017, 14.08.2018, 16.10.2018, 08.03.2019, 16.09.2019, 31.10.2019 and 28.01.2020 i.r.o PDD J&K (copies enclosed as Annex-I)
  - (ii) Reminder letters of even no. dated 01.01.2015, 10.03.2015, 29.04.2015, 20.10.2015, 30.08.2017, 16.10.2018, 25.10.2018, 08.03.2019, 16.09.2019, 30.10.2019 and 28.01.2020 i.r.o. J&K PDCL (copies enclosed as Annex-II)


Sir

This is in continuation to NRPC's earlier communications as referred above. Copies of the same are also enclosed for ready reference. Despite our regular follow up, the contribution amount of Rs. 27 lakh for the years 2016-17, 2018-19 and 2019-20 pertaining to PDD and Rs. 42 lakh for the years 2014-15, 2015-16, 2018-19 and 2019-20 pertaining to PDCL are still awaited. Further, NRPC in its 48<sup>th</sup> meeting decided a contribution amount of Rs. 6 lakh for each constituent for the year 2020-21. Accordingly, a total pending contribution including current FY for PDD and PDCL are Rs. 33 lakh and Rs. 48 lakh respectively.

Furthermore, in the recently held special meeting on 28.07.2020 to deliberate on issues related to UTs of J&K and Ladakh, the matter regarding aforesaid pending contribution was also discussed wherein J&K representative assured that all the pending contributions would be disbursed shortly.

In view of the above, it is again requested to expedite the process for clearance of aforesaid contribution amount. The contribution can be made through Demand Draft drawn in favour of "NRPC Fund" and may be forwarded to us. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 308300 0105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300

Encl: As above

  
(Naresh Bhandari)  
सदस्य सचिव  
Member Secretary

11/09/2020

Copy to: Chief Engineer (Trading), JKPCIL, PDD Complex, Baramulla, Srinagar



नरेश भण्डारी  
सदस्य सचिव

भारत सरकार  
विद्युत मंत्रालय  
उत्तर क्षेत्रीय विद्युत समिति  
18-ए, शहीद बीर सिंह मार्ग,  
कटारिया सराय, नई दिल्ली -110016  
दूरभाष . 26511211, 26513265

**REMINDER**

D.O NO. NRPC/AS/NRPCFUND/2019-20 (837)

Dated: 28/01/2020

Sh. M. Raju,

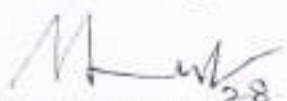
Please refer to my D.O. letter of even number dated 31<sup>st</sup> October, 2019 regarding payment of membership fee to the Northern Regional Power Committee (NRPC) by the constituent members of NRPC for the financial years 2019-20, 2018-19 and 2016-17 for meeting the annual expenditure of NRPC establishment.

2. In this regard I would like to mention that previously the amount of annual membership fee to be paid to the NRPC by each constituent member of the NRPC had been fixed as Rs.10 lakh. During the 45<sup>th</sup> NRPC meeting held recently on 08.06.2019, the amount of the annual membership fees the financial year 2019-20 also was decided to be fixed as Rs.10 Lakh for each constituent. NRPC Secretariat has already requested you vide its letters of even number dated 31.10.2019 for payment of the said contribution amounting to Rs.27 Lakh for the above cited financial years on urgent basis. The matter for payment of the above contribution has also discussed during the last few RPC meetings when Members of the Committee agreed to expedite the said payment. However, in spite of that the contribution from your organization in respect of the above cited financial years is still awaited.

3. Therefore, I shall be grateful if you could kindly intervene and arrange to expedite the amount of the aforesaid contribution amount of Rs.27 Lakh for smooth running of the NRPC Secretariat. The payment could be made either through Demand Draft, drawn in favour of "NRPC Fund" or through RTGS in the Bank account named "NRPC Fund" (A/c No. 3083000105096078 RTGS / NEFT Code: PUNB0308300).

Regards,

Yours Sincerely,

  
(Naresh Bhandari) 28-1-2020

Encl: As Above

To,  
Sh. M. Raju,  
Secretary Power,  
Power Development Department,  
Civil Secretariat,  
SRINAGAR (J&K)



नरेश भण्डारी  
सदस्य सचिव

भारत सरकार  
विद्युत मंत्रालय  
उत्तर क्षेत्रीय विद्युत समिति  
18-ए, शहीद जीत सिंह मार्ग,  
कटवारिया सराय, नई दिल्ली -110018  
दूरभाष . 26511211, 26513265

D.O NO. NRPC/AS/NRPCFUND/2019-20/13367

Dated: 31 /10/2019

Sh. Hirdesh Kumar,

The matter relates to pending payment of membership fee of the Northern Regional Power Committee (NRPC) for three years i.e. 2019-20, 2018-19 and 2016-17 for meeting the annual expenditure of NRPC establishment. PDD has not paid NRPC membership fee of Rs 17 lakh for the year 2018-19 and 2016-17. During 45<sup>th</sup> NRPC meeting held on 08.06.2019, the contribution amount was decided as Rs.10 Lakh for 2019-20. Accordingly, PDD is to make payment of Rs 27 lakh – Rs 10 lakh each for 2018-19, 2019-20 and Rs 7 lakh for 2016-17. In this regard, I would like to convey that NRPC Secretariat has communicated with your office, the copies of communication are enclosed.

I seek your kind intervention, for clearance of aforesaid contribution amount, on an early basis. The payment could be made through Demand Draft, drawn in favour of "NRPC Fund". The contribution can also be made through RTGS in the Bank account named "NRPC Fund" (A/c No. 3083000105096078 RTGS / NEFT Code: PUNB0308300).

With Regards,

Encl: As above

Yours Sincerely,

(Naresh Bhandari)

To,  
Sh. Hirdesh Kumar, IAS  
Secretary Power,  
Power Development Department,  
Civil Secretariat,  
SRINAGAR (J&K)



सत्यमेव जयते

भारत सरकार

उत्तर क्षेत्रीय विद्युत समिति

18-ए, श.जीत सिंह मार्ग, कटवारिया सराय,

नई दिल्ली- 110016

Government of India

Northern Regional Power Committee

18-A, S. Jeet Singh Marg, Katwaria Sarai,

New Delhi-110016

No. NRPC /AS/NRPC Fund/2019-20/10396

Date: 16.09.2019

To,

Principal Secretary to Govt.,  
Power Development Department,  
Civil Secretariat,  
**SRINAGAR-190009 (J&K)**

**Subject:** Contribution towards NRPC Fund for the year 2019-20 by the Constituents-  
regarding.

Sir,

This has reference to the minutes of 45<sup>th</sup> meeting of NRPC held on 08.06.2019 at Gangtok, Sikkim wherein members agreed to contribute a sum of Rs. 10.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for F.Y. 2019-20. Extracts of minutes of 45<sup>th</sup> meeting of NRPC is enclosed for ready reference.

It is, therefore, requested that the contribution of Rs. 10.0 lakh for the year 2019-20 in the form of Demand Draft in favour of "NRPC Fund" may be forwarded to us urgently. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us. The RTGS / NEFT Code are PUNB0308300.

Encl: As above

Yours faithfully,

Nodal Officer, NRPC



सत्यमेव जयते

नरेश भण्डारी  
सदस्य सचिव

भारत सरकार  
विद्युत मंत्रालय  
उत्तर क्षेत्रीय विद्युत समिति  
18-ए, शहीद जीत सिंह मार्ग,  
कटवारिया सराय, नई दिल्ली -110018  
दूरभाष . 26511211, 26513265

D.O NO. NRPC/AS/NRPCFUND/2019-20/13364

Dated: 31/10/2019

Sh. Hirdesh Kumar,

The matter relates to pending payment of membership fee of the Northern Regional Power Committee (NRPC) for four years i.e. 2019-20, 2018-19, 2015-16 and 2014-15 for meeting the annual expenditure of NRPC establishment. PDCL has not paid NRPC membership fee of Rs 32 lakh for the year 2018-19, 2015-16 and 2014-15. During 45<sup>th</sup> NRPC meeting held on 08.06.2019, the contribution amount was decided as Rs.10 Lakh for 2019-20. Accordingly, PDCL is to make payment of Rs 42 lakh – Rs 10 lakh each for 2018-19, 2019-20 and Rs 11 lakh each for 2015-16, 2014-15. In this regard, I would like to convey that NRPC Secretariat has communicated with your office, the copies of communication are enclosed.

I seek your kind intervention, for clearance of aforesaid contribution amount, on an early basis. The payment could be made through Demand Draft, drawn in favour of "NRPC Fund". The contribution can also be made through RTGS in the Bank account named "NRPC Fund" (A/c No. 3083000105096078 RTGS / NEFT Code: PUNB0308300).

With Regards,

Encl: As above

Yours Sincerely,

(Naresh Bhandari)

To,  
Sh. Hirdesh Kumar, IAS  
Secretary Power,  
J & K State Power Development Corp. Ltd.,  
Shaw Inn, the Boulevard,  
SRINAGAR-190009 (J&K)





नरेश भण्डारी  
सदस्य सचिव

भारत सरकार  
विद्युत मंत्रालय  
उत्तर क्षेत्रीय विद्युत समिति  
18-ए, शहीद जौहल सिंह मार्ग,  
कटवारिया सराय, नई दिल्ली -110016  
दूरभाष . 26511211, 26513265

**REMINDER**

D.O NO. NRPC/AS/NRPCFUND/2019-20/336

Dated: 28/01/2020

Sh. M. Raju,

Please refer to my D.O. letter of even number dated 31<sup>st</sup> October, 2019 regarding payment of membership fee to the Northern Regional Power Committee (NRPC) by the constituent members of NRPC for the financial years 2019-20, 2018-19, 2015-16 and 2014-15 for meeting the annual expenditure of NRPC establishment.

2. In this regard I would like to mention that previously the amount of annual membership fee to be paid to the NRPC by each constituent member of the NRPC had been fixed as Rs.10 lakh. During the 45<sup>th</sup> NRPC meeting held recently on 08.06.2019, the amount of the annual membership fees the financial year 2019-20 also was decided to be fixed as Rs.10 Lakh for each constituent. NRPC Secretariat has already requested you vide its letters of even number dated 31.10.2019 for payment of the said contribution amounting to Rs.42 Lakh for the above cited financial years on urgent basis. The matter for payment of the above contribution has also discussed during the last few RPC meetings when Members of the Committee agreed to expedite the said payment. However, in spite of that the contribution from your organization in respect of the above cited financial years is still awaited.

3. Therefore, I shall be grateful if you could kindly intervene and arrange to expedite the amount of the aforesaid contribution amount of Rs.42 Lakh for smooth running of the NRPC Secretariat. The payment could be made either through Demand Draft, drawn in favour of "NRPC Fund" or through RTGS in the Bank account named "NRPC Fund" (A/c No. 3083000105096078 RTGS / NEFT Code: PUNB0308300).

Regards,

Yours Sincerely,

  
(Naresh Bhandari) 28/1/2020

Encl: As Above

To,  
Sh. M. Raju,  
Secretary Power,  
J & K State Power Development Corp. Ltd.,  
Shaw Inn, the Boulevard,  
SRINAGAR-190009 (J&K)



सत्यमेव जयते

भारत सरकार

उत्तर क्षेत्रीय विद्युत समिति

18-ए, श.जीत सिंह मार्ग, कटवारिया सराय,

नई दिल्ली- 110016

Government of India

Northern Regional Power Committee

18-A, S. Jeet Singh Marg, Katwaria Sarai,  
New Delhi-110016

Phone: 26868681

Fax: 26865206

E-mail: seo-nrpc@nic.in

Website: [www.nrpc.gov.in](http://www.nrpc.gov.in)

No. NRPC /AS/NRPC Fund/2018-19/435

Date: 08.03.2019

To,

Managing Director,  
J & K State Power Development Corp. Ltd.,  
Shaw Inn, the Boulevard,  
**SRINAGAR-190009 (J&K)**

**Subject:** Contribution towards NRPC Fund for the year 2018-19 by the Constituents-regarding.

Sir,

Please refer to our letter of even number dated 16.10.2018 regarding contribution of Rs. 10.0 Lakh for contribution towards annual expenditure of NRPC Secretariat for financial year 2018-19.

It may be mentioned that during 42<sup>nd</sup> NRPC meeting of NRPC held on 28.06.2018 at Parwanoo, Solan(HP) wherein members agreed to contribute a sum of Rs. 10.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for F.Y. 2018-19. The contribution from your organisation is still awaited.

It is, therefore, requested that the contribution of Rs. 10.0 lakh for the year 2018-19 in the form of Demand Draft in favour of "NRPC Fund" may be forwarded to us urgently. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us. The RTGS / NEFT Code are PUNB0308300.

Encl: As above

Yours faithfully,

Assistant Secretary



सत्यमेव जयते  
भारत सरकार

उत्तर क्षेत्रीय बिद्युत समिति  
18-ए, श.जीत सिंह मार्ग, कटवारिया सराय,  
नई दिल्ली- 110016  
Government of India  
Northern Regional Power Committee  
18-A, S. Jeet Singh Marg, Katwaria Sarai,  
New Delhi-110016

Phone: 26868681  
Fax: 26865206  
E-mail: seo-nrpc@nic.in  
Website: www.nrpc.gov.in

No. NRPC /AS/NRPC Fund/2018-19/ 1212

Date: 16.10.2018

To,

Managing Director,  
J & K State Power Development Corp. Ltd.,  
Shaw Inn, the Boulevard,  
SRINAGAR-190009 (J&K)

**Subject:** Contribution towards NRPC Fund for the year 2018-19 by the Constituents-  
regarding.

Sir,

This has reference to the minutes of 42<sup>nd</sup> meeting of NRPC held on 28.06.2018 at Parwanoo, Solan(HP) wherein members agreed to contribute a sum of Rs. 10.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for F.Y. 2018-19. Extracts of minutes of 42<sup>nd</sup> meeting of NRPC is enclosed for ready reference.

It is, therefore, requested that the contribution of Rs. 10.0 lakh for the year 2018-19 in the form of Demand Draft in favour of "NRPC Fund" may be forwarded to us urgently. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us. The RTGS / NEFT Code are PUNB0308300.

Encl: As above

Yours faithfully,

Assistant Secretary

Phone: 26866681  
Fax: 26865206  
E-mail: nrpccommi@yahoo.com  
Website: [www.nrpc.gov.in](http://www.nrpc.gov.in)

भारत सरकार  
उत्तर क्षेत्रीय विद्युत समिति  
18-ए, श. जीत सिंह मार्ग, कटवारिया सराय,  
नई दिल्ली- 110016  
Government of India  
Northern Regional Power Committee  
18-A, S. Jeet Singh Marg, Katwaria Sarai,  
New Delhi-110016

No. NRPC /AS/NRPC Fund/2015-16/1777-80

Date: 30.08.2017

To,

Managing Director,  
J & K State Power Development Corp. Ltd.,  
Shaw Inn, The Boulevard,  
SRINAGAR-190009 (J&K)

**Subject:** Contribution towards NRPC Fund for the year 2015-16 by the Constituents-  
regarding.

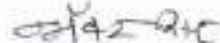
Sir,

Please refer to our letter of even number dated 27.08.2015, 09.12.2015 & 08.02.2016 regarding contribution of Rs. 11.0 Lakh for contribution towards annual expenditure of NRPC Secretariat for financial year 2015-16

It may be mentioned that during the 35<sup>th</sup> NRPC meeting held on 09.07.2015 at Shimla, members agreed to contribute Rs. 11.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for financial year 2015-16. The contribution from your organisation is still awaited.

It is, therefore, requested that the contribution of Rs. 11.0 lakh for the year 2015-16 in the form of Demand Draft in favour of "NRPC Fund" may be forwarded to us urgently. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300.

Yours faithfully,

  
Assistant Secretary



सत्यमेव जयते

भारत सरकार

उत्तर क्षेत्रीय विद्युत समिति

18-ए, श.जीत सिंह मार्ग, कटवारिया सराय,

नई दिल्ली- 110016

Government of India

Northern Regional Power Committee

18-A, S. Jeet Singh Marg, Katwaria Sarai,

New Delhi-110016

Phone: 26868681  
Fax: 26865206  
E-mail: [soo-nrpc@nic.in](mailto:soo-nrpc@nic.in)  
Website: [www.nrpc.gov.in](http://www.nrpc.gov.in)

No. NRPC/AS/NRPC Fund/2018-19/ 12316

Date: 25.10.2018

To,

Managing Director,  
J & K State Power Development Corp. Ltd.  
Hotel Shaw Inn, The Boulevard,  
SRINAGAR-190009 (J&K)

**Subject:** Reimbursement of NRPC establishment expenditure for FY 2014-15 by J & K State Power Development Corporation Limited.

Sir,

In the 30<sup>th</sup> NRPC meeting held on 28.02.2014 at Agra, members agreed to contribute Rs. 11.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for financial year 2014-15. Despite repeated requests and regular follow up in various NRPC meetings, the contribution from J & K State Power Development Corp. Ltd. is pending till date.

NRPC establishment expenditure is met against the NRPC allocated budget and the same is reimbursed to consolidated fund of India after collection from the NRPC constituents. There is serious objection from Audit on non recovery of dues from some of the NRPC constituents.

It is, therefore, requested that J & K State Power Development Corp. Ltd. may be directed to make the contribution of Rs. 11.0 lakh for the year 2014-15 in the form of Demand Draft in favour of "NRPC Fund" or deposit in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us [The RTGS / NEFT Code is PUNB0308300] urgently.

Yours faithfully,

  
Assistant Secretary

Phone: 26868681  
Fax: 26865206  
E-mail: nrpccommi@yahoo.com  
Website: [www.nrpc.gov.in](http://www.nrpc.gov.in)

भारत सरकार  
उत्तर क्षेत्रीय विद्युत समिति  
18-ए, श.जीत सिंह मार्ग, कटवारिया सराय,  
नई दिल्ली- 110016  
Government of India  
Northern Regional Power Committee  
18-A, S. Jeet Singh Marg, Katwaria Sarai,  
New Delhi-110016

No. NRPC/AS/NRPC Fund/2015-16/1093-99

Date: 20.10.2015

To,

Managing Director,  
J & K State Power Development Corp. Ltd.  
Hotel Shaw Inn, The Boulevard,  
SRINAGAR-190009 (J&K)

**Subject:** Contribution towards NRPC Fund for the year 2014-15 by the Constituents-  
regarding.

Sir,

Please refer to our letter of even number dated 09.06.2014, 30.12.2014, 10.03.2015 & 28.04.2015 regarding contribution of Rs. 11.0 Lakh for contribution towards annual expenditure of NRPC Secretariat for financial year 2014-15

It may be mentioned that during the 30<sup>th</sup> NRPC meeting held on 28.02.2014 at Agra, members agreed to contribute Rs. 11.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for financial year 2014-15. The contribution from your organisation is awaited.

It is, therefore, requested that the contribution of Rs. 11.0 lakh for the year 2014-15 in the form of Demand Draft in favour of "NRPC Fund" may be forwarded to us urgently. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300.

Yours faithfully,

  
Assistant Secretary

Phone: 26868681  
Fax: 26865206  
E-mail: nrpccommi@yahoo.com  
Website: [www.nrpc.gov.in](http://www.nrpc.gov.in)

भारत सरकार  
उत्तर क्षेत्रीय विद्युत समिति  
18-ए, श.जीत सिंह मार्ग, कटवारिया सराय,  
नई दिल्ली- 110016  
Government of India  
Northern Regional Power Committee  
18-A, S. Jeet Singh Marg, Katwaria Sarai,  
New Delhi-110016

No. NRPC/AS/NRPC Fund/2015-16/720-31

Date: 28.04.2015  
29

To,

Managing Director,  
J & K State Power Development Corp. Ltd.  
Hotel Shaw Inn, The Boulevard,  
SRINAGAR-190009 (J&K)

**Subject:** Contribution towards NRPC Fund for the year 2014-15 by the Constituents-  
regarding.

Sir,

Please refer to our letter of even number dated 09.06.2014, 30.12.2014 & 10.03.2015 regarding contribution of Rs. 11.0 Lakh for contribution towards annual expenditure of NRPC Secretariat for financial year 2014-15

It may be mentioned that during the 30<sup>th</sup> NRPC meeting held on 28.02.2014 at Agra, members agreed to contribute Rs. 11.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for financial year 2014-15. The contribution from your organisation is awaited.

It is, therefore, requested that the contribution of Rs. 11.0 lakh for the year 2014-15 in the form of Demand Draft in favour of "NRPC Fund" may be forwarded to us urgently. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300.

Yours faithfully,

  
Assistant Secretary

Phone: 26868681  
Fax: 26865206  
E- mail: nrpccommi@yahoo .com  
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भारत सरकार  
उत्तर क्षेत्रीय विद्युत समिति  
18-ए, श.जीत सिंह मार्ग, कटवारिया सराय,  
नई दिल्ली- 110016  
Government of India  
Northern Regional Power Committee  
18-A, S. Jeet Singh Marg, Katwaria Sarai,  
New Delhi-110016

No. NRPC /AS/NRPC Fund/2014-15/477-90

Date: 10.03.2015

To,

Managing Director,  
J & K State Power Development Corp. Ltd.  
Hotel Shaw Inn, The Boulevard,  
SRINAGAR-190009 (J&K)

**Subject:** Contribution towards NRPC Fund for the year 2014-15 by the Constituents-  
regarding.

Sir,

Please refer to our letter of even number dated 09.06.2014 & 30.12.2014 regarding contribution of Rs. 11.0 Lakh for contribution towards annual expenditure of NRPC Secretariat for financial year 2014-15

It may be mentioned that during the 30<sup>th</sup> NRPC meeting held on 28.02.2014 at Agra, members agreed to contribute Rs. 11.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for financial year 2014-15. The contribution from your organisation is awaited.

It is, therefore, requested that the contribution of Rs. 11.0 lakh for the year 2014-15 in the form of Demand Draft in favour of "NRPC Fund" may be forwarded to us urgently. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300.

Yours faithfully,

  
16.03.15  
Assistant Secretary



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Fax: 26865208  
E-mail: nrpcocomm@yahoo.com  
Website: www.nrpc.gov.in

भारत सरकार  
उत्तर क्षेत्रीय विद्युत समिति  
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नई दिल्ली- 110016  
Government of India  
Northern Regional Power Committee  
18-A, S. Jeet Singh Marg, Katwaria Sarai,  
New Delhi-110016

No. NRPC /AS/NRPC Fund/2014-15/01-15

Date: 30.12.2014  
01.01.2015

To,

Managing Director,  
J & K State Power Development Corp. Ltd.  
Hotel Shaw Inn, The Boulevard,  
SRINAGAR-190009 (J&K)

**Subject:** Contribution towards NRPC Fund for the year 2014-15 by the Constituents-  
regarding.

Sir,

Please refer to our letter of even number dated 09.06.2014 regarding contribution of Rs. 11.0 Lakh for contribution towards annual expenditure of NRPC Secretariat for financial year 2014-15

It may be mentioned that during the 30<sup>th</sup> NRPC meeting held on 28.02.2014 at Agra, members agreed to contribute Rs. 11.0 Lakh per member as contribution towards annual expenditure of NRPC secretariat for financial year 2014-15. The contribution from your organisation is awaited.

It is, therefore, requested that the contribution of Rs. 11.0 lakh for the year 2014-15 in the form of Demand Draft in favour of "NRPC Fund" may be forwarded to us urgently. The contribution can also be deposited in any CBS branch of Punjab National Bank or through RTGS in the account named "NRPC Fund" (A/c No. 3083000105096078) under intimation to us. The RTGS / NEFT Code is PUNB0308300.

Yours faithfully,

  
Assistant Secretary