सत्यमेव जयते

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 (59वीं)/2022/10943-10990 दिनाँक: 11 November 2022

सेवा में / To,

उ.क्षे.वि.स. के सभी सदस्य (संलग्न सूचीनुसार)
Members of NRPC (As per List)

विषय: उत्तर क्षेत्रीय विद्युत समिति की 59वीं बैठक का कार्यवृत ।
Subject: 59th meeting of Northern Regional Power Committee – MoM

महोदय / Sir,

उत्तर क्षेत्रीय विद्युत समिति की 59वीं बैठक दिनांक **31 अक्टूबर 2022** को **1100** बजे विडियो कोंफ्रेंसिंग के माध्यम से आयोजित की गयी थी । बैठक का कार्यवृत संलग्न है। यह उ.क्षे.वि.स. की वेबसाइट (http://164.100.60.165/) पर भी उपलब्ध है।

The 59th meeting of Northern Regional Power Committee (NRPC) was held at **1100 Hrs** on **31 October 2022** via video conferencing. MoM of the same is attached herewith. The same is also available on NRPC Sectt. website (http://164.100.60.165/).

भवदीय
Yours faithfully,

Naresh

(नरेश भंडारी) 11/11/22
(Naresh Bhandari)
सदस्य सचिव
Member Secretary

18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016 फोन:011-26513265 ई-मेल: ms -nrpc@nic.in वेबसाईट: www.nrpc.gov.in
18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016 Phone: 011-26513265 e- mail: ms-nrpc@nic.in Website: www.nrpc.gov.in

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उत्तरी क्षेत्रीय विद्युत समिति की 59वीं बैठक

59th MEETING OF NORTHERN REGIONAL POWER COMMITTEE

Time & Date of NRPC meeting: 11:00 HRS; 31 October, 2022

Venue: Video Conferencing

Minutes of the Meeting

Shri Naresh Bhandari, Member Secretary, NRPC welcomed Chairperson, NRPC Sh. Shurbir Singh, CMD, DTL and all the other delegates. He requested Chairperson, NRPC to address the gathering with his opening remarks.

Sh. Shurbir Singh, CMD, DTL and Chairperson, NRPC welcomed all the delegates present for 59th NRPC meeting. He highlighted that Delhi has successfully met 7695 MW on 29 June while all India highest peak of 211 GW was met on 10 June, 2022. He congratulated all the members for achieving this great feat and asked them to keep the good works for upcoming winter season. He highlighted issues such as reactive power compensation, high voltages which needs to be tackled for safe, reliable operation of Northern Grid.

MS, NRPC also congratulated all the members for maintaining uninterrupted power supply in peak summer season. He urged utilities to keep this momentum for upcoming winter season and take up preventive maintenance activities for next summer season. He stated that shutdowns may be allowed in lean period of November before peak winter season. He advised all utilities to gear up for peak winter season and ensure proper reactive power compensation by switching off capacitor, changing tap positions of ICT etc. He emphasized that renewal generation is coming in higher quantum along with their issues of integration with grid. Hence, inclusion of RE generators in NRPC forum is important related to which agenda is there in this meeting.

A.1 Approval of MoM of 58th NRPC meeting

A.1.1 Forum was apprised that minutes of 58th NRPC meeting has been issued on 26 October 2022. No comment has been received till the date.

A.1.2 Hence, forum approved the minutes as issued.

A.2 Unchahar Islanding Scheme (agenda by UP)

A.2.1 EE, NRPC stated that Unchahar islanding scheme, proposed by UPSLDC, vide letter dtd. 13 October 2022 (attached as Annexure-A. I of the agenda) has been discussed

in 200th OCC meeting held on 18 October 2022. This scheme has also been deliberated in various meetings held with UP, NTPC and NRLDC. Subsequently, in 200th OCC, scheme has been recommended for approval of NRPC Forum.

A.2.2 UP apprised about the Islanding scheme to forum and highlighted that there is average load of 540 MW against average generation of 600 MW. He stated that islanding scheme is in 2 stages i.e. at 47.9 Hz and 47.7 Hz. Further, UFRs are mainly installed at 132 kV GSS.

A.2.3 CGM, NRLDC advised that operators may be sensitized about the importance of maintenance and operation of UFR relays. UP highlighted that UFRs on both sides of transmission line is envisaged for 132 kV and above network for reliability. It was discussed that this philosophy may be implemented at NR level.

A.2.4 NRPC approved the Unchahar Islanding scheme for implementation. UP was requested to implement the scheme.

A.3 Inclusion of RE generators at various fora of NRPC (agenda by NRPC Sectt.)

A.3.1 EE, NRPC apprised that ACME Solar Holdings Private Limited vide letter dtd. 13 October 2022 has requested that RE generation addition is growing on fast pace and which in turn increasing the number of various operational and technical issues regarding the plant day to day operations and it is necessary to deliberate these issues at a common forum at the RPC level so that the issue can be monitored and resolved.

A.3.2 ACME has highlighted that presently operational and technical issues of thermal generators are discussed and resolved at OCC/TCC/ Board Meeting.

A.3.3 ACME has suggested that RE Generators and Solar Park Developers may be made members of committees at RPC forum alongwith CTU, STU, RLDC, and SLDC.

A.3.4 EE, NRPC quoted provisions regarding membership of generators as per clause 3 of MoP Gazette Notification CG-DL-E-06122021-231635 dated 06.12.2021 as:

Quote

a. A representative each of every generating company (other than central generating companies or State Government owned generating companies) having more than 1000 MW installed capacity in the region
b. A representative of the generating companies having power plants in the region (not covered in (ii) to (v) above) by alphabetical rotation.

Unquote

A.3.5 ACME representative informed that presently there may be 6-7 holding companies with installed capacity of more than 1000 MW. These holding companies only bid for the project and create SPV upon award of the project. SPVs are having installed

capacity not more than 300 MW. He requested holding companies to be considered as members of NRPC under clause 3 (a) of gazette resolution.

A.3.6 MS, NRPC opined that it is need of the hour that RE generators must be part of such forum for safe and reliable operation of gird. He highlighted that many issues related to RE operation, protection and integration are coming up rapidly and participation of RE generators will benefit to them as well as forum. He suggested that holding companies with installed capacity of more than 1000 MW may be given membership provisionally. Meanwhile, CEA/MoP may be requested for final decision regarding membership of RE generators. Till then, RE generators may not be charged membership fee of NRPC.

A.3.7 He added that membership of the generating companies having power plants in the region by alphabetical rotation will continue for companies/SPVs with installed capacity less than 1000 MW under clause 3 (b) of gazette resolution. Such member shall pay NRPC membership contribution also.

A.3.8 CGM, NRLDC highlighted that there may be non-RE generators in alphabetical rotations and RE generators may not be represented effectively. Therefore, there may be a separate sub-group for RE.

A.3.9 After deliberation, forum decided that:

i. Holding companies with installed capacity of more than 1000 MW shall be members provisionally. CEA/MoP may be requested for final decision in this regard. Till then, these holding companies may not be charged membership contribution of NRPC.

ii. All RE generators which are not covered in A.3.9 (i) above may be invited as special invitee in NRPC working forums such as OCC, CSC, PSC, etc.

A.3.10 Further, MS, NRPC requested NRLDC to put up one exclusive RE related agenda in OCC meetings for detailed and focused discussion. NRLDC agreed for the same.

A.4 Formation of sub-group for physical inspection in cases of tower collapse and equipment failure in Northern Region (agenda by NRPC Sectt.)

A.4.1 EE, NRPC informed that under section 73(l) of Electricity Act, 2003, CEA is required to carry out investigation for the purpose of generating or transmitting or distributing electricity. CEA has constituted/re-constituted following committees

i. 'Standing Committee of Experts to Investigate Failure of Towers' vide office order no. CEA/5-41(18)/Secy-2012/166 dtd. 06 August 2012

ii. 'Standing Committee of Experts to Investigate Failure of Equipment at 220 kV and above sub-stations' vide office order no. CEA/SETD/220-O/2012/1-80 dtd. 01 January 2013

A.4.2 However, it has been observed that the above two committees generally give report on yearly basis for all cases reported in the year. However, availability certificate of previous month is required to be issued by RPC Secretariat on 3rd day of next month. In absence of reports, decision regarding availability of element gets delayed.

A.4.3 It was intimated that as per clause 5 of Appendix-II in CERC Tariff Regulations, 2019, Member Secretary, RPC is to verify whether the outage is due to force majeure (not design failure). A reasonable restoration time for the element shall be considered by Member Secretary, RPC.

A.4.4 In view of above and to avoid delay in resolution of availability cases of tower/equipment failures, a, 'Sub-Group for verification of cause of failure of transmission system for purpose of availability' is proposed which may visit the place of failure for all system (tower/equipment/etc.) for which availability is certified by NRPC. The committee may submit its preliminary report to Member Secretary, NRPC. Based on preliminary report, availability may be certified by Member Secretary, NRPC. However, availability certificate may be revised, if required, due to recommendation report of CEA Standing Committees.

A.4.5 The committee may have following members:

i. Superintending Engineer, NRPC *(dealing availability matters)* as Chairperson
ii. Superintending Engineer (Transmission), STU of concerned circle of State/UT
iii. Concerned General Manager or equivalent of concerned licensee/owner of asset
iv. Executive Engineer, NRPC *(dealing availability matters)* as Member Convenor
v. Any other member as considered necessary by Chairperson

A.4.6 It was also highlighted that un-availability of any of above members shall not cause delay in visit and available members may visit the place and submit report.

A.4.7 Licensees/owner of the system (tower/equipment/etc.) has to intimate failure of asset within 24 hours of the incident in format attached as Annexure-A.III of the agenda so that committee can visit the place preferably within next 3 working days.

A.4.8 MS, NRPC stated as present cases are being forwarded to CEA, however in absence of report provisional availability needs to be issued as per provisions of CERC regulations. He advised licensees to intimate such incidence on priority to NRPC secretariat.

A.4.9 NRLDC highlighted that similar committee is constituted at CEA level and similar committee may complicate the issues, if there are difference of opinions. He stated that CEA may be requested for timely submission of inputs for availability certification.

A.4.10 MS, NRPC highlighted that CEA committees take up analysis of pan India events, hence submission for transmission availability certification may be difficult.

A.4.11 SE, NRPC suggested that member from PSETD division, CEA may also be included in the committee so that CEA committees may get information gathered by NRPC committee.

A.4.12 CGM, POWERGRID highlighted that this committee may be very helpful for NR licensees as currently availability matter is getting delayed due to delay in CEA committee report.

A.4.13 Forum approved constitution of the sub-group with members as below:

i. Superintending Engineer, NRPC *(dealing availability matters)* as Chairperson
ii. Superintending Engineer (Transmission), STU of concerned circle of State/UT
iii. Concerned General Manager or equivalent of concerned licensee/owner of asset
iv. One representative of PSETD Division, CEA
v. Executive Engineer, NRPC *(dealing availability matters)* as Member Convenor
vi. Any other member as considered necessary by Chairperson

A.5 Staff Crunch in NRPC Secretariat

A.5.1 EE, NRPC apprised that currently, NRPC Secretariat is reeling under acute staff crunch as below:

S.N.	Designation	Sanctioned Strength	Currently in NRPC Secretariat
1	Superintending Engineer	3	1
2	Executive Engineer	4	3
3	Assistant Executive Engineer	4	4
4	Assistant Engineer	2	0

A.5.2 One Superintending Engineer and One Executive Engineer are on rolls of NRPC however, they are working in MoP on loan basis.

A.5.3 CEA has mandate to provide staff to RPCs. However, CEA has not been able to provide the same. Due to staff crunch, NRPC is not able to deliver its responsibilities timely and effectively. Even post of Private Secretary to Member Secretary is also vacant since retirement of incumbent on 28 February 2022.

A.5.4 MS, NRPC added that RPCs are being entrusted with additional duties in published draft IEGC and regular amendments of CERC regulations are also being published, hence role and works of RPC is increased. He urged that NR constituents may post their officials (technical/ non-technical) to NRPC Secretariat for short duration to extend helping hand to NRPC Secretariat so that various bills, certificates, and recommendations may be issued timely by NRPC Sectt.

A.5.5 Forum observed that since expenditure of NRPC Sectt. are reimbursed to CEA from NRPC fund contributed by constituents, CEA may be requested to avoid sending NRPC officers on loan basis to other organizations. Further, CEA may also be requested to equip NRPC Sectt. with adequate staff.

A.6 Hosting of next NRPC meeting

A.6.1 Members were informed that 44th TCC & 47th NRPC Meetings (10 and 11 December, 2019) was hosted by Rajasthan. As per decision taken in 47th NRPC meeting, next meeting was to be hosted by Uttarakhand, however, due to COVID pandemic, all subsequent meetings have been held via video-conferencing till the date.

A.6.2 Roster finalized in 40th TCC & 43rd NRPC Meetings (29 and 30 October, 2018) is as below:

D.4 Roster for Hosting NRPC Meetings

D.4.1 MS, NRPC informed that it is proposed that roster for hosting of NRPC meeting may be revised as old roster included state utilities and PSUs but not IPPs. He informed that currently there are 10 IPPs which are members of NRPC and after every 4 meeting member IPP will get an opportunity to host the meeting. The modified roster is as followed:

1.Member IPP	9. Punjab	17. Member Trader/PTC
2.NPCIL	10.Member IPP	18. Delhi
3.J&K	11. Rajasthan	19.Member IPP
4.THDC	12. POWERGRID	20. BBMB
5.Member IPP	13. UT of Chandigarh	21. Uttarakhand
6. Haryana	14.Member IPP	22. HP
7. SJVN	15. NHPC	
8. NTPC	16. UP	

Roster for Members IPP is as followed:

1.Adani Power	6.LPGCL
2.APCPL	7.NPL
3.CLP	8.PPGCL
4.JSW Power	9.RPSCL
5.LAPL	10.TSPCL

D.4.2 NRPC approved the revised roster for the hosting of the meeting.

A.6.3 MS, NRPC highlighted that as COVID restrictions hace been relaxed now, constituents have requested several times to start physical meetings in NRPC. Hence, one meeting in a quarter may be held physically and remaining two via video-conferencing. Other RPCs have also started physical meetings.

A.6.4 Uttarakhand stated that arrangements for next meeting may not be possible due to upcoming winter. He stated that at least 2-3 month prior notice may be issued before actual date of meeting. He expressed willingness to host the meeting after March.

A.6.5 Forum decided that as per Roster finalized in 40th TCC & 43rd NRPC Meetings (29 and 30 October, 2018), any Member IPP may express its willingness to host the meeting. However, any other utility also may come forward to host.

A.7 Tr. System for Solar Energy Zones in Rajasthan (8.9GW) and RE Connect Tr. System under Phase-I & other schemes in Rajasthan by POWERGRID

A.7.1 Members were informed that as per decision in last NRPC meeting status of Transmission system for SEZ in Rajasthan is to be taken up as standing agenda. Status of schemes submitted by CTU is attached as **Annexure – 1.**

A.8 Disbursement of encashed CBG amount to DICs pending settlement of legal disputes on relinquishment charges (Table agenda by CTU)

A.8.1 CTU informed that in line with CERC Order dated 8.3.2019 passed in Petition No.92/MP/2015, CTU calculated relinquishment charges for LTAs relinquished by various generators and uploaded the same on its website from time to time. However, the relinquishment charges computed and notified by CTU in line with above CERC Order 08.03.2019 in Petition No. 92/MP/2015 was disputed by more than 20 relinquishing IPPs, who had filed appeals in APTEL which are pending adjudication. In view of pending disputes and GST issues concerning the raising of invoices, CTU issued demand letters to concerned relinquishing LTA customers pending disposal of appeals in APTEL.

A.8.2 During the proceedings in the matter, APTEL vide its order dated 08.10.2020 in Appeal no 251 of 2019, had restrained CTU from raising invoices with respect to the relinquishment charges during pendency of similar Appeals except where insolvency proceedings are faced by the generators. All the appeals on relinquishment charges are yet to be decided as on date and matter is being pursued by CTU. Further, where the IPPs are undergoing insolvency proceedings, CTU had filed claims before RPs/Liquidators for recovery of relinquishment charges.

A.8.3 Meanwhile, CTU encashed the CBGs of some of the IPPs who have abandoned their projects or undergoing insolvency proceedings and the encashed BG amount of approx. Rs 400 Crores was kept in FDs since the legal proceedings on relinquishment charges are still to be concluded and the BG amount may have to be refunded to IPPs along with interest in case of judgements in their favour in future.

A.8.4 The status of relinquishment charges and treatment of encashed BG amount has been reviewed in recent 42nd SRPC meeting held in Jun'22 and it was desired by the state utilities of SRPC that the BG amount to be disbursed to all the DICs pending settlement of disputes on relinquishment charges. CTU informed that it is common money of all the five regions and cannot be given state-wise or region-wise and hence it needs to be taken up with all the RPCs for their consent. CTU further informed that, in case the BG amount is disbursed to the DICs in the pool and the disputes are settled in favour of the relinquishing IPPs later, the amount so disbursed in the pool shall be collected from respective DICs along with interest to refund to the IPPs.

A.8.5 Hence, CTU requested for deliberation on the above and provide consent on disbursing the encashed BG amount to the DICs in the pool with the conditions mentioned above.

A.8.6 MS, NRPC stated that agenda pertains to all RPCs, hence it needs to be taken up at NPC meeting for uniform decision which is being chaired by Chairman, CEA. NRLDC stated that inputs from all DICs may be taken up after which agenda can be deliberated at NPC meeting.

A.8.7 Accordingly, it was decided that DICs of NR may submit comments regarding the agenda to CTU with copy to NRPC in one month (i.e by 30 November 2022). CTU was also asked to regularly follow up with DICs at all regions for earliest submission of comments. Subsequently, agenda may be deliberated at upcoming NPC meeting along with comments of DICs.

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Annexure - I

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)
(भारत सरकार का उद्यम)
CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
(A wholly owned subsidiary of Power Grid Corporation of India Limited)
(A Government of India Enterprise)

Ref. No. C/CTU/N/00/Raj/01 31/10/2022

Shri Rajiv Porwal
CGM-I/c
POSOCO Ltd.
NRLDC, 18-A, Shaheed Jeet Singh Sansanwal marg
Katwaria Sarai
New Delhi – 110 016

Subject: Status of Inter State Transmission system in Western Rajasthan

Dear Sir,

We write with reference to your letter no. NRLDC/SO-II/TS-24/1249-1254 dated 22.09.22. As you are aware, Transmission system associated with Ultra Mega Solar Power parks [UMSPP] (2.5 GW) & Transmission system for SEZ in Rajasthan Phase-I (8.9 GW) transmission system is already commissioned. Transmission system for Rajasthan SEZ Phase-II (8.1 GW) including STATCOMs is also under implementation.

The SCOD of the Rajasthan SEZ Ph-II Transmission scheme earlier was progressively from Dec'22. However due to Hon'ble Supreme court order dated 19.04.21 on GIB and clearance required from constituted committee for schemes falling under GIB potential area [Part-A/B/C], the scheme got rescheduled progressively from Jul'23 (Ph-II Part-A) upto Feb'24 (Ph-II part-B). The scheme is being regularly monitored by CTU for early completion, however GIB has created an unprecedent situation of delay in availability of requisite SEZ Ph-II transmission system in western Rajasthan. Further, Part-F (Bikaner-II & onwards] scheme scheduled for Dec'22, out of GIB potential area, is also being rescheduled to Mar'23 by POWERGRID recently, due to various issues.

The above issues are also informed by CTU to NRPC/NR Joint coordinate committee meetings regularly and also discussed in the meetings of sub committee on Cross cutting issues for RE among MOP, MNRE, SECI, CEA & CTU/BPCs. Further, this issue was also discussed in the recent 23rd NR JCC held on 22.09.22 as well as 57th NRPC meeting wherein CTU also impressed upon the need to expedite Ph-II Part F scheme as well as Ph-II STATCOMs (Fatehgarh-II, Bhadla-II & Bikaner-II PS). RE Developers have also been informed on above developments in various meetings held in Aug'22/Sep'22 and always informed on likely LTA operationalisation date in JCC meetings so that they can align their generation with transmission system associated with the LTA.

It is understood that due to re-scheduled transmission system (Ph-II), recent commissioned RE generation under STOA is facing power evacuation issues in Bikaner complex. However, it is also observed that many of the RE generators are over injecting more than its connectivity grant. Over injection (deviations) may be seen in the context of present congestions in Bikaner complex impacting grid security/reliability as per IEGC regulation. It may be noted that as per CEA (Technical standard for connectivity to the

grid) (amendment) regulations 2013, only hydro generators upto 110% rated capacity on continuous basis and thermal generators upto 105% of MCR for short duration for frequency response is allowed. Further CERC connectivity regulation clause 9.2 also illustrate that in case of Hybrid RE generators, if above project intend to sell surplus power over & above St-II connectivity grant, they shall need to apply for additional connectivity.

Regarding low SCR issues, it is learnt that POSOCO is assuming Xsource=999 for RE generators in PSS/E fault simulation studies, which should be assumed 0.8-1.0 for WECC type-4 RE generator (Solar/fully converter-based wind turbine). Various literatures in this regard have been shared with POSOCO vide our mail dated 27/10/22. POSOCO may revalidate the SCR studies with above modifications. Further, it is also suggested that such technical issues including requirement of synchronous condensers may be deliberated through regular meeting(s) among POSOCO, CEA & CTU.

As desired, latest status of planned Rajasthan SEZ Ph-II transmission system, which were also discussed in the 59th NRPC meeting held on 31/10/22 is also enclosed at **Annexure-I.**

Yours faithfully,

Jasbir Singh 31/10/22

(Jasbir Singh)
Chief General Manager (CTU)

Copy to :

1. **Member (Power System), CEA**
2. **Member Secretary, NRPC**

Annexure-I

Tr. System for Solar Energy Zones in Rajasthan under Ph-1 (8.9GW) and Phase-II (8.1 GW) (Oct'22)

1. 40/220 KV 500 MVA at 6th & 7th ICTs at Bhadla PS

1(a)	400/220kV, 1x500MVA (6th) transformer at Bhadla (PG)	-	Commissioned on 30.12.2021
1(b)	400/220kV, 1x500MVA (7th) transformer at Bhadla (PG)	-	Commissioned on 27.10.2021

RE Connect Scheme (Creation of 400/220 KV System at Bikaner, Bhadla-2 & Fatehgarh-2)

2. 765/400/220 kV Bikaner PS

2(a)	400/220kV, 1x500MVA transformer at Bikaner (PG)	-	Commissioned on 14.08.21
2(b)	400/220kV, 1x500MVA transformer at Bikaner (PG)	-	Commissioned on 31.12.21
2(c)	01 No. 220 KV Bay (208) for SBSR (LTA 1200002238)	-	Commissioned on 13.08.21
2(d)	01 No. 220 KV Bay (203) for Avikaran (LTA 1200002883)	-	Commissioned on 19.01.22
2(e)	01 No. 220 KV Bay (204) for Tata (LTA 1200002804)	-	Commissioned on 07.02.22
2(f)	01 No. 220 KV Bay (207) for SSOPL (LTA 1200003108)	-	Bay Charged on 07.02.2022

3. 765/400/220 kV Fatehgarh-II PS

3(a)	400/220kV, 2x500MVA ICT (1st & 2nd) Fatehgarh-2	-	Commissioned on 05.08.21
3(b)	400/220kV, 1x500MVA ICT (5th) Fatehgarh-2	-	Commissioned on 09.09.21
3(c)	400/220kV, 1x500MVA ICT (4th) Fatehgarh-2	-	Commissioned on 03.11.21
3(d)	400/220kV, 1x500MVA ICT (3rd) Fatehgarh-2	-	Commissioned on 12.12.21
3(e)	765/400kV, 1X1500MVA ICT (4th) Fatehgarh-2	-	Commissioned on 07.05.22
3 (f)	01 No. 220 KV Bay (203) for Eden (LTA 1200002058)	-	Commissioned on 02.08.21
3 (g)	02 No. 220 KV Bay (211 & 212) for Adani (LTA 1200002161)	-	Commissioned on 02.08.21
3 (h)	01 No. 220 KV Bay (221) for Renew (LTA 1200002014)	-	Commissioned on 02.08.21
3 (i)	01 No. 220 KV Bay (220) for Renew (LTA 1200002232)	-	Commissioned on 14.08.21
3 (j)	02 No. 220 KV Bay (209 & 210) for Adani (LTA 1200002442 &43)		Commissioned on 30.09.21
3 (k)	02 No. 220 KV Bay (202) for Renew (LTA 1200002366 & 1991)		Commissioned on 11.10.21
3 (l)	02 No. 220 KV Bay (218) for Renew (LTA 1200002366 & 1991)		Commissioned on 30.09.21

4. 765/400/220 kV Bhadla-2 PS

4(a)	400/220kV, 1x500MVA ICT (1st) Bhadla-2	-	Commissioned on 16.03.22
4(b)	400/220kV, 1x500MVA ICT (2nd) Bhadla-2	-	Commissioned on 13.05.22
4(c)	400/220kV, 1x500MVA ICT (3rd) Bhadla-2	-	Commissioned on 26.06.22
4(d)	400/220kV, 1x500MVA ICT (4th) Bhadla-2	-	Expected by 31.12.22
4(e)	400/220kV, 1x500MVA ICT (5th) Bhadla-2	-	Expected by 31.12.22
4(f)	765/400kV, 1X1500MVA ICT (3rd) (with Spare)	-	Commissioned on 04.10.22
4 (h)	01 Nos 220 KV Bay (208) (LTA 1200002239) Mahindra Susten	-	Commissioned on 17.05.22
4 (i)	01 Nos 220 KV Bay (218) (LTA 1200003074) - ACME Solar	-	Commissioned on 02.04.22
4 (k)	01 Nos 220 KV Bay (209) (Conn 1200002359) - ABC Solar	-	Commissioned on 08.04.22
4 (j)	01 Nos 220 KV Bay (219) (LTA 1200003110) - NTPC	-	Ready for charging since 28.03.22
4 (l)	01 Nos 220 KV Bay (221) (Conn 1200002554) - Eden	-	Ready for charging since 28.03.22
4 (g)	04 Nos 220 KV Bays (202,203,205,206) (LTA 1200000913) RSPDL	-	Expected by 31.12.22 **(RE Generation delayed)**

5. Common for Fatehgarh & Bhadla Complex

(i) Establishment of 765/400kV, 3X1500MVA, Fatehgarh-II PS:

(a) 765/400kV, 1X1500MVA ICT (1st) – Commissioned on 30.08.2021

(b) 765/400kV, 2X1500MVA ICT (2nd & 3rd) – Commissioned (06.10.21&08.11.21)

(ii) Establishment of 765/400kV, 2x1500MVA, Bhadla-II PS:

765/400kV, 2x1500MVA ICT (1st & 2nd) – Charged in July'21

(iii) LILO of both circuits of Fatehgarh (TBCB) – Bhadla (PG) 765 kV D/C (Adani – FBTL) line (operating at 400kV) at Fatehgarh-II PS

a) Fatehgarh (TBCB) – Fatehgarh-II 765kV D/c line (to be operated at 400kV) - Commissioned on (19.11.21 & 26.11.21)

(b) Fatehgarh-II – Bhadla (PG) 765kV D/c line – Normal Scheme Commissioned on 06.03.22 & 31.03.2022

b) For evacuation of RE power from 220 kV side, interim arrangement of 400kV Fatehgarh II – Bhadla (PG) line - Commissioned. (05.08.2021) & normal scheme commissioned on 31.03.2022.

(iv) LILO of both ckt of 765kV Ajmer – Bikaner D/c line at Bhadla-II PS – Commissioned July'21.

(v) Bhadla-II PS – Bhadla (PG) 400kV D/c Line (Twin AL59) - Ckt-2 Commissioned on 03.09.21 & Ckt-1 - Commissioned on 03.12.21.

(vi) Transmission scheme for controlling high loading and high short circuit level at Moga substation: Commissioned on 05.09.2021

6. 765kV D/C Ajmer - Phagi Line (Part-A) Commissioned in May'21

7. 765kV Bikaner- Khetroi D/c (Adani)- deemed COD 04.09.21

8. Augmentation with 1x1000MVA,765/400kV transformer (3rd) at Bhiwani (PG) – Commissioned on 16.11.21

9. Fatehgarh – Bhadla-II 765kV D/c line with Bays at both side - Commissioned on 31.08.21

10. Establishment of 765/400kV, 2x1500 MVA S/s at Khetri

(a) Khetri – Sikar (PG) 400kV D/c line (twin HTLS) - Commissioned on 04.10.21

(b) 765/400kV, 1X1500MVA ICT (1st) - Commissioned on 04.10.21

(c) 765/400kV, 1X1500MVA ICT (2nd) - Commissioned on 04.10.21

(d) Khetri– Jhatikara 765kV D/c line- - Commissioned on 04.10.21

Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase-II

Under TBCB by POWERGRID

1. Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II –Part A [Original SCOD- 08.12.22 Revised ant. Schedule -Jul'23 to Sep'23*]

- Establishment of 400/220kV, 4x500 MVA pooling station at Ramgarh-II PS (Fatehgarh-III) with 2x125 MVAr bus reactor
- Ramgarh-II PS (Fatehgarh-III) –Fatehgarh-II PS 400 kV D/c Line (Twin HTLS*)
- Ramgarh-II (Fatehgarh-III) PS – Jaisalmer-II (RVPN) 400 kV D/c Line (Twin HTLS*)
- 220kV line bays for interconnection of solar projects at Ramgarh-II (Fatehgarh-III) PS (7 nos)

Transmission System falling under GIB potential area. Supreme court committee clearance received on 18.07.2022. Completion schedule Jul'23 onwards.

2. Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II –Part B [Original SCOD- 03.12.22; Revised ant. Schedule- Feb'24*]

- Fatehgarh II- Bhadla II 765kV D/C Line (2nd)
- 02 No 765 kV Line bays for 765 kV Fatehgarh II - Bhadla II TL along with 2x240 MVAr Switchable Line reactor at Fatehgarh II
- 02 No 765 kV Line bays for 765 kV Fatehgarh II - Bhadla II TL along with 2x240 MVAr Switchable Line reactor at Bhadla II

Transmission System falling under GIB potential area. CERC denied transmission license pending clearance from committee appointed by Supreme court in GIB matter. Supreme court committee clearance received on 18.07.2022. Completion schedule 15 months from Receipt of Transmission License which is expected in Nov'22.

3. Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II –Part C [Original SCOD- 03.12.22; Revised ant. Schedule- 27.08.23*]

- Bhadla II - Sikar II 765 kV D/C line
- Sikar II - Neemrana 400kV D/c line (Twin HTLS)
- Establishment of 765/400kV, 2x1500 MVA S/s at suitable location near Sikar (Sikar-II Substation) with 1x125 MVAr & 2x330 MVAr bus reactor and 2x330 MVAr line Reactor at Sikar –II
- Construction of 2 nos. of 765V line bays at Bhadla II for Bhadla II – Sikar II 765kV D/c line with 2x240 MVAR Line reactor.
- Construction of 2 nos. of 400 kV line bays at Neemrana for Sikar II- Neemrana 400kV D/c line

Transmission System falling under GIB potential area. Supreme committee clearance received on 13.01.22. Transmission license from CERC received on 27.05.22. Completion schedule 15 months from receipt of Transmission license.

4. Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II –Part D [Original SCOD- 07.12.22; Revised ant. Schedule- 28.08.23*]

- Sikar II- Aligarh 765kV D/C Line
- Construction of 2 nos. of 765V line bays at Sikar II for Sikar II – Aligarh 765kV D/c line with 2x330 MVAR Line reactors
- Construction of 2 nos. of 765V line bays at Aligarh for Sikar II – Aligarh 765kV D/c line with 2x330 MVAR Line reactors

Transmission license from CERC received on 28.05.22. Completion schedule 15 months from receipt of Transmission license.

5. **Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II –Part F [Original SCOD- 24/12/22; Revised ant. schedule- Mar'23]**
   - Bikaner-II PS – Khetri 400kV 2xD/c line (Twin HTLS line on M/c tower)
   - Khetri - Bhiwadi 400kV D/c line (Twin HTLS)
   - Establishment of 400kV Bikaner-II PS with 2x125 MVAr bus reactor
   - 400kV Bikaner-II (New) substation (± 300 MVAR, 2x125 MVAR MSC, 1x125 MVAR MSR)
   - Construction of 4 nos. of 400kV line bays at Khetri for Bikaner II – Khetri 400kV 2xD/c line.
   - Construction of 2 nos. of 400kV line bays at Khetri for Khetri - Bhiwadi 400kV D/c line
   - Construction of 2 nos. of 400 kV (GIS) line bays at Bhiwadi for Khetri- Bhiwadi 400kV D/c line

6. **Transmission System for "Transmission System Strengthening Scheme for Evacuation of Power from Solar Energy Zones in Rajasthan (8.1 GW) under Phase-II Part-G"- SCoD- 10.11.23**
   - Establishment of 765/400 kV, 3X1500 MVA GIS substation at Narela with 765 kV (2x330 MVAr) bus reactor and 400 kV (1x125 MVAR) bus reactor
   - Khetri – Narela 765 kV D/c line 1x330MVAr Switchable line reactor for each circuit at Narela end of Khetri – Narela 765kV D/c line
   - 2 nos. of 765 kV line bays at Khetri for Khetri – Narela765 kV D/c line
   - LILO of 765 kV Meerut- Bhiwani S/c line at Narela

Under Bidding (PFCCL)

Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase-II- Part E

- Bhadla-II PS – Sikar-II 765kV D/c line (2nd)
- 1x330 MVAr Switchable line reactor for each circuit at Sikar II end of Bhadla-II – Sikar-II 765kV D/c line (2nd)
- 1x240 MVAr Switchable line reactor for each circuit at Bhadla-II end of Bhadla-II – Sikar-II 765kV D/c line (2nd)

Under RTM by POWERGRID

1) **Transmission System strengthening Scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part A1**

   - Augmentation with 765/400 kV,1x1500 MVA Transformer (5th) at Fatehgarh-II PS – **31.12.22 on best effort.**

2) **Transmission System strengthening Scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part B1**

   - Augmentation with 765/400 kV, 1x1500 MVA Transformer (6th) at Fatehgarh-II PS – **31.01.23 on best effort.**

- Augmentation with 400/220 kV, 4x500 MVA Transformer (6th to 9th) at Fatehgarh-II PS with suitable Bus sectionalization at 400 and 220 kV level and 7 nos. of 220 kV line bays –
  ICT-9 (6th ICT) Charged on **30.09.22, 220kV Bus charged on 13.10.22.** ICT-8 (7th ICT) by 15.11.22, ICT-7 (8th ICT) by **30.11.22,** ICT-6 (9th ICT) by **28.02.23** & 7 nos. 220kV line bays by **28.02.23**.
- **Augmentation with 400/220kV 1x500 MVA transformer (6th) at Fatehgargh-2 PS – Charged on 30.09.22 (balance bus work by 15.11.22)**
- **1 no. 220kV line bay (Avaada) – Charged on 02.09.22**
- 3 nos. 220kV line bays at Bhadla-II – **30.11.22**
- Augmentation with 765/400 kV,1x1500 MVA Transformer (4th) at Bhadla-II PS – **31.12.22**
- ±2x300MVAr STATCOM at Fatehgarh-II substation with 4x125MVAr MSC,2x125MVAr MSR – **Feb'23**
- ±2x300 MVAr STATCOM at Bhadla–II substation with 4x125 MVAr MSC, 2x125 MVAr MSR – **Jan'23**
- Augmentation with 400/220kV 2x500 MVA transformer (7th & 8th) at Bhadla-II PS – **31.12.22**

3) **Transmission System strengthening Scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part F1 (matching with Part-F i.e. Mar'23)**

- Removal of LILO of one circuit of Bhadla-Bikaner (RVPN) 400kV D/c(Quad) line at Bikaner(PG). Extension of above LILO section from Bikaner (PG) up to Bikaner-II PS to form Bikaner-II PS – Bikaner (PG) 400kV D/c(Quad) line – Dec'22
- 2 Nos. of 400 kV line bays at Bikaner-II PS for Bikaner-II PS – Bikaner (PG) 400 kV D/c (Quad) line formed after removal of LILO of one circuit of Bhadla – Bikaner (RVPN) 400 kV D/c (Quad) – Dec'22

4) **Transmission System strengthening Scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part G1**
As per MOP OM 15/3/201S-Trans-Pt(1) dated 23.01.20 completion is to be matched with Phase-II Part-G

- Removal of LILO of Bawana – Mandola 400kV D/c (Quad) line at Maharani Bagh /Gopalpur S/s. Extension of above LILO section from Maharani Bagh/ Gopalpur upto Narela S/s so as to form Maharanibagh – Narela 400kV D/c (Twin HTLS) and Maharanibagh-Gopalpur- Narela 400 kV D/c (Twin HTLS) lines – 10.11.23
- 2 no of line bays at Narela each for Maharanibagh – Narela 400 kV D/c (Twin HTLS) and Maharanibagh – Gopalpur-Narela 400 kV D/c (Twin HTLS) lines formed after removal of LILO of Bawana – Mandola 400kV D/c(Quad) line at Maharani Bagh/Gopalpur S/s and Extension of above LILO section from Maharani Bagh/Gopalpur upto Narela S/s - 10.11.23

5) **Transmission system strengthening Scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Power reversal in Balia-Bhiwadi HVDC line**
As per MOP OM 15/3/201S-Trans-Pt(1) dated 23.01.20 completion is to be matched with Phase-II Part-F

- Power reversal on ±500 kV, 2500 Balia- Bhiwadi HVDC line upto 2000 MW from Bhiwadi to Balia – Power Reversal carried out in Feb'22.

Additional System

1) 400/220kV ICT (8th) at Bhadla: expected by Dec'22