



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 (65वीं)/2023/ 4318-4185

दिनांक: 13.04.2023

सेवा में / To,

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

**विषय: उत्तर क्षेत्रीय विद्युत समिति की 65<sup>वीं</sup> बैठक की कार्यसूची ।**

**Subject: Agenda for 65<sup>th</sup> meeting of Northern Regional Power Committee-reg**

महोदय / Sir,

उत्तर क्षेत्रीय विद्युत समिति की 65<sup>वीं</sup> बैठक दिनांक 21.04.2023 को टिम्बर ट्रेल, परवानू, हिमाचल प्रदेश में आयोजित की जाएगी । बैठक की कार्यसूची संलग्न है।  
कृपया उपस्थिति सुनिश्चित करें।

The 65<sup>th</sup> meeting of Northern Regional Power Committee (NRPC) will be held on 21.04.2023 at Timber Trail, Parwanoo, Himachal Pradesh. Agenda for the same is attached.  
It is requested to attend the same.

भवदीय

Yours faithfully,

(नरेश भंडारी)

(Naresh Bhandari)

सदस्य सचिव

Member Secretary

13/4/23

**NRPC Members for FY 2023-24**

S. No.	NRPC Member	Category	Nominated Member	E-mail
1	Member (GO&D), CEA	-	-	<a href="mailto:member.god.cea@gov.in">member.god.cea@gov.in</a>
2	CTUIL	Central Transmission Utility	Chief Operating Officer	<a href="mailto:pcgarg@powergrid.in">pcgarg@powergrid.in</a>
3	PGCIL	Central Government owned Transmission Company	Director (Operations)	<a href="mailto:tyagir@powergrid.in">tyagir@powergrid.in</a>
4	NLDC	National Load Despatch Centre	Executive Director	<a href="mailto:scsaxena@grid-india.in">scsaxena@grid-india.in</a>
5	NRLDC	Northern Regional Load Despatch	Executive Director	<a href="mailto:rk.porwal@grid-india.in">rk.porwal@grid-india.in</a>
6	NTPC	Central Generating Company	Director (Finance)	<a href="mailto:jaikumar@ntpc.co.in">jaikumar@ntpc.co.in</a>
7	BBMB		Chairman	<a href="mailto:cman@bbmb.nic.in">cman@bbmb.nic.in</a>
8	THDC		ED (PSP&APP)	<a href="mailto:ljoshi@thdc.co.in">ljoshi@thdc.co.in</a>
9	SJVN		CMD	<a href="mailto:sectt.cmd@sjvn.nic.in">sectt.cmd@sjvn.nic.in</a>
10	NHPC		Director (Technical)	<a href="mailto:ykchaubey@nhpc.nic.in">ykchaubey@nhpc.nic.in</a>
11	NPCIL		Director (Finance)	<a href="mailto:df@npcil.co.in">df@npcil.co.in</a>
12	Delhi SLDC	State Load Despatch Centre	General Manager	<a href="mailto:gmsldc@delhisldc.org">gmsldc@delhisldc.org</a>
13	Haryana SLDC		Chief Engineer (SO&C)	<a href="mailto:cesocomm@hvpn.org.in">cesocomm@hvpn.org.in</a>
14	Rajasthan SLDC		Chief Engineer (LD)	<a href="mailto:ce.ld@rvpn.co.in">ce.ld@rvpn.co.in</a>
15	Utar Pradesh SLDC		Director	<a href="mailto:directorsldc@upsldc.org">directorsldc@upsldc.org</a>
16	Uttarakhand SLDC		Chief Engineer	<a href="mailto:anupam_singh@ptcul.org">anupam_singh@ptcul.org</a>
17	Punjab SLDC		Chief Engineer	<a href="mailto:ce-sldc@punjabslcdc.org">ce-sldc@punjabslcdc.org</a>
18	Himachal Pradesh SLDC	Managing Director	<a href="mailto:mdhpsldc@gmail.com">mdhpsldc@gmail.com</a>	
19	DTL	State Transmission Utility	CMD	<a href="mailto:cmd@dtl.gov.in">cmd@dtl.gov.in</a>
20	HVPNL		Managing Director	<a href="mailto:md@hvpn.org.in">md@hvpn.org.in</a>
21	RRVNL		CMD	<a href="mailto:cmd.rvpn@rvpn.co.in">cmd.rvpn@rvpn.co.in</a>
22	UPPTCL		Managing Director	<a href="mailto:md@upptcl.org">md@upptcl.org</a>
23	PTCUL		Managing Director	<a href="mailto:md@ptcul.org">md@ptcul.org</a>
24	PSTCL		CMD	<a href="mailto:cmd@pstcl.org">cmd@pstcl.org</a>
25	HPPTCL	State Generating Company	Managing Director	<a href="mailto:md.tcl@hpmail.in">md.tcl@hpmail.in</a>
26	IPGCL		Managing Director	<a href="mailto:md.ipgpp@nic.in">md.ipgpp@nic.in</a>
27	HPGCL		Managing Director	<a href="mailto:md@hpgcl.org.in">md@hpgcl.org.in</a>
28	RRVUNL		CMD	<a href="mailto:cmd@rrvun.com">cmd@rrvun.com</a>
29	UPRVUNL		Managing Director	<a href="mailto:md@uprvunl.org">md@uprvunl.org</a>
30	UJVNL		Managing Director	<a href="mailto:md@ujvnl.com">md@ujvnl.com</a>
31	HPPCL	Managing Director	<a href="mailto:md@hppcl.in">md@hppcl.in</a>	
32	PSPCL	State Generating Company & State owned Distribution Company	CMD	<a href="mailto:cmd-pspcl@pspcl.in">cmd-pspcl@pspcl.in</a>
33	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>
34	Jaipur Vidyut Vitran Nigam Ltd.		Managing Director	<a href="mailto:md@jvnl.org">md@jvnl.org</a>
35	Madhyanchal Vidyut Vitaran Nigam Ltd.		Managing Director	<a href="mailto:mdmvnl@gmail.com">mdmvnl@gmail.com</a>
36	UPCL		Managing Director	<a href="mailto:md@upcl.org">md@upcl.org</a>
37	HPSEB		Managing Director	<a href="mailto:md@hpseb.in">md@hpseb.in</a>
38	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>
39	Aravali Power Company Pvt. Ltd.		CEO	<a href="mailto:SRBODANKI@NTPC.CO.IN">SRBODANKI@NTPC.CO.IN</a>
40	CLP Jhajar Power Ltd.,		CEO	<a href="mailto:rajneesh.setia@apraava.com">rajneesh.setia@apraava.com</a>
41	Talwandi Sabo Power Ltd.		COO	<a href="mailto:Vibhav.Agarwal@vedanta.co.in">Vibhav.Agarwal@vedanta.co.in</a>
42	Nabha Power Limited		CEO	<a href="mailto:sk.narang@larsentoubro.com">sk.narang@larsentoubro.com</a>
43	Lanco Anpara Power Ltd		President	<a href="mailto:sudheer.kothapalli@lancogroup.com">sudheer.kothapalli@lancogroup.com</a>
44	Rosa Power Supply Company Ltd		Station Director	<a href="mailto:Hriday.tomar@relianceada.com">Hriday.tomar@relianceada.com</a>
45	Lalitpur Power Generation Company Ltd		Managing Director	<a href="mailto:yksbankoti@bajajenergy.com">yksbankoti@bajajenergy.com</a>
46	MEJA Urja Nigam Ltd.		CEO	<a href="mailto:hopmeja@ntpc.co.in">hopmeja@ntpc.co.in</a>
47	Adani Power Rajasthan Limited		COO, Thermal, O&M	<a href="mailto:jayadeb.nanda@adani.com">jayadeb.nanda@adani.com</a>
48	JSW Energy Ltd. (KWHEP)		Head Regulatory & Power Sales	<a href="mailto:jyotiprakash.panda@jsw.in">jyotiprakash.panda@jsw.in</a>
49	RENEW POWER	IPP having less than 1000 MW installed capacity (alphabetical rotational basis)	CEO	<a href="mailto:sumant@renew.com">sumant@renew.com</a>
50	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:sojpd@gmail.com">sojpd@gmail.com</a>
51	UT of Ladakh		Chief Engineer, LPDD	<a href="mailto:cepladakh@gmail.com">cepladakh@gmail.com</a>
52	UT of Chandigarh		Executive Engineer, EWEDC	<a href="mailto:elop2-chd@nic.in">elop2-chd@nic.in</a>
53	BYPL	Private Distribution Company in region (alphabetical rotational basis)	CEO	<a href="mailto:Amarjeet.Sheoran@relianceada.com">Amarjeet.Sheoran@relianceada.com</a>
54	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>
55	Adani Enterprises	Electricity Trader (nominated by central govt.)	Head (Trading)	<a href="mailto:anshul.garg@adani.com">anshul.garg@adani.com</a>

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## उत्तरी क्षेत्रीय विद्युत समिति की 65<sup>वीं</sup> बैठक

### 65<sup>th</sup> MEETING OF NORTHERN REGIONAL POWER COMMITTEE

**Time & Date of NRPC meeting: 21<sup>st</sup> April 2023**

**Venue: Timber Trail, Parwanoo, Himachal Pradesh**

#### **AGENDA**

#### **A.1 Approval of MoM of 64<sup>th</sup> NRPC meeting**

A.1.1 Minutes of 64<sup>th</sup> NRPC meeting (held on 24.03.2023) has been issued vide letter dtd. 12.04.2023. No comments have been received till the date.

***Members may kindly approve.***

#### **A.2 Consent for purchase of power from Naitwar Mori Hydro Electric Project (NMHEP), 60 MW (2X30 MW) in Uttarakhand (Agenda by SJVNL)**

A.2.1 SJVN Ltd., is executing the works of Naitwar Mori Hydro Electric Power Project (NMHEP) (2X30 MW) on the river Tons (a tributary of river Yamuna) in district Uttarkashi in the state of Uttarakhand.

A.2.2 Naitwar Mori HEP is a run-of-river type scheme and is designed to generate annually 269 MUs in 90 % dependable year. The commissioning activities of the project are in full swing and project is likely to be commissioned in June, 2023.

A.2.3 As per Memorandum of Understanding (MoU), 12% of the net energy shall be given to Government of Uttarakhand (GoUK) free of cost. Further, SJVN would be in a position to offer the balance power being generated from project to interested states / UTs as per the prevalent policies of Govt. of India issued from time to time.

A.2.4 Further, it is to bring to your notice that MoP, Gol has issued order dtd. 29.01.2021 and 22.07.2022 regarding Renewable Purchase Obligation (RPO) wherein Large Hydro Power (>25 MW) is declared as Renewable Energy Source and Hydro Purchase Obligation (HPO) shall be met only by energy produced from Large Hydro Power Projects commissioned after 08th March, 2019.

A.2.5 The levelized tariff of the generated power is around Rs 12 per Kwh. However, after considering the RoE on lower side and optimizing the Loan component the tariff of NMHEP has been worked out around Rs 7 per Unit. SJVN is in a position to offer power from Naitwar Mori HEP under HPO benefits as notified by MoP, Gol after its commissioning at the tariff of Rs. 7 per Unit.

A.2.6 It is, therefore, requested that that constituent members may consider purchase of power under HPO obligations as introduced by MoP, indicating the quantum of power required

from this Hydro project. Further, in case beneficiaries are not intended to give consent for purchase of power @ Rs. 7/ KWh, SJVN requests the beneficiaries to suggest the maximum rates which may be paid by them for purchase of power from the Project.

**Members may kindly deliberate.**

**A.3 Consent for purchase of power from Luhri Hydro Electric Project Stage-I (LHEP Stage-I), 210 MW in Himachal Pradesh. (Agenda by SJVNL)**

- A.3.1 SJVN Ltd., is executing the works of Luhri Hydro Electric Project Stage-I, 210 MW on the river Satluj in the downstream of Rampur HPS in the state of Himachal Pradesh.
- A.3.2 Luhri Hydro Electric Project Stage-I is a run-of- river with limited pondage type scheme and is designed to generate annually 758.20 MUs. The construction activities of the project are in full swing and the commissioning of the project is expected in August, 2026.
- A.3.3 As per Memorandum of Understanding (MoU), 13% of the net energy shall be given to Government of Himachal Pradesh (GoHP) free of cost. Further, SJVN would be in a position to offer the balance power being generated from project to interested states / UTs as per the prevalent policies of Govt. of India issued from time to time.
- A.3.4 Further, it is to bring to your notice that MoP, Gol has issued order dtd. 29.01.2021 and 22.07.2022 regarding Renewable Purchase Obligation (RPO) wherein Large Hydro Power (>25 MW) declared as Renewable Energy Source and Hydro Purchase Obligation (HPO) shall be met only by energy produced from Large Hydro Power Projects commissioned after 08th March, 2019.
- A.3.5 SJVN is in a position to offer power from Luhri Hydro Electric Project Stage-I under HPO benefits as notified by MoP, Gol after its commissioning. The levelized tariff of the generated power is Rs 4.06 per Kwh as per PIB approval.
- A.3.6 It is, therefore, requested to please convey the consent of constituent members for purchase of power through PPA / HPO, indicating the quantum of power required from this Hydro project so that Power Purchase Agreement (PPA) can be signed accordingly.

**Members may kindly deliberate.**

**A.4 Consent for purchase of power from Dhaulasidh Hydro Electric Project (DSHEP), 66 MW in Himachal Pradesh. (Agenda by SJVNL)**

- A.4.1 SJVN Ltd., is executing the works of Dhaulasidh Hydro Electric Project (DSHEP), 66 MW on the river Beas in district Hamirpur in the state of Himachal Pradesh.
- A.4.2 Dhaulasidh Hydro Electric Project is a run-of- river with limited pondage type scheme and is designed to generate Annually 304 MUs. The construction activities of the project are in full swing and the commissioning of the project is expected in November, 2025.

- A.4.3 As per Memorandum of Understanding (MoU), 13% of the net energy shall be given to Government of Himachal Pradesh (GoHP) free of cost. Further, SJVN would be in a position to offer the balance power being generated from project to interested states / UTs as per the prevalent policies of Govt. of India issued from time to time.
- A.4.4 Further, it is to bring to your notice that MoP, Gol has issued order dtd. 29.01.2021 and 22.07.2022 regarding Renewable Purchase Obligation (RPO) wherein Large Hydro Power (>25 MW) declared as Renewable Energy Source and Hydro Purchase Obligation (HPO) shall be met only by energy produced from Large Hydro Power Projects commissioned after 08th March, 2019.
- A.4.5 SJVN is in a position to offer power from Dhaulasidh Hydro Electric Project under HPO benefits as notified by MoP, Gol after its commissioning. The levelized tariff of the generated power is Rs 4.53 per Kwh, as per PIB approval.
- A.4.6 It is, therefore, requested to please convey the consent of constituent members for purchase of power through PPA / HPO, indicating the quantum of power required from this Hydro project so that Power Purchase Agreement (PPA) can be signed accordingly.
- Members may kindly deliberate.**

**A.5 Consent for purchase of power from Sunni Dam Hydro Electric Project (SDHEP), 382 MW in Himachal Pradesh. (Agenda by SJVNL)**

- A.5.1 SJVN Ltd., is executing the works of Sunni Dam Hydro Electric Project (SDHEP), 382 MW on the river Satluj in district Shimla and Kullu in the state of Himachal Pradesh.
- A.5.2 Sunni Dam Hydro Electric Project is a run-of- river with pondage scheme and is designed to generate Annually 1382 MUs. The Main Packages i.e. Civil & Hydro Mechanical packages has been awarded and construction activities of the project have been started and the commissioning of the project is expected in February, 2028.
- A.5.3 As per the condition of Memorandum of Understanding (MoU), 13% of the net energy shall be given to Government of Himachal Pradesh (GoHP) free of cost. Further, SJVN would be in a position to offer the balance power being generated from project to interested states / UTs as per the prevalent policies of Govt. of India issued from time to time.
- A.5.4 Further, it is to bring to your notice that MoP, Gol has issued order dtd. 29.01.2021 and 22.07.2022 regarding Renewable Purchase Obligation (RPO) wherein Large Hydro Power (>25 MW) declared as Renewable Energy Source and Hydro Purchase Obligation (HPO) shall be met only by energy produced from Large Hydro Power Projects commissioned after 08th March, 2019.



A.5.5 SJVN is in a position to offer power from Sunni Dam Hydro Electric Project under HPO benefits as notified by MoP, Gol after its commissioning. The levelized tariff of the generated power is Rs 3.90 per Kwh, as per PIB approval.

A.5.6 It is, therefore, requested to please convey the consent of constituent members for purchase of power through PPA / HPO, indicating the quantum of power required from this Hydro project so that Power Purchase Agreement (PPA) can be signed accordingly.  
**Members may kindly deliberate.**

**A.6 Consent for Purchase of Power from Bikaner Solar Power Project (1000 MW) of SJVN under Central Public Sector Undertaking (CPSU) Scheme: (Agenda by SJVNL)**

A.6.1 With regard to Govt. of India's target of 500 Gigawatt (GW) RE capacity by 2030, SJVN is exploring various possibilities to set up Renewable Power Projects through participation in Competitive Bidding Process. Accordingly, SJVN has bagged 1000 MW capacity of Solar Power Project under CPSU Scheme Phase-II (Tranche-III) as per the proposals invited by IREDA for setting up of Grid Connected Solar PV projects anywhere in India on "Build Own Operate" (B-O-O) basis.

A.6.2 SJVN through its wholly owned subsidiary Company, SJVN Green Energy Limited (SGEL) is executing the works of Bikaner Solar Power Project (1000 MW). The construction activities of the project are in full swing and the commissioning of the project is expected in January, 2024.

- Usage of solar power: Power produced by the Government Producers can be used for self-use or use by Government/ Government entities, either directly or through DISCOMS on payment of mutually agreed usage charges of not more than Rs 2.57 /unit, which shall be exclusive of any other third party charges like wheeling and transmission charges and losses, point of connection charges and losses, cross-subsidy surcharge, State Load Dispatch Centre (SLDC)/ Regional Load Dispatch Centre (RLDC) charges, etc. as may be applicable.

A.6.3 For the same, SJVN offers 400 MW of Power to DISCOMS from the Solar Power Projects (PAN India) to be developed under this scheme at the rate of Rs. 2.57/kWh at Ex-Busbar.

**Members may kindly deliberate.**

**A.7 Non Opening of Letter of Credit by JKPCCL (formally PDD, J & K) for power supplied from NJHPS & RHPS: (Agenda by SJVNL)**

- A.7.1 As per mutually signed Power Purchase Agreement and order dated 28.06.2019 issued by Ministry of Power, Beneficiary has to follow appropriate Payment Security Mechanism through 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 Further, as per CERC regulation for the period 2019-24 in order to avail rebate for early payment, the Beneficiary has to maintain LC for the appropriate amount.
- A.7.3 In spite of repeated reminders, JKPCCL has not renewed their Letter of Credit after 13.11.2019 for power supplied from NJHPS and RHPS. As such, JKPCCL may be advised to submit Letter of Credit in favour of SJVN.

**Members may kindly deliberate.**

#### **A.8 Issuance of Revision of Regional Energy Account (Agenda by SJVNL)**

- A.8.1 ABT based provisional Regional Energy Account (REA) of previous month is being issued by NRPC in the 1st week of next month on monthly basis. Thereafter, revised Regional Energy account or Final Regional Energy Account is being issued by NRPC.
- A.8.2 Sometimes, revision of REA accounts is pending for long period. Then, it becomes difficult to reconcile the Energy account at the Utility end. The annual account has been finalized in most of the utilities till May end. Therefore, sometimes generation as well as Plant Availability data as finalized on later stage is not reflected in the organization Annual reports and mismatch with the actual data.
- A.8.3 As generation and Plant Availability factor is very significant factor for Power Generation company, therefore these two data need to be finalized within two months of financial year closing, so that correct position of Generation as well as Plant Availability Factor may be reflected in Annual reports.

**Members may kindly deliberate.**

#### **A.9 Revision of DSM account of NJHPS and Rampur HPS w.e.f. 05.12.22 to 22.01.23 (Agenda by SJVNL)**

- A.9.1 CERC (Deviation Settlement Mechanism and Related Matters) Regulations, 2022 was implemented w.e.f. 05.12.2022 vide its notification dated 31.10.2022. Thereafter, Hon'ble CERC vide its order in the petition no. 16/SM/2022 dtd. 26.12.2022 has amended some provisions of DSM Regulations effective from 28.12.2022 onwards. Further, Hon'ble CERC vide its order in petition no. 1/SM/2023 dtd. 06.02.23 has amended some provisions of DSM Regulations effective from 08.02.23 onwards.



- A.9.2 There were discrepancies in the calculation of DSM account of SJVNs Hydro generating stations viz NJHPS and Rampur HPS w.e.f. 05.12.22 to 22.01.23, as these generating stations were considered as Run-of-River generating stations in place of Run-of-River with Pondage Generating stations. The copy of relevant provisions of CERC Tariff Regulations, 2019, wherein generation type is indicated is enclosed as **Annexure-I**.
- A.9.3 Also, there was discrepancy in the scheduled generation of Rampur HPS on 30.12.22 due to inadvertent error at the end of NRLDC web-based scheduling portal from block no. 38 to 42, 64 to 70 and 76 to 81. The matter was taken up with NRLDC through E-mail and telephonically communication. Finally, NRLDC have revised the schedule generation of Rampur HPS for aforesaid block nos. The revision of DSM account in this regard is also pending.
- A.9.4 As annual account of Generating company would be finalised till May end, therefore revised DSM account needs to be published in respect of NJHPS and Rampur HPS w.e.f. 05.12.22 to 22.01.23.

**Members may kindly deliberate.**

**A.10 Issues faced by SJVN Hydro Power stations due to increased silt, cloud burst etc. (Agenda by SJVNL)**

- A.10.1 SJVN's two operational Hydro Plants viz NJHPS and RHPS are located on Satluj Basin, where problem of high silt is very prominent during the monsoon season which leads to shutdown of plants, as and when the level of silt increases beyond the permissible limits. During the high silt conditions, the shutdown of the plant is generally on emergency basis and is required to be managed within few blocks time or on Immediate basis in case of Cloud Burst situation.
- A.10.2 The joint protocol was signed among NRPC, NRLDC, SJVN & KWHPS for co-ordinated generation reduction of cascaded projects viz NJHPS, KWHPS during High silt condition and Reservoir Flushing in the year 2012. As per the joint protocol, when silt level at intake of KWHPS crosses 4500 ppm, which is being measured by KWHEP, cascading plants viz KWHPS, NJHPS and Rampur HPS have to start shutdown their plants in a co-ordinated manner.
- A.10.3 During FY 2022-23, NJHPS and Rampur HPS plants were shut down due to high silt on 09.08.22, 10.08.22 and 15.08.22 (cloud burst near Reservoir). During such events, there was lesser silt observed at KWHPS intake silt site and higher silt in the downstream of KWHPS silt site i.e. NJHPS Wangtoo site, which is near to NJHPS DAM reservoir. This has resulted into shut down of NJHPS and RHPS unit (s) within few time blocks, as water travelling time between NJHPS Wangtoo site to the Nathpa Reservoir area is about 5 minutes only.

A.10.4 During aforesaid circumstances, NJHPS and RHPS were levied heavy penalty around Rs 4.68 Crore on account of DSM charges due to deviation in schedule in compliance of Clause (18) of Regulation 6.5 (Part 6) of CERC IEGC Regulations, as the schedule of the generating station is revised only after 7th or 8th time block after intimation to NRLDC.

A.10.5 In this regard, relevant provisions of CERC (Indian Electricity Grid Code) Regulations, 2010 are reproduced here as under:

Regulation 2 (1) (ff)– Definition:

*“Force Majeure” means any event which is beyond the control of the persons involved which they could not foresee or with a reasonable amount of diligence could not have foreseen or which could not be prevented and which substantially affects the performance by person such being the following including but not limited to:*

- a) Acts of God, natural phenomena, floods, droughts, earthquakes and epidemics;
- b) Enemy acts of any Government domestic or foreign, war declared or undeclared, hostilities, priorities, quarantines, embargoes;
- c) Riot or Civil Commotion;
- d) Grid’s failure not attributable to the person.

Regulation 6.5(12):

Run-of-river power station with pondage and storage type power stations are designed to operate during peak hours to meet system peak demand. Maximum capacity of the station declared for the day shall be equal to the installed capacity including overload capability, if any, minus auxiliary consumption, corrected for the reservoir level. *The Regional Load Despatch Centers shall ensure that generation schedules of such type of stations are prepared and the stations despatched for optimum utilization of available hydro energy except in the event of specific system requirements/constraints.*

A.10.6 In consideration of above, following is requested for deliberations:

- Review of existing Joint Protocol for improved co-ordination between hydro power stations of KWHEP, NJHPS and Rampur HPS during high silt conditions, signed during the year 2012, so that NJHPS can take its own decision for shutdown on the basis of Silt level at its intake and other upstream locations as may be decided.

- Revision of scheduled generation from actual generation for the affected time blocks for 09.08.22, 10.08.22 and 15.08.22 in such forced majeure condition of High silt, beyond the control of generator to safeguard the generating plants in long run, avoid spillage of water and penalty on account of DSM charges.
- when the silt level is on decreasing trend, generating units may not commence generation due to CERC IEGC Regulations, as revision in generation is allowed only after 7th or 8th time block. In such situation, available water may be spilled out due to non-allowing of generating station for its schedule. Hence, non-utilisation of available water resource due to aforesaid Regulations, may lead to National loss in terms of water spillage.
- Committee may be constituted of Hydro experts from CWC, CEA, NRPC, and NRLDC to identify the state-of-the-art technology for discharge, silt sampling, measurement and for joint sedimentation/silt management.

A.10.7 The aforesaid matter was put up in 201th OCC meeting of NRPC held on 15.11.22. Thereafter, separate meeting was held among the officials of NRPC, NRLDC, SJVN and KWHPS on 05.12.22 and it was decided in the meeting that NRPC will discuss the aforesaid issue with NRLDC and involve the generating stations subsequently. It is submitted that aforesaid issue of High silt is very prominent in nature during high inflow period.

**Members may kindly deliberate.**

#### **A.11 Issues regarding Automatic Generation Control at Nathpa Jhakri Hydro Power Station. (Agenda by SJVNL)**

A.11.1 Automatic Generation Control (AGC) has been fully implemented at Nathpa Jhakri Hydro Power Station and all units of NJHPS are being given in AGC Remote mode during current lean flow season. Following issues are being faced frequently in this regard:

A.11.2 Most of the time, down regulation (lower set point from NLDC than ULSP or –ve Delta P) is being given to the units even when the frequency is low. The primary response of NJHPS i.e. FGMO tends to keep machines on upper side during low frequency but negative Delta P from AGC tends to keep it on lower side (**Annexure - II**).

A.11.3 Hence NJHPS could not support the Grid on many occasions when frequency is low.

- After giving all the units in remote, it has been observed many times that there is communication link failure or link fluctuates due to which NLDC set point gets freeze. The same has been communicated to NLDC numerous times over email and telephone. Due to this communication failure, operators at NJHPS end has to vary/change the set point to higher side for meeting the schedule and when

communication is restored again negative Delta P from AGC tends to keep it on lower side (**Annexure - III**).

- On many occasions it has been observed that Delta P for all six units are different (some units get positive Delta P and some gets negative Delta P) for equal set point in all the units at NJHPS end irrespective of the frequency (**Annexure - IV**). Operators at NJHPS Control Room are not able to anticipate the actual generation viz-a-viz injection schedule and frequency.

**Members may kindly deliberate.**

**A.12 Contract for integration of new SEMs and extension of AMC contract for Automatic Meter Reading system (AMR) in Northern Region for 02 years (Agenda by POWERGRID)**

- A.12.1 The Automatic meter reading (AMR) system for collection of SEM data centrally at NRLDC was implemented by POWERGRID as per discussion held in 15th NRPC meeting. The purchase order for installation and commissioning of AMR system for Northern Region was awarded by POWERGRID to M/s Kalki Communication Technologies Ltd. in February 2012. The initial purchase order was placed for integration of 1250 SEMs at 220 locations of Northern Region at total cost of Rs. 1.87 Cr. With the expanding power network in NR, over 1863 SEMs have been integrated in AMR at 300 locations under this contract. The total amended value of the contract has gone over 3.22 Cr (i.e. 73% variation from original contract). Further, over 375 SEMs have been installed in the system in recent years which have not been integrated in the AMR system.
- A.12.2 The annual maintenance contract (AMC) period under the original contract was 04 years after the warranty period of 01 year, which was extended from time to time for smooth operation of AMR services. As there is no further provision for extension of the contract, the AMC contract is finally set to expire in June'23.
- A.12.3 It has been learnt that CTUIL is in the process of procurement and implementation of 5-minute block SEMs along with AMR service, which is expected to take 2-3 years for completion. In the meantime, the existing system AMR is to be kept in operation. M/s Kalkitech was requested to submit offer for integration of 500 nos. SEMs and AMC services for 02 years. The total estimated cost for the integration of additional 500 SEMs and AMC of the AMR system for next 02 years is 1.72 Cr (with GST).

**Members may please deliberate.**

**A.13 Installation of PMU in STATCOM feeders (Agenda by POWERGRID)**

- A.13.1 The STATCOMs at Bhadla-II, Bikaner-II and Fatehgarh-II substations of POWERGRID in western Rajasthan are expected to be commissioned in near future. In this regard,

NRLDC vide letter dtd 24th Mar'23 has requested the availability of PMU signals in Coupling transformer of STATCOMs.

A.13.2 The philosophy for placement of PMU was agreed in the Joint Meeting of Regional Standing Committees on Power System Planning held on 5th Mar'12, wherein it was agreed that PMU shall be placed at both ends of the transmission lines of State and ISTS points. Following criteria was finalized for placement of PMUs:

- I. All 400 kV stations in State and ISTS grids
- II. All generating stations at 220 kV and above
- III. HVDC terminals and inter-regional and inter-national Tie lines

A.13.3 Subsequently the requirement of PMU was deliberated in 48th meeting of NRPC and 45th meeting of TCC held on 02.09.2020 and it was concluded by NRPC that PMU could be installed for HVDC and FACTS projects in URTDSM Phase-II. Further the issue for finalization of PMU locations were deliberated in 10th meeting of NPC held on 07.11.2022 and it was decided that a Sub-Committee would be formed under the chairmanship of Member Secretary, WRPC with representatives from POSOCO, CTU, POWERGRID, and all RPCs/NPC to discuss on the uniform philosophy of PMU locations, new analytics and requirement of up gradation of Control Centre under URTDSM project and submit its recommendations to the NPC.

A.13.4 The sub-committee report for finalization of PMU locations has been submitted along with 12th NPC meeting dt 15.11.2022 wherein the sub-committee recommendation has to be approved by respective RPCs before recommendation by NPC for implementation.

A.13.5 It may also be noted that presently CTU has covered inclusion of PMUs in all transmission lines through RFP and Connection Agreements. Accordingly, POWERGRID has incorporated PMU requirement at all transmission lines at the project stage. However, provision for PMUs in STATCOM/SVC are yet to be incorporated in RFP and tender documents.

A.13.6 The Bikaner-II STATCOM is being executed under TBCB and Bhadla-II & Fatehgarh-II are being executed under RTM projects. The additional financial implication for installation of PMU at STATCOM stations may be approved by NRPC to avoid any financial loss to the transmission licensees.

**Members may kindly deliberate.**

#### **A.14 Export capability of Northern Region-Western Region Corridor (Agenda by NRLDC)**

A.14.1 At present, export capability (TTC/ATC) of NR to WR is 4000/3500 MW. Limiting constraints in export is N-1 contingency of 400kV Kankroli-Zerda leading to over-load 400kV Bhinmal-Zerda. In addition, voltages in this pocket of Rajasthan also fall during

peak solar hours. Long term & medium term allocations from RE connected at ISTS in Rajasthan is enclosed in **Annexure-V**. Out of 8922 MW of LTA, 3139 MW is allocated to NR, 1690 MW to Eastern region (ER) and 4092 MW to Western & southern region. Its indicating that approved LTA/MTOA on this corridor is above the export capability of NR to WR in present scenario. CTU may share the export capability assessed in this time frame as same is not available on its website.

- A.14.2 During Mar-2023, there has been various instances in real time violation of NR-WR export capability during peak solar hours. During such scenario, loading of 400kV Bhinmal-Zerda, 400kV Kankroli-Zerda, 400kV Barmer-Bhinmal are N-1 non-compliant. These violations were observed even when HVDC Mundra-Mahindergarh bipole was also operated in reverse direction (NR to WR) for high power transfer from NR to WR.
- A.14.3 The issues related to export capability of NR-WR corridor has been discussed in 51<sup>st</sup> NRPC meeting held on 25.02.2022 wherein issues during peak solar scenarios and flows of Inter-regional lines of NR-WR corridor were highlighted.
- A.14.4 To overcome the high loading issues, bypassing of 400 kV Kankroli - Bhinmal-Zerda line at Bhinmal to form 400 kV Kankroli – Zerda (direct) line & re-conductoring of 400 kV Jodhpur (RVPN) – Kankroli S/c (twin moose) line with twin HTLS conductor was proposed and approved during 5<sup>th</sup> CMETS - NR meeting held on 30.03.2022 & subsequently in 53<sup>rd</sup> NRPC meeting held on 29.04.2022. To address the NR-WR export capability issues, it is requested to expedite above schemes along with the other network strengthening scheme in NR-WR corridor in order to relieve the constraints in the NR export/NR-WR corridor. Further, it is suggested that date of operationalization of additional LTAs being granted from generators in NR may be aligned with the commissioning schedule of network augmentation to address the above stated constraints. Communications from Grid-India in this regard dated 30.03.2023 & 21.02.2023 are attached as **Annexure-V**.

**Members may kindly deliberate.**

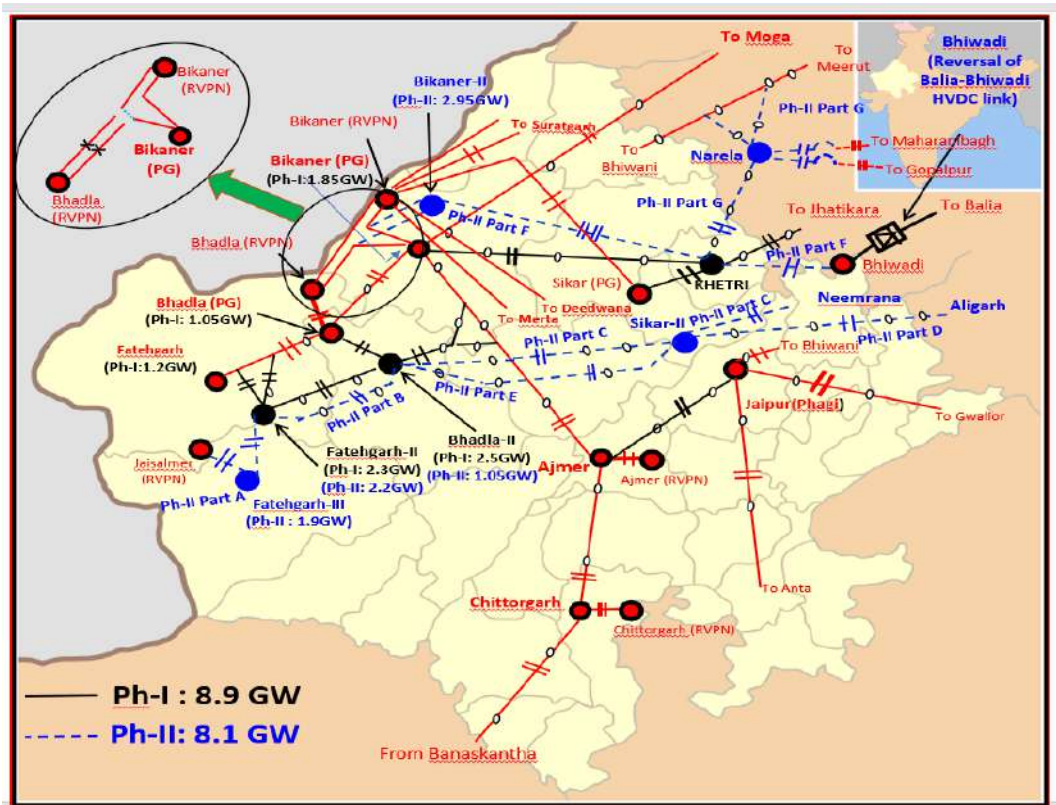
#### **A.15 Expediting Transmission for Rajasthan REZ Ph-II (Agenda by NRLDC)**

- A.15.1 As we all are aware that Renewable energy at ISTS is being integrated at fast pace however due to delay in commensurate transmission system, short term RE power was being curtailed in view of Grid security. Issue of Short Term Open Access curtailment in peak solar hours was being faced by various ISTS connected RE Generators in Western Rajasthan due to delay in requisite transmission system (Ph-II Part-F/F1) by POWERGRID.
- A.15.2 Accordingly, after discussion in 202 OCC meeting, unique interim arrangement to relieve transmission congestions in Bikaner complex till availability of planned Ph-II Part-F/F1 (Bikaner-II onwards system) was discussed and accordingly scheme was implemented by POWERGRID.



A.15.3 Based on the deliberations in the meeting, following was agreed.

- (a) Interim Arrangement To interconnect one part of LILO to 400 kV Bhadla (RVPN)- Bikaner (RVPN) line so as to form 400kV Bikaner (PG)- Bikaner(RVPN) 2 circuits and isolate 400kV Bhadla (RVPN) with both Bikaner (PG) & Bikaner (RVPN). Interim solution will be restored after availability of Ph-II Part-F/F1 [Bikaner-II onwards] scheme (expected by Mar'23 end). As per latest information Bikaner-II(PG) may take time up to 15th May'23.



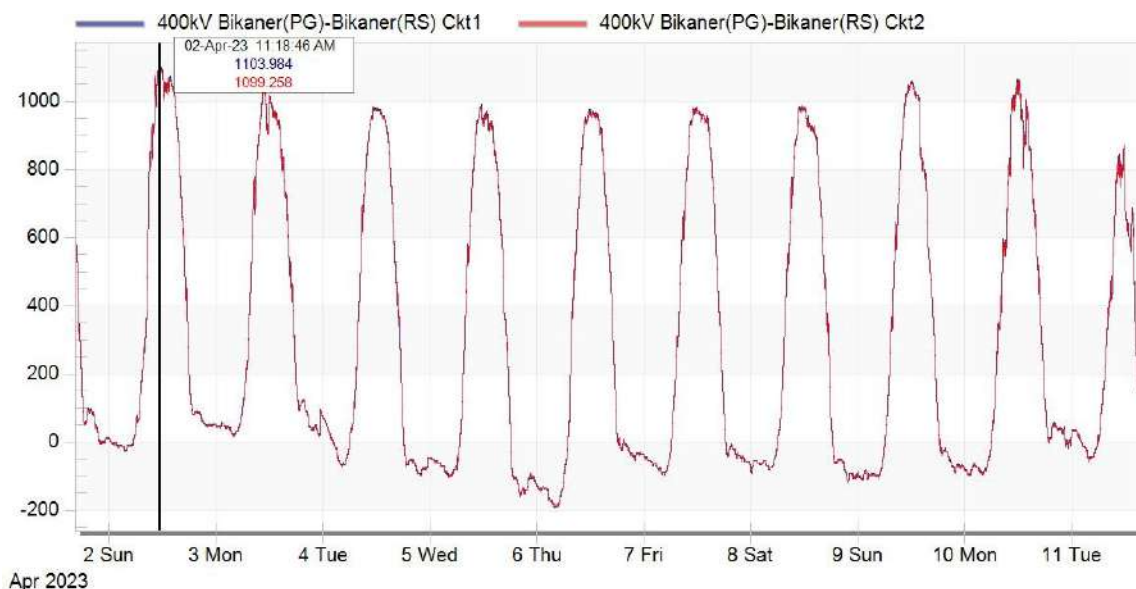
(b) SPS Arrangement approved in OCC meeting/implemented is as below:

<b>Condition</b>	<b>Action</b>
<ul style="list-style-type: none"> <li>Load on any circuit of 400kV Bikaner (PG)-Bikaner(RVPN) D/c line exceeds 1450 MW (2100 Amp)</li> </ul>	<p><b>After 2 second Stage –I operate:</b></p> <ul style="list-style-type: none"> <li>Tripping of RE Generations (Thar Surya_Bay-203, Tata Green Power_Bay-204, SBSR_Bay-208) connected at 220kV Bikaner(PG)</li> <li>Disconnection of approx. 600-700MW Generation'</li> </ul>

	<p><b>After 4 second Stage-II operate:</b></p> <ul style="list-style-type: none"> <li>• Tripping of RE Generation [Renew Power line _Bay-415,414] connected at 400kV Bikaner(PG)</li> <li>• Disconnection of approx. 550MW generation</li> </ul> <p><b>After 6 second Stage-III operate:</b></p> <p>Tripping of 400kV Bikaner (RVPN)-Sikar (PG) line circuit-2.</p>
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**As on 11.04.2023, additional 1057 MW of generation has been allowed after commissioning of the interim arrangement.**

A.15.4 With above interim arrangement, maximum allowable loading on 400kV Bikaner-Bikaner (RS) (under 400kV Bikaner-Sikar one ckt is open) is 1145 MW. Loading of 400kV Bikaner(PG)-Bikaner(RS) for past 10 days is shown below.



A.15.5 However, the phase-II Part F transmission system comprising of Bikaner-II S/s which was earlier intimated to be charged by Mar’2023 is delayed and now expected by 15<sup>th</sup> May 2023. As on 11<sup>th</sup> April 2023, present STOA margin has been exhausted after STOA of RSRPL\_150MW and NTPC Nokhra\_100MW, as loading of 400kV Bikaner(PG)-Bikaner(RS) would exceed 1140-1145MW (as per simulation studies) despite opening of

400kV Bikaner(RS)-Sikar(PG) ckt-1. Hence, in order to facilitate RE power integration & safe evacuation in this complex, keeping Grid security & stability, it is requested that already delayed transmission of phase-II including 400kV Bikaner-II and STATCOMs at Bhadla-II and Fatehgarh-II may be expedited. The study report along with steady state and dynamic PSSE and PSCAD model of Statcom as per the FTC procedure may be submitted at the earliest.

**Members may kindly deliberate.**

**A.16 ISTS RE related First Time charging issues in Northern region (Agenda by NRLDC)**

A.16.1 A meeting on issues related to First Time Charging (FTC) of ISTS RE generators was held under the Chairmanship of Chairperson, CEA on 01.03.2023 at 12:30 P.M. with participants from CEA, RPCs, RLDCs, CTUIL, Grid-India, SECI and RE developers.

A.16.2 It was noted that the approval of First Time Charging (FTC) was held up in the above cases majorly on account of following non-compliances on the part of the RE developers.

- a) Non-submission or incomplete submission of Type Test/Measurement Report.
- b) Non-submission or deficiencies in mathematical models.
- c) Non-availability of real-time telemetry and/or PMU data.
- d) Pending installation of Master Power Plant Controller.
- e) Inadequate reactive power support capability at Point of Interconnection.

A.16.3 After deliberations following decisions were taken:

- a) Compliance at points a, b, c and d are the must for issuing of FTC approval. The developers must ensure compliance with these requirements in order to receive FTC clearance for above mentioned cases.
- b) Regarding point e, conditional FTC approval can be granted for the FTC applications received up to 31st March, 2023 if the developer submits firm commitment along with supporting documents [i.e. milestones like date of order, date of supply of material, date of completion of civil works and date of final commissioning etc.] to commission the pending reactive power compensation by 30th June 2023. In case, the capacitor banks are not commissioned by 30th June 2023, the conditional FTC approval shall stand withdrawn w.e.f. 0000 hrs of 1st July 2023 and the complete plant shall be disconnected from the grid. This one-time conditional relaxation is provided only for plants whose applications are received by respective RLDCs by 31<sup>st</sup> March 2023. No conditional FTC shall be issued after 31st March 2023.
- c) RE developers shall submit the progress of installation of reactive power compensation to RLDCs/NLDC as per the commitment. RLDCs/NLDC shall review

the progress fortnightly. Accordingly, following conditional FTC has been issued by NRLDC after issuance of above minutes of meeting.

1. Renew Surya Ravi Pvt. Ltd.: 150 MW
2. Azure Power Maple Private Limited: 43MW
3. Nokhra Solar Plant, NTPC Ltd: 100 MW

Details of conditional FTC issued by NRLDC is available as **Annexure-VI**.

**Members may kindly take note of the information.**

**A.17 Modification in HVRT and Over Voltage settings of Inverters for RE plants of NR (Agenda by NRLDC)**

- A.17.1 Based on PMU analysis and simulations studies, it was recommended to increase the High Voltage Ride Through (HVRT) and Over Voltage (OV) settings of inverters (to keep the settings in co-ordination with POI in order to comply CEA standards at POI). Some of the plants have changed/increase the HVRT & OV setting and their response observed during 14th Jan 2023 events was better in recovering and sustaining the generation post fault.
- A.17.2 Therefore, other plants were also requested to increase the HVRT and OV settings inverters (to keep the settings in co-ordination with POI to comply CEA standards at POI). At present, Out of 44 RE plants in NR, 39 RE plants have increased the HVRT settings in Norther Region. As per MoM of meeting chaired by Secretary Power on 14th Mar 2023, RE plants connected at ISTS level need to enhance their HVRT settings immediately by 10.04.2023.
- A.17.3 As no major event occurred post 9th Feb 2023, performance of RE plants has not been validated after modification of settings. Further, studies is being carried out regarding tuning of K factor for LVRT/HVRT performance, SCR of RE station at PoI, Phase jump in case of Line to line fault etc.

**Members may kindly take note of the information.**

**A.18 Inaccurate/non-availability of Telemetry data from Sub-stations/Generating stations of Rajasthan (Agenda by NRLDC)**

- A.18.1 Telemetry from critical RRVPN stations is highly intermittent. Also many digital and analog data points are not reporting at NRLDC. Details are given in **Annexure-VII**. Further, it is to inform that voltage telemetry from critical 400/765 kV Sub-stations (given below) from Rajasthan area is not-available or inaccurate. RRVPN is requested to please take up for resolution of telemetry issues from stations.

S.No	Station	Remark
1.	Anta	400 Bus1 and 765KV Bus 2 Telemetry not available
2.	Babai	400 Bus1 Telemetry not available
3.	Bikaner	400 Bus1 Telemetry not available
4.	Heerapura	Telemetry not available
5.	Kankani	400 Bus2 Telemetry not available
6.	Suratgarh	Around 15 kV difference in Bus-1 & Bus-2 Voltage
7.	Alwar	400 Bus1 & Bus2 telemetry not available

A.18.2 Issue was also discussed in 63rd NRPC meeting on 24.02.2023 in which NRLDC informed that they have raised telemetry issues with Rajasthan SLDC vide letter dated 21.11.2022 but still there is negligible improvement in this regard. During the meeting Rajasthan SLDC confirmed that they take up with concerned for rectifications of the issue at the earliest.

A.18.3 Issue was also discussed in 64th NRPC Meeting held on 24.03.2023 in which RRVPNL informed that STU is facing issue in AMC of SAS installed at Sub-stations and any issue at Card level/ gateway level is not getting resolved. However, they have taken up the process of AMC award for these SAS and efforts are being made for award of AMC at the earliest. In the meantime, RRVPNL has started the process of integration of STNAMS RTU with SLDC SCADA, so that data reliability can be achieved.

A.18.4 In this regard, it is to inform that there is no improvement in telemetry data till now. RRVPNL is requested to please expedite the RTU integration process and share the timelines for integration. Further, status of AMC / rectification of faulty SAS may be intimated to NRLDC/NRPC.

**Rajasthan SLDC/RRVPNL may kindly update the status.**

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# भारत का राजपत्र The Gazette of India

असाधारण

EXTRAORDINARY

भाग III—खण्ड 4

PART III—Section 4

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

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## केन्द्रीय विद्युत विनियामक आयोग

### शुद्धिपत्र

नई दिल्ली, 18 सितम्बर, 2019

सं. एल-1/236/2018/केविआ.—केन्द्रीय विद्युत विनियामक आयोग (टैरिफ की निबंधन व शर्तों) विनियम, 2019 के निम्नलिखित विनियमों में निम्नानुसार संशोधन होंगे:

1. पृष्ठ 36 में, विनियम 42 के खंड (5) के अधीन विनिर्दिष्ट फार्मूले में, अंक "1000" के स्थान पर "10000" अंक रखे जाएंगे;

2. पृष्ठ 44 में, विनियम 49 के खंड (ग) के उप-खंड (क) के अधीन शीर्षक में "विद्यमान थर्मल उत्पादन केन्द्रों" शब्दों के स्थान पर "1.4.2009 से पूर्व सीओडी प्राप्त करने वाले थर्मल उत्पादन केन्द्रों" शब्द रखे जाएंगे और विनियम 49 के खंड (ग) के उप-खंड (क) के खंड (i) में "विद्यमान" शब्द को हटाया जाएगा;

3. पृष्ठ 47 में, विनियम 49 के खंड (ग) के उप-खंड (ग) के अधीन पंक्ति 4 तथा पंक्ति 2 के स्थान पर निम्नलिखित रखा जाएगा:

प्राकृतिक गैस तथा आरएलएनजी के लिए =  $1.050 \times$  यूनिट / ब्लॉक (के सीएएल / के डब्ल्यूएच) की डिज़ाइन हीट दर तरल ईंधन के लिए =  $1.071 \times$  तरल ईंधन के लिए यूनिट / ब्लॉक की डिज़ाइन हीट दर (के सीएएल / के डब्ल्यूएच) ;



4. पृष्ठ 51 में, विनियम 50 के खंड (क) के उप-खंड (4) में सारणी की तैंतीसवीं और चौंतीसवीं पंक्ति में नाथपा झाकड़ी और रामपुर के संबंध में 'आरओआर' शब्द के स्थान पर "जलसंचयन" शब्द रखे जाएंगे।

सनोज कुमार झा, सचिव

[विज्ञापन-III/4/असा./308/19]

**नोट:** मूल विनियम, भारत के राजपत्र सं. 144 के भाग-III-अनुच्छेद 4 में तारीख 3.5.2019 को प्रकाशित किए गए थे।

## CENTRAL ELECTRICITY REGULATORY COMMISSION CORRIGENDUM

New Delhi, the 18th September, 2019

**No. L-1/236/2018/CERC.—The following regulations in the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 shall be corrected as under:**

1. In page 340, the figure "1000" in the formula specified under clause (5) of Regulation 42 shall be substituted with the figure "10000";
2. In page 347, heading under sub-clause (a) of clause (C) of the Regulation 49, words "Existing Thermal Generating Stations" in heading shall be replaced by the words "Thermal Generating Stations achieving COD before 1.4.2009" and the word "existing" in clause (i) of sub-clause (a) of clause (C) of the Regulation 49 shall be deleted;
3. In page 349, under sub-clause (c) of clause (C) of the Regulation 49, the words "and RLNG" shall be inserted after words "For Natural Gas" in third line and the word "RLNG" shall be replaced by the words "For Liquid Fuel" in fourth line;
4. In page 352, thirty third and thirty fourth row of Table in sub-clause (4) of Clause (A) of Regulation 50, the word 'ROR' in respect of Nathpa Jhakri and Rampur shall be substituted by the word "Pondage".

SANOJ KUMAR JHA, Secy.

[ADV.T.-III/4/Exty./308/19]

**Note:** The principal regulations were published on 3.5.2019 in Part III- Section 4 of Gazette of India No.144.



Hydro Power Station, 1500 MW (6 x 250) **PLANT AGC OVERVIEW** 1582.34 MW 49.83 Hz 403.7 kV

DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLTY/AGC PLANT/UNIT MODE SEL
6.65 MU	6.65 MU	1050.00 MW	1500.00 MW	AGC ON STATUS TO NLDC	
UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW
200.00 MW	190.00 MW	215.00 MW	190.00 MW	190.00 MW	190.00 MW
25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
249.34 MW	250.35 MW	250.76 MW	250.22 MW	250.45 MW	250.45 MW
250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW
262.74 MW	264.27 MW	265.59 MW	263.98 MW	264.16 MW	264.27 MW
15.47 MW	14.22 MW	14.53 MW	15.16 MW	16.88 MW	16.56 MW
0.46 MW	-0.35 MW	-0.76 MW	-0.22 MW	-0.45 MW	-0.00 MW
0.167 -	0.167 -	0.167 -	0.167 -	0.167 -	0.167 MW
26.61 MVar	26.41 MVar	25.59 MVar	26.77 MVar	31.08 MVar	25.00 MVar
132.58 V	137.43 V	136.59 V	154.65 V	151.84 V	148.13 V
15.21 kV	15.31 kV	15.29 kV	15.49 kV	15.33 kV	15.34 kV
0.46 MW	0.35 MW	0.76 MW	-0.43 MW	-0.45 MW	-0.00 MW
Joint Control	Prod.Sched.today	Units 1-6 Energy	Unit 1 Control	ABB	
Unit 3 Control	Unit 4 Control	Unit 5 Control	Unit 6 Control	10-Apr-2023 19:07:14 ABB	

Alarm List | Event List | 19:50:04.588 | 3MEX10 EN006 XM01 | GUIDE VANE | ALARM | U1 269.6 MW | U2 272.1 MW | U3 269.6 MW | U4 269.1 MW | U5 270.6 MW | U6 270.6 MW

NATHPA\_ZHAKRI\_PROC\_AGC

### Nathpa Zhakri Hydro Power Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW

1624.70 MW | 49.75 Hz | 403.3 kV

WATER HEAD	DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLTY AGC PLANT/UNIT MODE SEL
1491.27 METER	6.65 MU	6.65 MU	1050.00 MW	1500.00 MW	AGC ON STATUS TO NLDC	

UNIT PARAMETERS	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
AGC REMOTE						
CIRCUIT BREAKER STATUS						
FGMO STATUS						
CAPABILITY MAX	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW
CAPABILITY MIN	200.00 MW	190.00 MW	215.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	236.35 MW	230.74 MW	236.51 MW	236.23 MW	230.98 MW
UNIT SET POINT FROM LDC	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW
ACTIVE POWER	268.63 MW	268.14 MW	272.98 MW	270.36 MW	271.68 MW	270.36 MW
GOVERNOR FGMO	21.08 MW	21.72 MW	21.23 MW	22.93 MW	23.44 MW	23.44 MW
DELTA P	-0.46 MW	-0.33 MW	-0.55 MW	-0.33 MW	-0.35 MW	-0.48 MW
DISTRIBUTION FACTOR	0.187 -	0.187 -	0.187 -	0.187 -	0.187 -	0.187 -
REACTIVE POWER	29.86 MVar	29.45 MVar	28.38 MVar	38.89 MVar	33.11 MVar	27.47 MVar
AVR VOL SET POINT	148.77 V	137.03 V	148.83 V	158.43 V	157.82 V	136.42 V
GENERATOR VOLTAGE L1 L2	15.48 kV	15.31 kV	15.30 kV	15.49 kV	15.30 kV	15.34 kV
DELTA P FEEDBACK TO LDC	0.46 MW	0.33 MW	0.55 MW	0.43 MW	0.48 MW	0.44 MW

Picture Structure: Joint Control | Prod. Sched. today | Units 1-6 Energy | Unit 1 Control

Unit 2 Control | Unit 3 Control | Unit 4 Control | Unit 5 Control | Unit 6 Control

10-Apr-2023 19:09:54

DELL



NATHPA JHAKRI-PROC AGC 07:26:36

**Nathpa Jhakri Hydro Power Station, 1500 MW (6 x 250)**

**PLANT AGC OVERVIEW**

WATER HEAD: 491.44 METER  
 DECL ENERGY: 6.65 MU  
 SCHEDULE ENERGY: 6.65 MU  
 SP FROM LDC: 875.00 MW  
 TOTAL SP ACT: 1156.74 MW  
 AGC ON STATUS FROM NLDC: 1182.19 MW  
 AGC ON STATUS TO NLDC: 49.97 Hz  
 LDC COMM HLT/AGC PLANT/UNIT MODE SEL: 408.0 kV

	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
UNIT PARAMETERS						
AGC REMOTE	ON	ON	ON	ON	ON	ON
CIRCUIT BREAKER STATUS	ON	ON	ON	ON	ON	ON
UNIT MODE STATUS	ON	ON	ON	ON	ON	ON
CAPABILITY MAX	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW
CAPABILITY MIN	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
SHARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
LOAD SET POINT	274.73 MW	274.63 MW	274.32 MW	0.30 MW	274.52 MW	274.52 MW
LOAD SET POINT FROM LDC	243.34 MW	234.18 MW	190.00 MW	249.64 MW	248.67 MW	239.22 MW
ACTIVE POWER	239.28 MW	222.12 MW	239.09 MW	0.10 MW	248.22 MW	241.31 MW
ERROR FGMO	0.16 MW	0.16 MW	0.16 MW	0.31 MW	0.16 MW	0.31 MW
TA P	-31.39 MW	-40.45 MW	-84.32 MW	0.00 MW	-27.65 MW	-33.30 MW
DISTRIBUTION FACTOR	0.200 -	0.200 -	0.200 -	0.000 -	0.200 -	0.200 -
REACTIVE POWER	23.36 MVar	27.42 MVar	0.91 MVar	-46.23 MVar	27.63 MVar	39.81 MVar
VOL SET POINT	136.76 V	92.12 V	121.88 V	00.88 V	141.61 V	144.12 V
GENERATOR VOLTAGE L1 L2	15.41 kV	15.58 kV	15.31 kV	0.15 kV	15.47 kV	15.30 kV
TA P FEEDBACK TO LDC	-31.39 MW	-40.45 MW	-84.32 MW	0.00 MW	-27.65 MW	-33.30 MW

Picture Structure: Joint Control, Prod.Sched.today, Units 1-6 Energy, Unit 1 Control, Unit 2 Control, Unit 3 Control, Unit 4 Control, Unit 5 Control, Unit 6 Control

ABB

11-Feb-2023 07:26:36

Alarm List

Event List

Object to

6MEX10.EN003

6MEX10.EN003

ACT 7BUB00.GS200

ACT 7BUB01.GS101

ACT 7BTM11.GR001

ACT 7BTM21.GR001

5MEX10.EN003

5MEX10.EN003

1MEX10.EN003

1MEX10.EN003

3MEX10.EN003

3MEX10.EN003

2MEX10.EN003

10CF01.GE302

1 ACT 7BU

1 ACT 7BU

1 ACT 7BT

1 ACT 7BT

1 ACT 3ME

1 ACT 3ME

1 ACT 5ME

1 ACT 5ME

1 ACT 7LS

1 ACT 2ME

6MEX10.EN003

2MEX10.EN003

Alarm List | Event List | 19:50:04.588 | 3MEX10 EN006 XM01 | GUIDE VANE | ALARM | U1 269.6 MW | U2 272.1 MW | U3 269.6 MW | U4 269.1 MW | U5 270.6 MW | U6 270.6 MW

NATHPA\_ZHAKRI\_PROC\_AGC

### Nathpa Jhakri Hydro Power Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW

1624.70 MW | 49.75 Hz | 403.3 kV

WATER HEAD	DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLTY AGC PLANT/UNIT MODE SEL
1491.27 METER	6.65 MU	6.65 MU	1050.00 MW	1500.00 MW	AGC ON STATUS TO NLDC	

UNIT PARAMETERS	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
AGC REMOTE	ON	ON	ON	ON	ON	ON
CIRCUIT BREAKER STATUS	ON	ON	ON	ON	ON	ON
FGMO STATUS	ON	ON	ON	ON	ON	ON
CAPABILITY MAX	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW
CAPABILITY MIN	200.00 MW	190.00 MW	215.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	236.35 MW	230.74 MW	236.51 MW	236.23 MW	230.90 MW
UNIT SET POINT FROM LDC	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW
ACTIVE POWER	268.63 MW	268.14 MW	272.99 MW	270.36 MW	271.68 MW	270.36 MW
GOVERNOR FGMO	21.08 MW	21.72 MW	21.23 MW	22.93 MW	23.44 MW	23.44 MW
DELTA P	-0.46 MW	-0.33 MW	-0.55 MW	-0.33 MW	-0.35 MW	-0.46 MW
DISTRIBUTION FACTOR	0.187 -	0.187 -	0.187 -	0.187 -	0.187 -	0.187 -
REACTIVE POWER	29.86 MVar	29.45 MVar	28.38 MVar	38.89 MVar	33.11 MVar	27.47 MVar
AVR VOL SET POINT	148.77 V	137.03 V	148.83 V	158.43 V	157.82 V	136.42 V
GENERATOR VOLTAGE L1 L2	15.48 kV	15.31 kV	15.30 kV	15.49 kV	15.30 kV	15.34 kV
DELTA P FEEDBACK TO LDC	0.46 MW	0.33 MW	0.55 MW	0.43 MW	0.48 MW	0.44 MW

Picture Structure: Joint Control | Prod. Sched. today | Units 1-6 Energy | Unit 1 Control

Unit 2 Control | Unit 3 Control | Unit 4 Control | Unit 5 Control | Unit 6 Control

10-Apr-2023 19:09:54

DELL



**Email****Power House Operation NJHPS**

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**Regarding communication failure of Automatic Generation Control (AGC)**

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**From :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in> Mon, Apr 03, 2023 07:18 PM  
**Subject :** Regarding communication failure of Automatic Generation Control (AGC)  
**To :** agcnldc <agcnldc@grid-india.in>, Commercial and System Operations SJVN <sjvn.cso@sjvn.nic.in>  
**Cc :** Er. Pintu Das DGM Rampur HPS SJVN Ltd <pintu.das@sjvn.nic.in>, POD RHEP <pod.rhep@sjvn.nic.in>, SONI KUMAR <soni.kumar@sjvn.nic.in>, Sandeep Attri, 20405 <sandeep.attri@sjvn.nic.in>

Dear Sir

This is with reference to above cited subject it is to inform you that NJHPS is facing frequent communication failure of AGC/SRAS due to which the set point of the machines frequently keeps on changing which may cause adverse effect on machine.

Above incident is frequently being observed and same has been communicated many time to NLDC/NRLDC over telepathically and mails.

So it is requested to kindly look into matter and take necessary corrective action at your end please.

--

Thank You  
Shift In Charge  
NJHPS, Jhakri  
+91-01782 275194  
+91-98166 75194

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**Email****Power House Operation NJHPS**

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**AGC Communication issue at NJHPS**

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**From :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in> Mon, Feb 13, 2023 08:10 AM  
**Subject :** AGC Communication issue at NJHPS  
**To :** agcnldc <agcnldc@grid-india.in>, Sandeep Attri, 20405 <sandeep.attri@sjvn.nic.in>  
**Cc :** Er. Pintu Das DGM Rampur HPS SJVN Ltd <pintu.das@sjvn.nic.in>, SONI KUMAR <soni.kumar@sjvn.nic.in>

Dear Sir,

Regular breaking of AGC communication signal is being observed, LDC Communication Healthiness keeps changing between 'healthy condition' and 'unhealthy condition' frequently. As a result, 'Delta P' get stuck and showing 0 value and also lack coherence with system frequency. It is further observed that some units indicates upward regulation (+ve delta P) and in other units indicates downwards regulation (-ve delta P) at same time.

Kindly look into the matter to resolve the issue at the earliest please.

--

Thank You  
Shift In Charge  
NJHPS, Jhakri  
+91-01782 275194  
+91-98166 75194

---

**Email****Power House Operation NJHPS**

---

**AGC Communication issue at NJHPS**

---

**From :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in> Mon, Feb 13, 2023 07:34 AM  
**Subject :** AGC Communication issue at NJHPS  
**To :** agcnldc <agcnldc@posoco.in>  
**Cc :** Rajeev Kapoor <rajeevnjhps@gmail.com>, Er. Pintu Das DGM Rampur HPS  
SJVN Ltd <pintu.das@sjvn.nic.in>, SONI KUMAR  
<soni.kumar@sjvn.nic.in>, Commercial and System Operations SJVN  
<sjvn.cso@sjvn.nic.in>

Sir,

It is again to intimate that "AGC Communication\_Healthy" condition getting ON/OFF frequently in our system,

Kindly look into the matter to resolve the issue at the earliest please.

Regards

--

Thank You  
Shift In Charge  
NJHPS, Jhakri  
+91-01782 275194  
+91-98166 75194

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## Email

## Power House Operation NJHPS

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**AGC Communication issue at NJHPS**

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**From :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in> Fri, Feb 10, 2023 07:45 AM  
**Subject :** AGC Communication issue at NJHPS 1 attachment  
**To :** agcnldc <agcnldc@posoco.in>  
**Cc :** Rajeev Kapoor <rajeevnhps@gmail.com>, Er. Pintu Das DGM Rampur HPS SJVN Ltd <pintu.das@sjvn.nic.in>, SONI KUMAR <soni.kumar@sjvn.nic.in>, Commercial and System Operations SJVN <sjvn.cso@sjvn.nic.in>

Sir,

It is again to intimate that "AGC Communication\_Healty" condition getting ON/OFF frequently in our system,

Screenshot attached herewith for your reference please.

Kindly look into the matter to resolve the issue at the earliest please.

Regards

--

Thank You  
Shift In Charge  
NJHPS, Jhakri  
+91-01782 275194  
+91-98166 75194



**1675995113130.jpg**  
3 MB



**Email****Power House Operation NJHPS****AGC Communication issue at NJHPS.**

**From :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in> Sun, Feb 05, 2023 06:36 PM  
**Subject :** AGC Communication issue at NJHPS. 1 attachment  
**To :** agcnldc@posoco.in  
**Cc :** RAJEEV KAPOOR DGM <Rajeev.kapoor@sjvn.nic.in>, Er. Pintu Das DGM Rampur HPS SJVN Ltd <pintu.das@sjvn.nic.in>, SONI KUMAR <soni.kumar@sjvn.nic.in>, Commercial and System Operations SJVN <sjvn.cso@sjvn.nic.in>

Sir,

It is again to intimate that "AGC Communication\_Healty" condition getting ON/OFF frequently in our system,

Screenshot attached herewith for your reference please.

Kindly look into the matter to resolve the issue at the earliest please.

Regards

Shift In Charge  
NJHPS Jhakri  
--  
Thank You  
Shift In Charge  
NJHPS, Jhakri  
+91-01782 275194  
+91-98166 75194



**IMG-20230205-WA0028.jpg**

144 KB



**Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW**
1208.09 MW 50.01 Hz 407.

SCHEDULE ENERGY: 6.65 MU SP FROM LDC: 875.00 MW TOTAL SP ACT: 1161.98 MW AGC ON STATUS FROM NLDC: ● LDC COMM HLT Y AGC PLANT/UNIT MODE: □  
 AGC ON STATUS TO NLDC: ●

	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
-0.20 MW	249.84 MW	249.64 MW	249.62 MW	249.62 MW	249.44 MW	246.59 MW
209.98 MW	233.22 MW	223.00 MW	249.62 MW	239.75 MW	229.94 MW	229.94 MW
0.20 MW	236.74 MW	242.73 MW	239.28 MW	243.24 MW	234.20 MW	234.20 MW
0.16 MW	0.16 MW	0.16 MW	0.16 MW	0.00 MW	-0.31 MW	-0.31 MW
0.00 MW	-16.62 MW	0.00 MW	-3.53 MW	-0.69 MW	-16.65 MW	-16.65 MW
0.000 -	0.200 -	0.200 -	0.200 -	0.200 -	0.200 MW	0.200 MW
-406.25 MVar	20.52 MVar	20.52 MVar	21.94 MVar	19.91 MVar	15.84 MVar	15.84 MVar
66.88 V	95.46 V	133.92 V	135.92 V	134.75 V	129.90 V	129.90 V
0.02 kV	15.38 kV	15.52 kV	15.51 kV	15.45 kV	15.27 kV	15.27 kV
0.00 MW	-16.62 MW	0.00 MW	0.00 MW	-9.69 MW	-16.65 MW	-16.65 MW



Email

Power House Operation NJHPS

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**AGC Communication issue at NJHPS.**

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**From :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in> Thu, Feb 02, 2023 07:42 PM  
**Subject :** AGC Communication issue at NJHPS. 1 attachment  
**To :** agcnldc@posoco.in  
**Cc :** RAJEEV KAPOOR DGM <Rajeev.kapoor@sjvn.nic.in>, SONI KUMAR <soni.kumar@sjvn.nic.in>, Commercial and System Operations SJVN <sjvn.cso@sjvn.nic.in>, Er. Pintu Das DGM Rampur HPS SJVN Ltd <pintu.das@sjvn.nic.in>, Sandeep Attri, 20405 <sandeep.attri@sjvn.nic.in>, OPH RHEP <rhep.phoperation@gmail.com>, HOP NJHPS <hop.njhps@sjvn.nic.in>

Sir,

It is again to intimate that "AGC Communication\_Healty" condition getting ON/OFF frequently in our system, due to this delta P is getting freeze. Further, UP/Down regulation in different units showing different at same time and have no coherence with grid frequency. Screenshot attached herewith for your reference please.

Kindly look into the matter to resolve the issue at the earliest please.

Regards

Shift In Charge  
NJHPS Jhakri

---

**From:** "Power House Operation NJHPS" <phoperations.njhps@sjvn.nic.in>  
**To:** agcnldc@posoco.in  
**Cc:** "RAJEEV KAPOOR DGM" <Rajeev.kapoor@sjvn.nic.in>, "SONI KUMAR" <soni.kumar@sjvn.nic.in>, "Commercial and System Operations SJVN" <sjvn.cso@sjvn.nic.in>, "Er. Pintu Das DGM Rampur HPS SJVN Ltd" <pintu.das@sjvn.nic.in>, "Power House Operation NJHPS" <phoperations.njhps@sjvn.nic.in>, "Sandeep Attri, 20405" <sandeep.attri@sjvn.nic.in>  
**Sent:** Wednesday, January 18, 2023 6:50:38 PM  
**Subject:** AGC Communication issue at NJHPS.

Respected Sir,

Due to failure of AGC communication signal, LDC Communication Healthiness keeps changing between 'healthy condition' and 'unhealthy condition' frequently. As a result, 'Delta - P' for all six units get stuck and also lack coherence with system frequency. It is further observed that some units indicates upward regulation (+ve delta P) and in other units indicates downwards regulation (-ve delta P) at same time. Screenshots are being attached herewith for your ready reference.

Kindly look into the matter to resolve the issue at the earliest please.

Regards

Shift In Charge  
NJHPS Jhakri



**IMG\_20230202\_191724.jpg**  
4 MB

er Station, 1500 MW (6 x 250) **PLANT AGC OVERVIEW** **776.24 MW** **49.95 Hz** **407.5 kV**

L ENERGY SCHEDULE ENERGY SP FROM LDC TOTAL SP ACT AGC ON STATUS FROM NLDC LDC COMM HLTY AGC PLANT/UNIT MODE SEL

**6.65 MU** **6.65 MU** **525.00 MW** **771.12 MW** AGC ON STATUS TO NLDC

	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
UNIT-1						
275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
-0.20 MW	0.00 MW	249.64 MW	0.40 MW	249.64 MW	249.44 MW	249.44 MW
249.94 MW	239.85 MW	269.62 MW	226.31 MW	266.29 MW	238.54 MW	238.54 MW
0.20 MW	0.41 MW	258.78 MW	0.41 MW	263.45 MW	254.41 MW	254.41 MW
0.16 MW	0.16 MW	0.00 MW	0.31 MW	-0.16 MW	-0.16 MW	-0.16 MW
0.00 MW	0.00 MW	16.65 MW	0.00 MW	16.75 MW	-11.10 MW	-11.10 MW
0.000 -	0.000 -	0.333 -	0.000 -	0.333 -	0.333 MW	0.333 MW
-406.25 MVar	-0.81 MVar	16.66 MVar	-0.20 MVar	14.42 MVar	20.52 MVar	20.52 MVar
-66.88 V	0.17 V	135.92 V	-0.33 V	145.62 V	140.27 V	140.27 V
0.02 kV	0.39 kV	15.31 kV	0.13 kV	15.34 kV	15.39 kV	15.39 kV
0.00 MW	0.00 MW	16.65 MW	0.00 MW	16.75 MW	-11.10 MW	-11.10 MW
Joint Control	Prod.Sched.today	Units 1-6 Energy	Unit 1 Control	Unit 1 Control	Unit 1 Control	Unit 1 Control
Unit 3 Control	Unit 4 Control	Unit 5 Control	Unit 6 Control	Unit 6 Control	Unit 6 Control	Unit 6 Control

ABB  
 02-Feb-2023 19:16:47

Email

Power House Operation NJHPS

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**Fwd: AGC Communication issue at NJHPS.**

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**From :** Sandeep Attri, 20405 <sandeep.attri@sjvn.nic.in> Tue, Jan 31, 2023 11:49 AM  
**Subject :** Fwd: AGC Communication issue at NJHPS. 📎 1 attachment  
**To :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in>

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**From:** "Power House Operation NJHPS" <phoperations.njhps@sjvn.nic.in>  
**To:** agcnldc@posoco.in  
**Cc:** "RAJEEV KAPOOR DGM" <Rajeev.kapoor@sjvn.nic.in>, "SONI KUMAR" <soni.kumar@sjvn.nic.in>, "Commercial and System Operations SJVN" <sjvn.cso@sjvn.nic.in>, "Er. Pintu Das DGM Rampur HPS SJVN Ltd" <pintu.das@sjvn.nic.in>, "Power House Operation NJHPS" <phoperations.njhps@sjvn.nic.in>, "Sandeep Attri, 20405" <sandeep.attri@sjvn.nic.in>  
**Sent:** Wednesday, January 18, 2023 6:50:38 PM  
**Subject:** AGC Communication issue at NJHPS.

Respected Sir,

Due to failure of AGC communication signal, LDC Communication Healthiness keeps changing between 'healthy condition' and 'unhealthy condition' frequently. As a result, 'Delta - P' for all six units get stuck and also lack coherence with system frequency. It is further observed that some units indicates upward regulation (+ve delta P) and in other units indicates downwards regulation (-ve delta P) at same time. Screenshots are being attached herewith for your ready reference.

Kindly look into the matter to resolve the issue at the earliest please.

Regards

Shift In Charge  
NJHPS Jhakri

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 **Screenshot AGC.docx**  
806 KB

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Email

Power House Operation NJHPS

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**AGC Communication issue at NJHPS.**

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**From :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in> Wed, Jan 18, 2023 06:50 PM  
**Subject :** AGC Communication issue at NJHPS.   
**To :** agcnldc@posoco.in  1 attachment  
**Cc :** RAJEEV KAPOOR DGM <Rajeev.kapoor@sjvn.nic.in>, SONI KUMAR <soni.kumar@sjvn.nic.in>, Commercial and System Operations SJVN <sjvn.cso@sjvn.nic.in>, Er. Pintu Das DGM Rampur HPS SJVN Ltd <pintu.das@sjvn.nic.in>, Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in>, Sandeep Attri, 20405 <sandeep.attri@sjvn.nic.in>

Respected Sir,

Due to failure of AGC communication signal, LDC Communication Healthiness keeps changing between 'healthy condition' and 'unhealthy condition' frequently. As a result, 'Delta - P' for all six units get stuck and also lack coherence with system frequency. It is further observed that some units indicates upward regulation (+ve delta P) and in other units indicates downwards regulation (-ve delta P) at same time. Screenshots are being attached herewith for your ready reference.

Kindly look into the matter to resolve the issue at the earliest please.

Regards

Shift In Charge  
NJHPS Jhakri

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 **Screenshot AGC.docx**  
806 KB

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**Alarm List** 3 0 1 0 0  
**Event List** All U1 U2 U3 U4 U5 U6 SYS  
 17:51:22.910 2MEA20.CL001.XM01 TU G.B.OIL RES.LB U1 240.9MW U3 245.4MW U5 252.5MW  
 03:40:57.406 6CKA10.ED001.ZEQ42 SEQ4 STEP2 ON U2 225.2MW U4 204.6MW U6 232.7MW

**Nathpa Jhakri Hydro Power Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW** 1409.48MW 49.95Hz 406.6kV

WATER HEAD	DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLTY	AGC PLANT/UNIT MODE SEL
1494.12 METER	6.65 MU	6.65 MU	875.00 MW	1182.16 MW	AGC ON STATUS TO NLDC		

UNIT PARAMETERS	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
AGC REMOTE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIRCUIT BREAKER STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FGMO STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CAPABILITY MAX	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
CAPABILITY MIN	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	205.00 MW	205.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	249.84 MW	249.54 MW	249.72 MW	249.64 MW	249.74 MW
UNIT SET POINT FROM LDC	246.21 MW	243.18 MW	246.59 MW	199.77 MW	207.59 MW	243.08 MW
ACTIVE POWER	250.35 MW	233.19 MW	247.41 MW	204.65 MW	255.43 MW	241.72 MW
GOVERNOR FGMO	2.97 MW	2.81 MW	2.66 MW	2.97 MW	2.66 MW	0.31 MW
DELTA P	-3.33 MW	-6.66 MW	-2.95 MW	-49.95 MW	0.00 MW	-6.66 MW
DISTRIBUTION FACTOR	0.200	0.200	0.200	0.200	0.000	0.200
REACTIVE POWER	35.34 MVar	30.47 MVar	22.95 MVar	9.95 MVar	25.39 MVar	32.30 MVar
AVR VOL SET POINT	144.45 V	90.78 V	137.43 V	114.86 V	140.60 V	139.77 V
GENERATOR VOLTAGE L1 L2	15.55 kV	15.48 kV	15.44 kV	15.56 kV	15.45 kV	15.54 kV
DELTA P FEEDBACK TO LDC	-3.33 MW	-6.66 MW	-2.95 MW	-49.95 MW	0.00 MW	-6.66 MW

Picture Structure | Joint Control | Prod.Sched.today | Units 1-6 Energy | Unit 1 Control  
 Unit 2 Control | Unit 3 Control | Unit 4 Control | Unit 5 Control | Unit 6 Control





**Alarm List** 3 0 1 0 0  
**Event List** All U1 U2 U3 U4 U5 U6 SYS  
 17:51:22.910 2MEA20.CL001.XM01 TU G.B.OIL RES. LE  
 03:40:57.405 6CKA10.ED001.ZEQ42 SEQ4 STEP2 ON  
 U1 242.5 MW U3 250.1 MW U5 253.8 MW  
 U2 231.2 MW U4 203.1 MW U6 246.3 MW

(Enter search name) | NATHPA\_JHAKRI:PROC\_AGC

**Nathpa Jhakri Hydro Power Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW 1436.60 MW 49.95 Hz 406.6 kV**

WATER HEAD	DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLT Y AGC PLANT/UNIT MODE SEL
1494.10 METER	6.65 MU	6.65 MU	875.00 MW	1248.28 MW	AGC ON STATUS TO NLDC	

UNIT PARAMETERS	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
AGC REMOTE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIRCUIT BREAKER STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FGMO STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CAPABILITY MAX	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
CAPABILITY MIN	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	205.00 MW	205.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	249.84 MW	249.54 MW	249.52 MW	249.64 MW	249.74 MW
UNIT SET POINT FROM LDC	252.67 MW	253.17 MW	246.59 MW	199.77 MW	207.59 MW	253.07 MW
ACTIVE POWER	238.27 MW	231.16 MW	246.80 MW	202.31 MW	252.89 MW	242.73 MW
GOVERNOR FGMO	2.97 MW	1.88 MW	0.16 MW	2.81 MW	2.34 MW	0.16 MW
DELTA P	3.43 MW	3.33 MW	-2.95 MW	0.00 MW	0.00 MW	3.33 MW
DISTRIBUTION FACTOR	0.200 -	0.200 -	0.200 -	0.200 -	0.000 -	0.200 MW
REACTIVE POWER	32.20 MVar	30.67 MVar	23.16 MVar	9.55 MVar	24.78 MVar	31.28 MVar
AVR VOL SET POINT	138.77 V	96.30 V	135.92 V	114.86 V	139.94 V	136.42 V
GENERATOR VOLTAGE L1 L2	15.55 kV	15.48 kV	15.41 kV	15.56 kV	15.45 kV	15.54 kV
DELTA P FEEDBACK TO LDC	3.33 MW	3.33 MW	-2.95 MW	-49.95 MW	0.00 MW	3.33 MW

Picture Structure	Joint Control	Prod.Sched.today	Units 1-6 Energy	Unit 1 Control	<b>ABB</b>
Unit 2 Control	Unit 3 Control	Unit 4 Control	Unit 5 Control	Unit 6 Control	



**Alarm List** 3 0 1 0 0  
**Event List** All U1 U2 U3 U4 U5 U6 SYS  
 17:51:22.910 2MEA20.CL001.XM01 TU G.B.OIL RES. LE  
 03:40:57.405 6CKA10.ED001.ZEQ42 SEQ4 STEP2 ON  
 U1 243.6 MW U3 248.6 MW U5 251.5 MW  
 U2 224.3 MW U4 200.0 MW U6 256.6 MW

(Enter search name) | NATHPA\_JHAKRI:PROC\_AGC

**Nathpa Jhakri Hydro Power Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW 1424.62 MW 49.98 Hz 406.6 kV**

WATER HEAD	DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLT Y AGC PLANT/UNIT MODE SEL
1494.10 METER	6.65 MU	6.65 MU	875.00 MW	1173.75 MW	AGC ON STATUS TO NLDC	

UNIT PARAMETERS	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
AGC REMOTE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIRCUIT BREAKER STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FGMO STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CAPABILITY MAX	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
CAPABILITY MIN	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	205.00 MW	205.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	249.84 MW	249.54 MW	249.62 MW	249.74 MW	249.54 MW
UNIT SET POINT FROM LDC	239.55 MW	221.65 MW	246.59 MW	199.77 MW	207.59 MW	259.53 MW
ACTIVE POWER	237.55 MW	226.08 MW	248.63 MW	200.99 MW	251.47 MW	256.65 MW
GOVERNOR FGMO	0.16 MW	0.16 MW	0.16 MW	0.16 MW	0.16 MW	-0.16 MW
DELTA P	-9.99 MW	-28.19 MW	-2.95 MW	-49.85 MW	0.00 MW	9.99 MW
DISTRIBUTION FACTOR	0.200 -	0.200 -	0.200 -	0.200 -	0.000 -	0.200 MW
REACTIVE POWER	33.92 MVar	30.67 MVar	23.36 MVar	10.36 MVar	24.17 MVar	31.89 MVar
AVR VOL SET POINT	139.10 V	96.30 V	132.75 V	114.86 V	136.26 V	146.12 V
GENERATOR VOLTAGE L1 L2	15.55 kV	15.48 kV	15.41 kV	15.56 kV	15.45 kV	15.54 kV
DELTA P FEEDBACK TO LDC	-9.99 MW	-28.19 MW	-2.95 MW	-50.05 MW	0.00 MW	9.99 MW

Picture Structure	Joint Control	Prod.Sched.today	Units 1-6 Energy	Unit 1 Control	<b>ABB</b>
Unit 2 Control	Unit 3 Control	Unit 4 Control	Unit 5 Control	Unit 6 Control	



Email

Power House Operation NJHPS

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**AGC Communication issue at NJHPS.**

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**From :** Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in> Wed, Jan 18, 2023 06:50 PM  
**Subject :** AGC Communication issue at NJHPS.   
**To :** agcnldc@posoco.in  1 attachment  
**Cc :** RAJEEV KAPOOR DGM <Rajeev.kapoor@sjvn.nic.in>, SONI KUMAR <soni.kumar@sjvn.nic.in>, Commercial and System Operations SJVN <sjvn.cso@sjvn.nic.in>, Er. Pintu Das DGM Rampur HPS SJVN Ltd <pintu.das@sjvn.nic.in>, Power House Operation NJHPS <phoperations.njhps@sjvn.nic.in>, Sandeep Attri, 20405 <sandeep.attri@sjvn.nic.in>

Respected Sir,

Due to failure of AGC communication signal, LDC Communication Healthiness keeps changing between 'healthy condition' and 'unhealthy condition' frequently. As a result, 'Delta - P' for all six units get stuck and also lack coherence with system frequency. It is further observed that some units indicates upward regulation (+ve delta P) and in other units indicates downwards regulation (-ve delta P) at same time. Screenshots are being attached herewith for your ready reference.

Kindly look into the matter to resolve the issue at the earliest please.

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Shift In Charge  
NJHPS Jhakri

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 **Screenshot AGC.docx**  
806 KB

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**Alarm List** 3 0 1 0 0  
**Event List** All U1 U2 U3 U4 U5 U6 SYS  
 17:51:22.910 2MEA20.CL001.XM01 TU G.B.OIL RES.LB U1 240.9MW U3 245.4MW U5 252.5MW  
 03:40:57.406 6CKA10.ED001.ZEQ42 SEQ4 STEP2 ON U2 225.2MW U4 204.6MW U6 232.7MW

**Nathpa Jhakri Hydro Power Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW** 1409.48MW 49.95Hz 406.6kV

WATER HEAD	DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLTY	AGC PLANT/UNIT MODE SEL
1494.12 METER	6.65 MU	6.65 MU	875.00 MW	1182.16 MW	AGC ON STATUS TO NLDC		

UNIT PARAMETERS	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
AGC REMOTE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIRCUIT BREAKER STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FGMO STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CAPABILITY MAX	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
CAPABILITY MIN	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	205.00 MW	205.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	249.84 MW	249.54 MW	249.72 MW	249.64 MW	249.74 MW
UNIT SET POINT FROM LDC	246.21 MW	243.18 MW	246.59 MW	199.77 MW	207.59 MW	243.08 MW
ACTIVE POWER	250.35 MW	233.19 MW	247.41 MW	204.65 MW	255.43 MW	241.72 MW
GOVERNOR FGMO	2.97 MW	2.81 MW	2.66 MW	2.97 MW	2.66 MW	0.31 MW
DELTA P	-3.33 MW	-6.66 MW	-2.95 MW	-49.95 MW	0.00 MW	-6.66 MW
DISTRIBUTION FACTOR	0.200	0.200	0.200	0.200	0.000	0.200
REACTIVE POWER	35.34 MVar	30.47 MVar	22.95 MVar	9.95 MVar	25.39 MVar	32.30 MVar
AVR VOL SET POINT	144.45 V	90.78 V	137.43 V	114.86 V	140.60 V	139.77 V
GENERATOR VOLTAGE L1 L2	15.55 kV	15.48 kV	15.44 kV	15.56 kV	15.45 kV	15.54 kV
DELTA P FEEDBACK TO LDC	-3.33 MW	-6.66 MW	-2.95 MW	-49.95 MW	0.00 MW	-6.66 MW

Picture Structure | Joint Control | Prod.Sched.today | Units 1-6 Energy | Unit 1 Control  
 Unit 2 Control | Unit 3 Control | Unit 4 Control | Unit 5 Control | Unit 6 Control



**Alarm List** 3 0 1 0 0  
**Event List** All U1 U2 U3 U4 U5 U6 SYS  
 17:51:22.910 2MEA20.CL001.XM01 TU G.B.OIL RES. LE  
 03:40:57.405 6CKA10.ED001.ZEQ42 SEQ4 STEP2 ON

(Enter search name)  
 NATHPA\_JHAKRI:PROC\_AGC

**Nathpa Jhakri Hydro Power Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW 1436.60 MW 49.95 Hz 406.6 kV**

WATER HEAD	DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLT Y AGC PLANT/UNIT MODE SEL
1494.10 METER	6.65 MU	6.65 MU	875.00 MW	1248.28 MW	AGC ON STATUS TO NLDC	

UNIT PARAMETERS	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
AGC REMOTE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIRCUIT BREAKER STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FGMO STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CAPABILITY MAX	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
CAPABILITY MIN	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	205.00 MW	205.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	249.84 MW	249.54 MW	249.52 MW	249.64 MW	249.74 MW
UNIT SET POINT FROM LDC	252.67 MW	253.17 MW	246.59 MW	199.77 MW	207.59 MW	253.07 MW
ACTIVE POWER	238.27 MW	231.16 MW	246.80 MW	202.31 MW	252.89 MW	242.73 MW
GOVERNOR FGMO	2.97 MW	1.88 MW	0.16 MW	2.81 MW	2.34 MW	0.16 MW
DELTA P	3.43 MW	3.33 MW	-2.95 MW	0.00 MW	0.00 MW	3.33 MW
DISTRIBUTION FACTOR	0.200 -	0.200 -	0.200 -	0.200 -	0.000 -	0.200 MW
REACTIVE POWER	32.20 MVar	30.67 MVar	23.16 MVar	9.55 MVar	24.78 MVar	31.28 MVar
AVR VOL SET POINT	138.77 V	96.30 V	135.92 V	114.86 V	139.94 V	136.42 V
GENERATOR VOLTAGE L1 L2	15.55 kV	15.48 kV	15.41 kV	15.56 kV	15.45 kV	15.54 kV
DELTA P FEEDBACK TO LDC	3.33 MW	3.33 MW	-2.95 MW	-49.95 MW	0.00 MW	3.33 MW

Picture Structure	Joint Control	Prod.Sched.today	Units 1-6 Energy	Unit 1 Control	<b>ABB</b>
Unit 2 Control	Unit 3 Control	Unit 4 Control	Unit 5 Control	Unit 6 Control	



**Alarm List** 3 0 1 0 0  
**Event List** All U1 U2 U3 U4 U5 U6 SYS  
 17:51:22.910 2MEA20.CL001.XM01 TU G.B.OIL RES. LE  
 03:40:57.405 6CKA10.ED001.ZEQ42 SEQ4 STEP2 ON  
 U1 243.6 MW U3 248.6 MW U5 251.5 MW  
 U2 224.3 MW U4 200.0 MW U6 256.6 MW

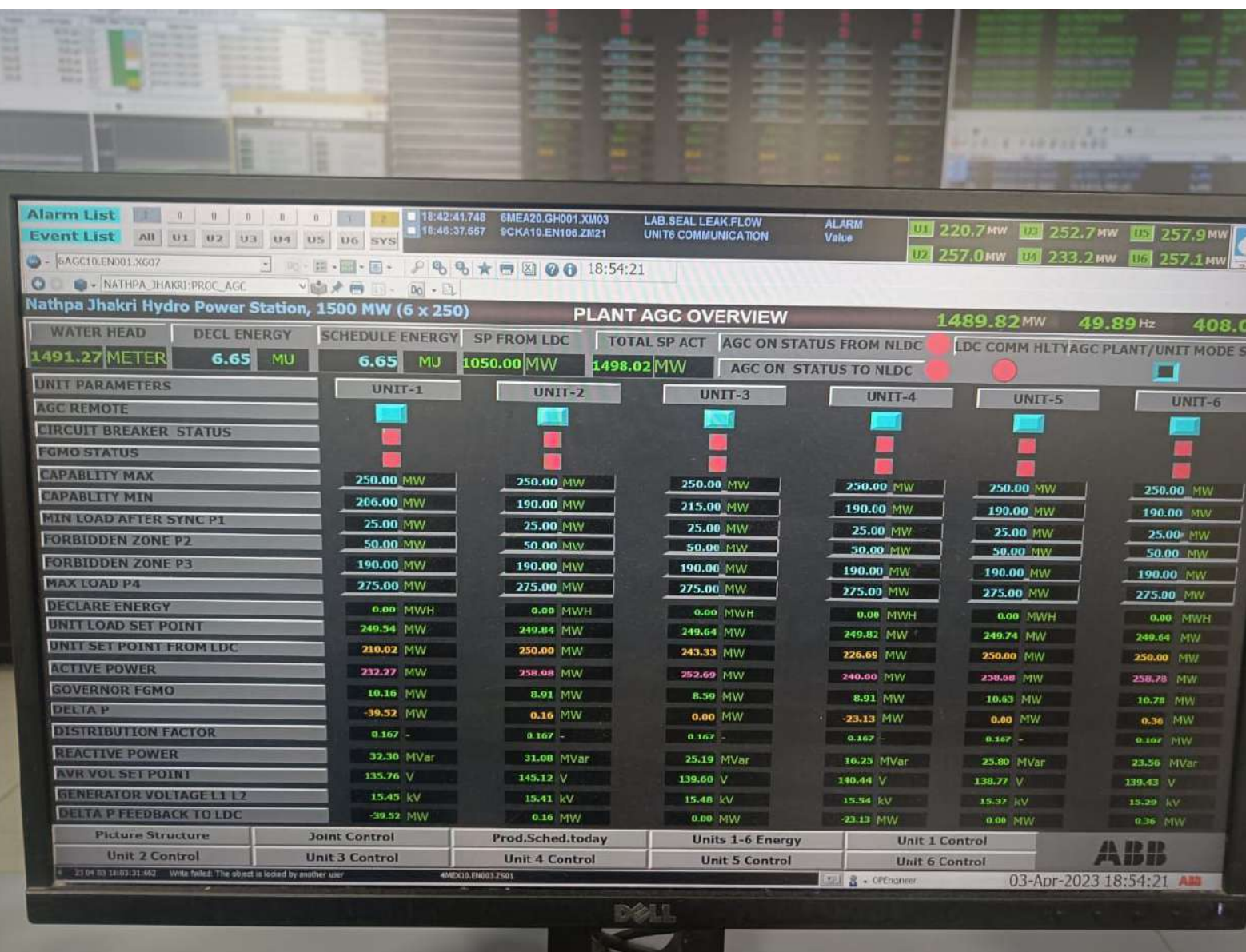
(Enter search name) | NATHPA\_JHAKRI:PROC\_AGC

**Nathpa Jhakri Hydro Power Station, 1500 MW (6 x 250) PLANT AGC OVERVIEW 1424.62 MW 49.98 Hz 406.6 kV**

WATER HEAD	DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC	LDC COMM HLT Y AGC PLANT/UNIT MODE SEL
1494.10 METER	6.65 MU	6.65 MU	875.00 MW	1173.75 MW	AGC ON STATUS TO NLDC	

UNIT PARAMETERS	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
AGC REMOTE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIRCUIT BREAKER STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FGMO STATUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CAPABILITY MAX	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
CAPABILITY MIN	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	205.00 MW	205.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	249.84 MW	249.54 MW	249.62 MW	249.74 MW	249.54 MW
UNIT SET POINT FROM LDC	239.55 MW	221.65 MW	246.59 MW	199.77 MW	207.59 MW	259.53 MW
ACTIVE POWER	237.55 MW	226.08 MW	248.63 MW	200.99 MW	251.47 MW	256.65 MW
GOVERNOR FGMO	0.16 MW	0.16 MW	0.16 MW	0.16 MW	0.16 MW	-0.16 MW
DELTA P	-9.99 MW	-28.19 MW	-2.95 MW	-49.85 MW	0.00 MW	9.99 MW
DISTRIBUTION FACTOR	0.200 -	0.200 -	0.200 -	0.200 -	0.000 -	0.200 MW
REACTIVE POWER	33.92 MVar	30.67 MVar	23.36 MVar	10.36 MVar	24.17 MVar	31.89 MVar
AVR VOL SET POINT	139.10 V	96.30 V	132.75 V	114.86 V	136.26 V	146.12 V
GENERATOR VOLTAGE L1 L2	15.55 kV	15.48 kV	15.41 kV	15.56 kV	15.45 kV	15.54 kV
DELTA P FEEDBACK TO LDC	-9.99 MW	-28.19 MW	-2.95 MW	-50.05 MW	0.00 MW	9.99 MW

Picture Structure	Joint Control	Prod.Sched.today	Units 1-6 Energy	Unit 1 Control	<b>ABB</b>
Unit 2 Control	Unit 3 Control	Unit 4 Control	Unit 5 Control	Unit 6 Control	





**NATHPA\_JHAKRI:PROC\_AGC**
18:53:25
**Natp Jhakri Hydro Power Station, 1500 MW (6 x 250)**

PLANT AGC OVERVIEW						
WATER HEAD		DECL ENERGY	SCHEDULE ENERGY	SP FROM LDC	TOTAL SP ACT	AGC ON STATUS FROM NLDC
1.27 METER		6.65 MU	6.65 MU	1050.00 MW	1463.36 MW	1485.15 MW 49.89 Hz 408.0 kV
AGC ON STATUS TO NLDC		LDC COMM HLT/AGC PLANT/UNIT MODE SEL				
AGC ON STATUS TO NLDC						
	UNIT-1	UNIT-2	UNIT-3	UNIT-4	UNIT-5	UNIT-6
PARAMETERS						
REMOTE						
CIRCUIT BREAKER STATUS						
MODE STATUS						
CAPABILITY MAX	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW	250.00 MW
CAPABILITY MIN	206.00 MW	190.00 MW	215.00 MW	190.00 MW	190.00 MW	190.00 MW
MIN LOAD AFTER SYNC P1	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW	25.00 MW
FORBIDDEN ZONE P2	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW	50.00 MW
FORBIDDEN ZONE P3	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW	190.00 MW
MAX LOAD P4	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW	275.00 MW
DECLARE ENERGY	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH	0.00 MWH
UNIT LOAD SET POINT	249.54 MW	249.84 MW	249.64 MW	249.82 MW	249.74 MW	249.54 MW
UNIT SET POINT FROM LDC	261.02 MW	250.00 MW	246.66 MW	223.36 MW	250.00 MW	250.00 MW
ACTIVE POWER	230.24 MW	257.86 MW	251.98 MW	230.24 MW	257.26 MW	258.68 MW
GOVERNOR FGMO	9.53 MW	8.75 MW	8.75 MW	9.38 MW	10.31 MW	10.63 MW
DELTA P	11.48 MW	0.16 MW	-0.64 MW	-20.00 MW	0.05 MW	0.35 MW
DISTRIBUTION FACTOR	0.167 -	0.167 -	0.167 -	0.167 -	0.167 -	0.167 -
REACTIVE POWER	31.78 MVar	29.86 MVar	23.77 MVar	14.22 MVar	25.59 MVar	21.53 MVar
AVR VOL SET POINT	135.00 V	147.79 V	146.29 V	129.00 V	147.29 V	141.44 V
GENERATOR VOLTAGE L1 L2	15.45 kV	15.41 kV	15.48 kV	15.54 kV	15.37 kV	15.29 kV
DELTA P FEEDBACK TO LDC	0.46 MW	0.16 MW	-0.04 MW	-20.46 MW	0.05 MW	0.36 MW

कार्यालय : बी-9, प्रथम एवं द्वितीय तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली - 110016  
Office : 1<sup>st</sup> and 2<sup>nd</sup> Floor, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi -110016  
CIN : U40105DL2009GOI188682, Website : www.grid-india.in, E-mail : gridindiacc@grid-india.in, Tel.: 011- 40234672

संदर्भ: NLDC/SO/NR-WR Export/  
सेवा मे,

दिनांक: March 30, 2023

Chief Operating Officer,  
Central Transmission Utility of India Limited,  
POWERGRID,  
Saudamini, Plot No. 2, Sector 29,  
Near IFFCO Chowk, Gurgaon - 122011

**विषय:- Export capability of NR-WR Corridor – Reg.**

**Reference: - Grid-India Communication to CTUIL dated 21 February 2022.**

Sir,

Your attention is invited towards the power flow pattern in the NR-WR corridor under the prevailing scenario of high RE (Solar) generation in Rajasthan, low demand in Northern Region, high demand in Western and Southern Region coupled with low generation from conventional stations in Gujarat due to various issues. The pattern of inter-regional flow between WR & NR for the last 3 months is given in **Annexure – 1**. The diurnal pattern of NR-WR flow for a typical day is provided in **Annexure – 2** along with the power flow from Rajasthan to Gujarat.

It may be noted that the power flow on the inter-regional lines viz. 765 kV Gwalior – Agra D/C, 765 kV Vindhyanchal – Varansai D/C, 765 kV Jabalpur – Orai D/C etc, is from WR to NR direction, whereas the flow on AC tie lines between Rajasthan (NR) and Gujarat (WR) viz 765 kV Chittorgarh – Banaskantha D/C & 400 kV Bhinmal – Zerda and 400 kV Kankroli – Zerda is in the NR to WR direction for most of the time.

The loading of 400 kV Bhinmal-Zerda S/C, 400 kV Kankroli – Zerda S/C, 400 kV Jodhpur – Kankroli S/C, 400 kV Barmer – Bhinmal D/C are N-1 non-compliant for considerable amount of time (**Annexure-3**), despite maintaining high power transfer from NR to WR through HVDC Mahendragarh-Mundra bipole. There have been instances when the export capability (ATC) of NR-WR corridor is breached during peak solar hours. Voltage profiles of 400 kV Bhinmal and nearby stations of Rajasthan are enclosed in **Annexure-4**. The voltage profile during peak solar hours also indicates that high power flow from Rajasthan to Gujarat through the AC lines leads to fall in voltage upstream of Kankroli / Bhinmal.

The current TTC/ATC declared by Grid-India for the NR-WR & NR Export Corridor is 4000/3500 MW, the limiting constraint being overloading of 400 kV Zerda - Bhinmal under N-1 contingency of 400 kV Zerda – Kankroli.

The list of LTA/MTOAs granted from the ISTS solar plants in Rajasthan (as on 30.03.23) to other states in NR and other regions is provided in **Annexure - 5**. Out of the total quantum (8922 MW) of granted LTA from the ISTS solar plants in Rajasthan, 3139 MW is allocated to states in Northern Region, 1690 MW to the states in Eastern Region whereas 4092 MW to states in Western and Southern region. It is noted that the total quantum of approved LTA exceeds the transfer capability of the NR-WR & NR Export corridor declared by Grid-India. Further, the transfer capability limits of the NR-WR corridor (NR Export) for the current timeframe could not be located on the CTU website.

The same issue was also highlighted by Grid-India vide communication dated 21<sup>st</sup> Feb 2022 to CTUIL. However, it is observed that additional 4326 MW LTA/MTOA from Solar ISTS in Rajasthan has been approved by CTUIL since the last communication from Grid-India in this regard; without any network augmentation in the corridor.

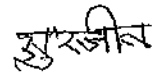
Bypassing of 400 kV Kankroli – Bhinmal - Zerda line at Bhinmal to form 400 kV Kankroli – Zerda (direct) line & reconductoring of 400 kV Jodhpur (RVPN) – Kankroli S/c (twin moose) line with twin HTLS conductor have already been approved during 5<sup>th</sup> CMETS - NR meeting held on 30<sup>th</sup> March 2022 & the same need to expedited along with the other network strengthening scheme in NR-WR corridor in order to relieve the constraints in the NR export/NR-WR corridor.

Frequent grid incidents involving loss of Solar generation during transmission element switching, low frequency oscillations and severe voltage dip during faults are also being experienced in Rajasthan area. While a detailed analysis is still underway, the preliminary information indicates that the incidents appear to be associated with low short circuit ratios, low fault levels at the solar pooling stations and HVRT/LVRT/reactive capability related issues of Solar inverters in Rajasthan. Tripping of any high voltage lines in the vicinity will further worsen the situation in the complex and may lead to a large disturbance.

Therefore, it is once again suggested that the planned network strengthening in NR-WR corridor may be expedited and the date of operationalization of additional LTAs being granted from generators in Northern Region may be aligned with the commissioning schedule of network augmentation to address the above stated constraints.

धन्यवाद,

भवदीय,



(Surajit Banerjee)

**Chief General Manager, NLDC**

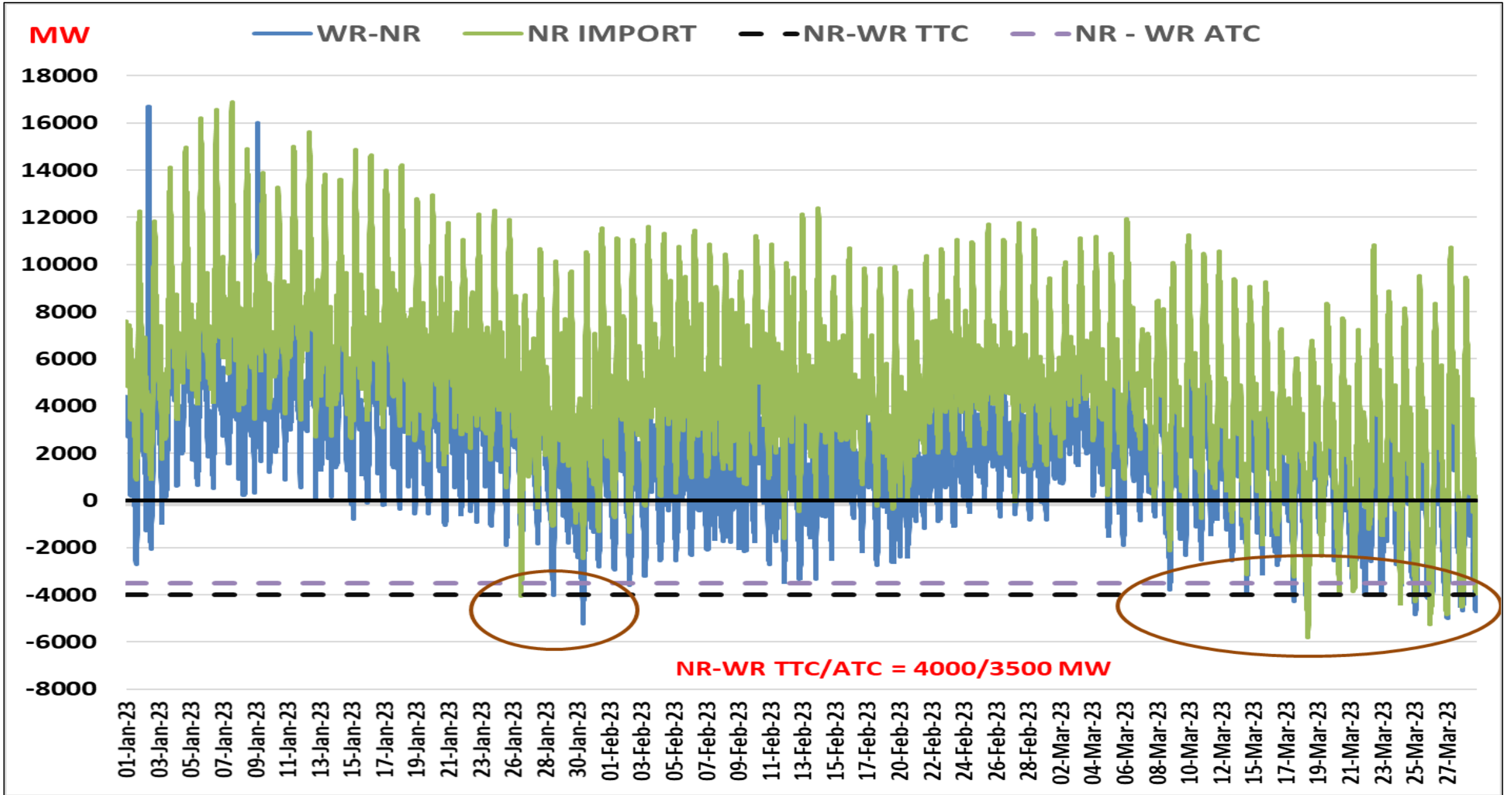
Encl: As above

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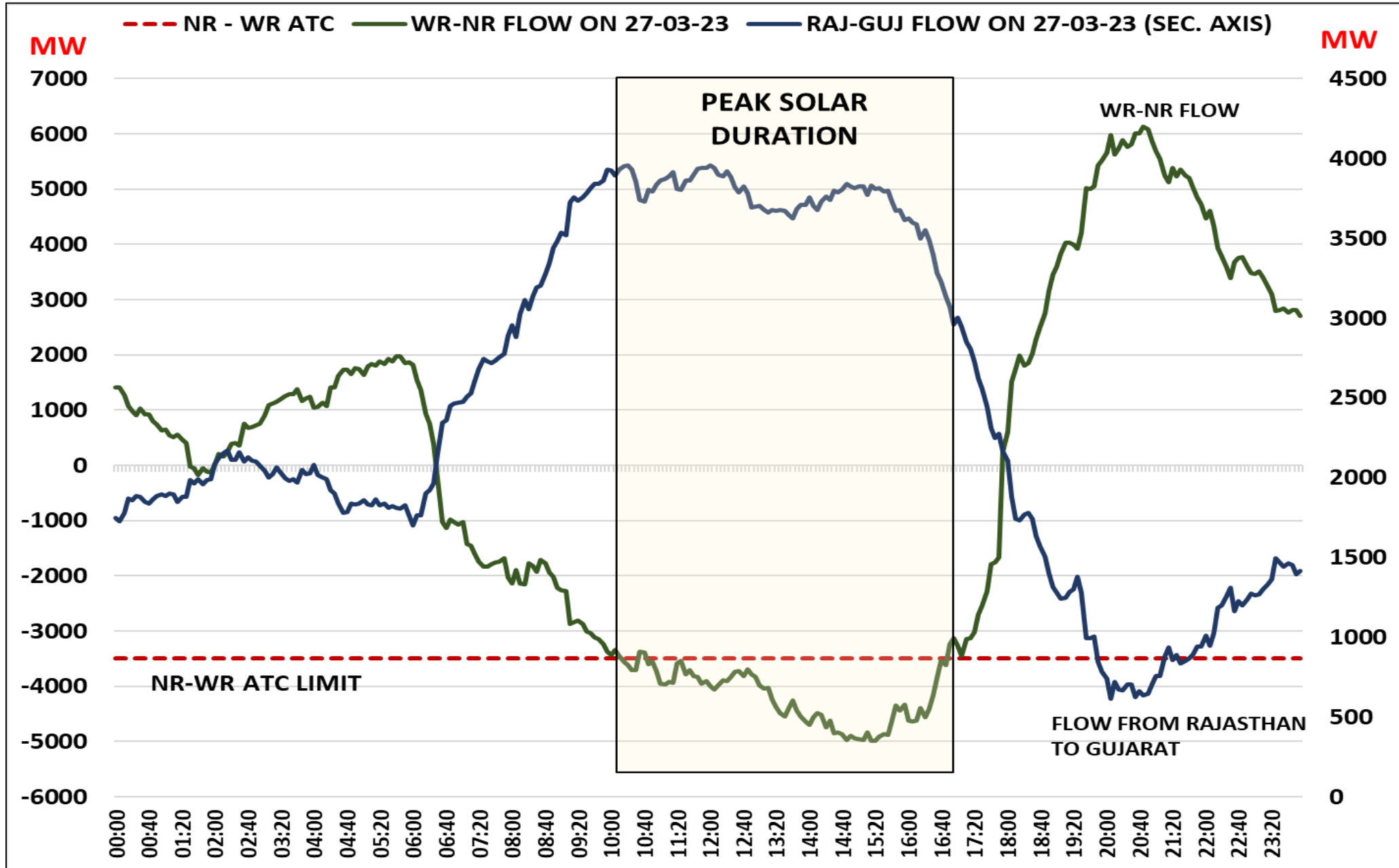
1. Member (Power System), CEA, RK Puram, New Delhi
2. Member Secretary, NRPC/WRPC



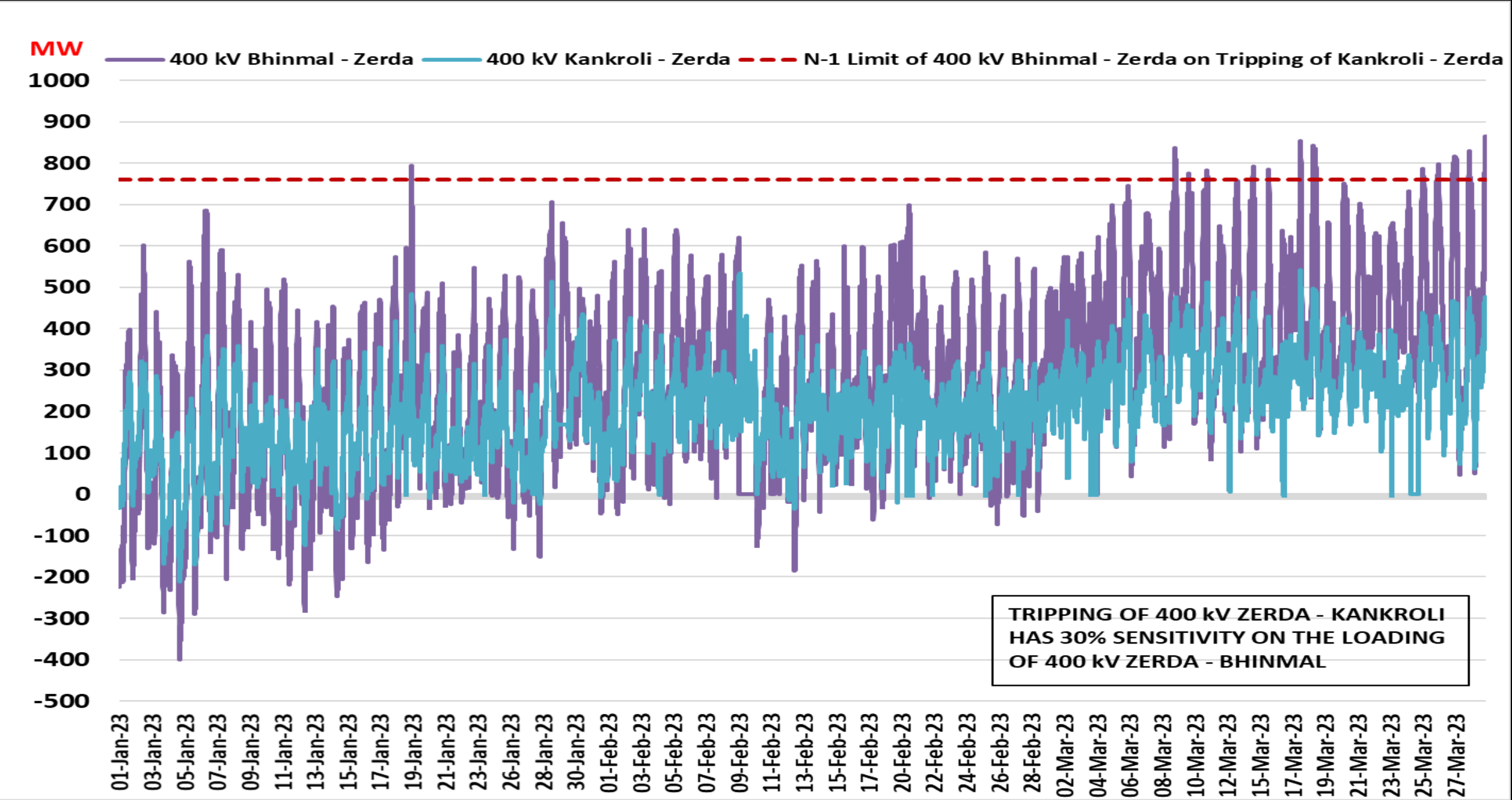
# Annexure – 1 - WR-NR & NR Import Flows from 01-Jan-23 to 29-Mar-23



**Annexure – 2: Pattern of WR-NR & Raj – Guj (Sec Axis) Flow for a typical day (27.03.2022)**

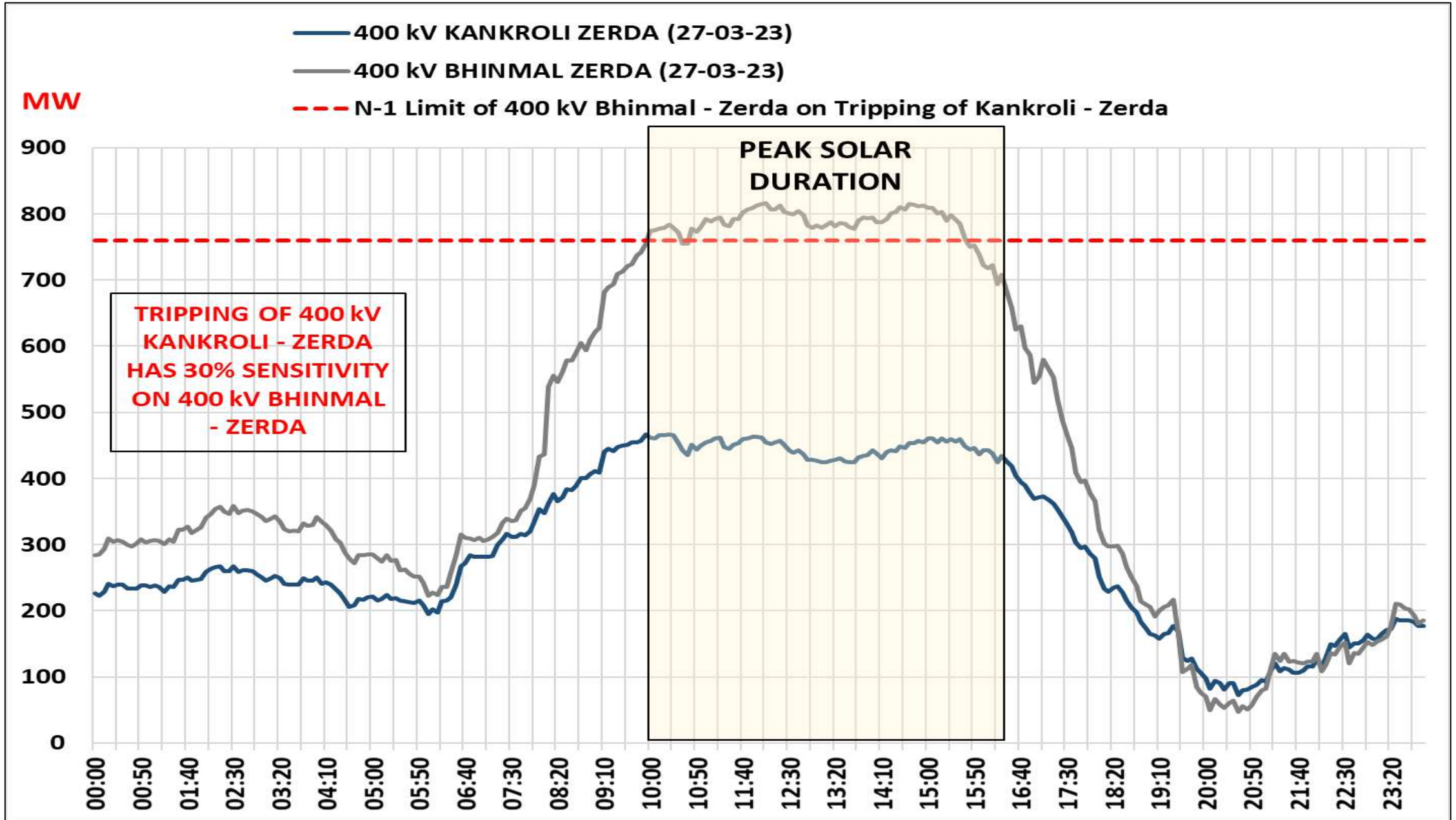


Annexure – 3 (a) – Loadings of 400 kV Bhinmal – Zerda & Kankroli-Zerda from 01-Jan-23 to 29-Mar-23

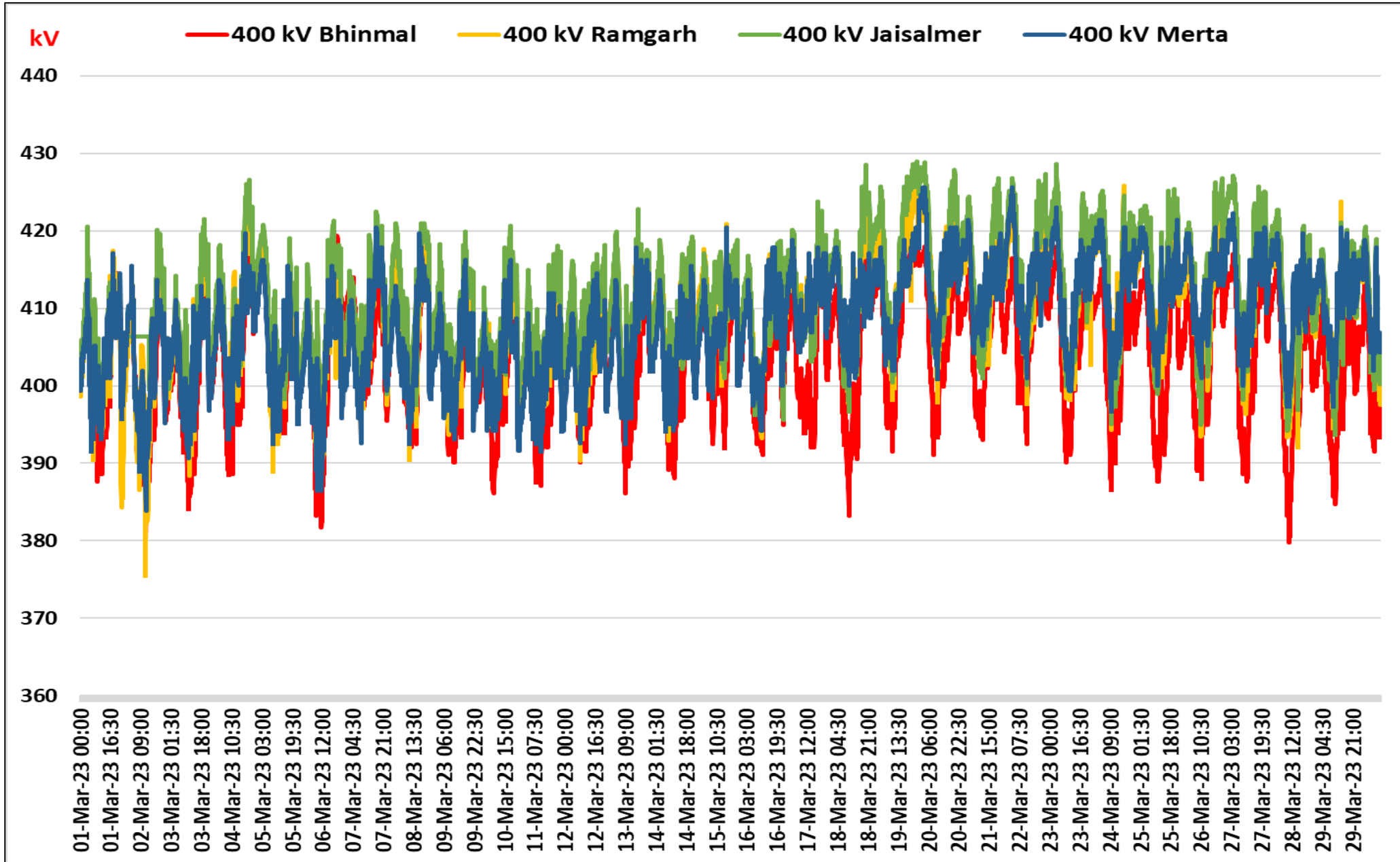




Annexure – 3 (b): Loadings 400 kV Bhinmal – Zerda & Kankroli - Zerda for a typical day (27.03.2023)



Annexure – 4: Voltage profile of 400 kV Bhinmal, Ramgarh, Jaisalmer, Merta for March'23



## Annexure – 5 - LTA/MTOA GRANTED FROM ISTS RE PLANTS IN RAJASTHAN AS ON 30.03.2023

Approval No	Injectee Entity	Full Name of Injectee Entity	Drawee Entity	Full Name of Drawee Entity	Contract Quantum	Path
L_WR_2021_13	ACSEPL_BHADLA	ACME Chittorgarh Solar Energy Private Limited	MSEB	MAHARASHTRA	250	NR-WR
L_WR_2021_14	MRPL	Mahindra Renewables Private Limited	CSEB	CHATTISGARH	250	NR-WR
L_WR_2021_16	RSBPL_FTG2	ReNew Sun Bright Private Limited	MSEB	MAHARASHTRA	300	NR-WR
L_WR_2021_15	ASunceEPL_BKN	Avaada Sunce Energy Private Limited	MSEB	MAHARASHTRA	350	NR-WR
L_WR_2022_07	RSEJ3PL_FTG2	RENEW SOLAR ENERGY (JHARKHAND THREE) PRIVATE LIMITED	MPSEB	MADHYA PRADESH	300	NR-WR
L_WR_2021_09	TPREL	TATA POWER Renewable Energy Limited (CHHAYAN)	MSEB	MAHARASHTRA	150	NR-WR
L_WR_2021_10	APTFPL_Bhadla	Azure Power Thirty Four pvt Limited	MSEB	MAHARASHTRA	130	NR-WR
L_WR_2021_11	RSPPL_BKN	Renew Solar Power Private Limited Bikaner	MSEB	MAHARASHTRA	250	NR-WR
L_WR_2022_01	ARERJL	Adani Renewable (RJ) Ltd	MSEB	MAHARASHTRA	200	NR-WR
L_WR_2022_06	ARP1PL_BKN	Ayana Renewable Power One Private Limited	MPSEB	MADHYA PRADESH	300	NR-WR
L_WR_2022_05	APMPL_BHDL	Azure Power Maple Private Limited	MPSEB	MADHYA PRADESH	250	NR-WR
L_WR_2022_09	ASEJOPL_W_FTG2	Adani Solar Energy Jaisalmer One Private Limited WIND	CSEB	CHATTISGARH	93.33	NR-WR
L_WR_2022_10	ASEJOPL_S_FTG2	Adani Solar Energy Jaisalmer One Private Limited	CSEB	CHATTISGARH	373.33	NR-WR
L_SR_2022_02	AvSusRJPPPL_BKN	Avaada Sustainable RJProject Private Limited	TSNPDCL	TELANGANA	41.23	NR-WR-SR
L_SR_2022_01	AvSusRJPPPL_BKN	Avaada Sustainable RJProject Private Limited	TSSPDCL	TELANGANA	98.77	NR-WR-SR
L_SR_2022_03	AvSusRJPPPL_BKN	Avaada Sustainable RJProject Private Limited	TANGEDCO	TAMIL NADU	160	NR-WR-SR
L_SR_2021_03	NSNTPC_FTG1	Nidan Solar Power Plant NTPC Ltd Fatehgarh	TSSPDCL	TELANGANA	208.82	NR-WR-SR
L_SR_2021_04	NSNTPC_FTG1	Nidan Solar Power Plant NTPC Ltd Fatehgarh	TSNPDCL	TELANGANA	87.18	NR-WR-SR
L_SR_2022_04	RSUPL_FTG2	ReNew Solar Urja Pvt Ltd	TSSPDCL	TELANGANA	91.72	NR-WR-SR
L_SR_2022_05	RSUPL_FTG2	ReNew Solar Urja Pvt Ltd	TSNPDCL	TELANGANA	38.28	NR-WR-SR
L_SR_2022_06	RSUPL_FTG2	ReNew Solar Urja Pvt Ltd	TANGEDCO	TAMIL NADU	170	NR-WR-SR
<b>TOTAL NR RE-ISTS LTA IN NR-WR PATH</b>					<b>4092.66</b>	

## Annexure – 5 - LTA/MTOA GRANTED FROM ISTS RE PLANTS IN RAJASTHAN AS ON 30.03.2023

Approval No	Injectee Entity	Full Name of Injectee Entity	Drawee Entity	Full Name of Drawee Entity	Contract Quantum	Path
L_ER_2015_05	DADRI_SOLAR	DADRI_SOLAR	ODISHA	ODISHA	5	NR-ER
L_ER_2015_06	UNCHAHAHAR_SOLAR	UNCHAHAHAR SOLAR	DVC	DVC	10	NR-ER
L_ER_2021_05	RSWPL3_FTG2	Renew Sun wave Pvt. Ltd. Fatehgarh2	BSPHCL	BIHAR	300	NR-ER
L_ER_2021_03	SBE6PL	SB Energy Six Private Limited	NBPDCL	BIHAR	138	NR-ER
L_ER_2021_04	SBE6PL	SB Energy Six Private Limited	SBPDCL	BIHAR	162	NR-ER
L_ER_2021_06	AP43PL_BKN	Azure Power Forty Three Private Limited	ODISHA	ODISHA	300	NR-ER
L_ER_2022_01	AP43PL_BKN	Azure Power Forty Three Private Limited	JBVNL	JHARKHAND	200	NR-ER
L_ER_2021_08	AP41PL_BHDL	Azure Power Forty One Private Limited	ODISHA	ODISHA	200	NR-ER
L_ER_2022_08	CSPJPL_BHDL	Clean Solar Power(Jodhpur) Private Limited	JBVNL	JHARKHAND	250	NR-ER
L_ER_2022_06	AHEJ3L_S_FTG2	ADANI HYBRID SOLAR ENERGY JAILSALMER THREE LTD	IPCL_WB	WEST BENGAL	100	NR-ER
L_ER_2022_07	AHEJ3L_W_FTG2	ADANI HYBRID WIND ENERGY JAILSALMER THREE LTD	IPCL_WB	WEST BENGAL	25	NR-ER
<b>TOTAL NR RE-ISTS LTA IN NR-ER PATH</b>					<b>1690</b>	
L_NR_2019_22	CSP_Bhadla	Clean Solar Power (bhadla) Pvt. Ltd	UPPCL	UTTAR PRADESH	100	NR-NR
L_NR_2020_01	CSP_Bhadla	Clean Solar Power (bhadla) Pvt. Ltd	UPPCL	UTTAR PRADESH	100	NR-NR
L_NR_2020_03	CSP_Bhadla	Clean Solar Power (bhadla) Pvt. Ltd	UPPCL	UTTAR PRADESH	100	NR-NR
L_NR_2015_03	SINGRAULI_SOLAR	SINGRAULI SOLAR	HP	HIMACHAL PRADESH	15	NR-NR
L_NR_2021_13	ERCPL_FTG2	Eden Renewable Cite Private Limited	BYPL	DELHI	50	NR-NR
L_NR_2021_12	ERCPL_FTG2	Eden Renewable Cite Private Limited	BRPL	DELHI	250	NR-NR
L_NR_2022_03	AHEJOL_S_FTG2	ADANI HYBRID SOLAR ENERGY JAILSALMER ONE LTD	HARYANA	HARYANA	180	NR-NR
L_NR_2022_06	AHEJOL_W_FTG2	ADANI HYBRID WIND ENERGY JAILSALMER ONE LTD	HARYANA	HARYANA	50.4	NR-NR
L_NR_2022_05	AHEJOL_S_FTG2	ADANI HYBRID SOLAR ENERGY JAILSALMER ONE LTD	HARYANA	HARYANA	180	NR-NR
L_NR_2022_04	AHEJOL_W_FTG2	ADANI HYBRID WIND ENERGY JAILSALMER ONE LTD	HARYANA	HARYANA	50.6	NR-NR
L_NR_2022_07	MSUPL_BHDL2	Mega Suryaurja Pvt Ltd	HARYANA	HARYANA	250	NR-NR

## Annexure – 5 - LTA/MTOA GRANTED FROM ISTS RE PLANTS IN RAJASTHAN AS ON 30.03.2023

Approval No	Injectee Entity	Full Name of Injectee Entity	Drawee Entity	Full Name of Drawee Entity	Contract Quantum	Path
L_NR_2019_14	APIPL	Azure Power India Pvt. Ltd	UPPCL	UTTAR PRADESH	200	NR-NR
L_NR_2019_13	RENEW_Bhadla	ReNew Solar Power Private Limited	UPPCL	UTTAR PRADESH	50	NR-NR
L_NR_2019_15	SBEFPL_Bhadla	SB ENERGY FOUR PRIVATE LIMITED	UPPCL	UTTAR PRADESH	200	NR-NR
L_NR_2020_10	AURAIYA_SOLAR	Auraiya Solar Power Plant NTPC Ltd	UPPCL	UTTAR PRADESH	20	NR-NR
L_NR_2021_11	AP43PL_BKN	Azure Power Forty Three Private Limited	HARYANA	HARYANA	100	NR-NR
L_NR_2021_15	ASE4PL	Adani Solar Energy Four Private Limited	BYPL	DELHI	50	NR-NR
L_NR_2021_14	AP41PL_BHDL	Azure Power Forty One Private Limited	BRPL	DELHI	100	NR-NR
L_NR_2021_17	SBSRPC11PL_BKN	SBSR Power Cleantech 11Private Ltd. Bikaner	BYPL	DELHI	50	NR-NR
L_NR_2021_16	SBSRPC11PL_BKN	SBSR Power Cleantech 11Private Ltd. Bikaner	TPDDL	DELHI	100	NR-NR
L_NR_2022_13	AURAIYA_SOLAR	Auraiya Solar Power Plant NTPC Ltd	UPPCL	UTTAR PRADESH	20	NR-NR
L_NR_2022_18	ASEJOPL_S_FTG2	Adani Solar Energy Jaisalmer One Private Limited	HARYANA	HARYANA	46.67	NR-NR
L_NR_2022_19	ASEJOPL_W_FTG2	Adani Solar Energy Jaisalmer One Private Limited WIND	HARYANA	HARYANA	11.67	NR-NR
L_NR_2022_14	AHEJ2L_S_FTG2	ADANI HYBRID SOLAR ENERGY JAILSALMER TWO LTD	PUNJAB	PUNJAB	300	NR-NR
L_NR_2022_15	AHEJ2L_W_FTG2	ADANI HYBRID WIND ENERGY JAILSALMER TWO LTD	PUNJAB	PUNJAB	75	NR-NR
L_NR_2022_16	AHEJ3L_S_FTG2	ADANI HYBRID SOLAR ENERGY JAILSALMER THREE LTD	PUNJAB	PUNJAB	200	NR-NR
L_NR_2022_17	AHEJ3L_W_FTG2	ADANI HYBRID WIND ENERGY JAILSALMER THREE LTD	PUNJAB	PUNJAB	50	NR-NR
M_NR_2022_01	AvRJHNPL_BKN	Avaada RJHN Private Limited	HARYANA	HARYANA	240	NR-NR
<b>TOTAL NR RE-ISTS LTA/MTOA IN NR-NR PATH</b>					<b>3139.34</b>	
<b>LTA/MTOA GRANTED FROM ISTS RE PLANTS IN NORTHERN REGION AS ON 30.03.2023</b>					<b>8922</b>	



# पावर सिस्टम ऑपरेशन कॉरपोरेशन लिमिटेड

(पावरग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)

## POWER SYSTEM OPERATION CORPORATION LIMITED

(A wholly owned subsidiary of POWERGRID)



पंजीकृत एवं केन्द्रीय कार्यालय: वी-9, प्रथम तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली-110 016  
Registered & Corporate Office : B - 9, 1st Floor, Qutub Institutional Area, Katwaria Sarai, New Delhi - 110 016  
Website : www.posoco.in, www.nldc.in, Tel: 011-26536832, 26524522, Fax: 011-26524525, 26536901

संदर्भ: NLDC/SO/NR-WR Export/

दिनांक: 21<sup>st</sup> February 2022

सेवा में,

मुख्य परिचालन अधिकारी  
सेंट्रल ट्रांसमिशन यूटिलिटी,  
पावरग्रिड कारपोरेशन लिमिटेड,  
फर्स्ट फ्लोर, सौदामिनी, प्लॉट नंबर - 2, सेक्टर - 29,  
इफको चौक मेट्रो के पास  
गुडगाँव - 122011

विषय:- Regarding export capability in NR-WR Corridor

Sir,

Your attention is invited towards the power flow pattern in the WR-NR corridor under the prevailing scenario of high RE (Solar) generation in Rajasthan, low demand in Northern Region, high demand in Western and Southern Region coupled with low generation from conventional stations in Gujarat due to various issues and non-availability of HVDC Mundra-Mahendragrh bipole in reverse direction (NR to WR). The pattern of inter-regional flow between WR & NR for the last 6 months is given in Annexure – 1. The diurnal pattern of NR-WR flow for a typical day is provided in Annexure – 2 (a) along with the power flow from Rajasthan to Gujarat.

It may be noted that the power flow on the inter-regional lines viz. 765 kV Gwalior – Agra D/C, 765 kV Vindhyanchal – Varansai D/C, 765 kV Jabalpur – Orai D/C etc, is from WR to NR direction, whereas the flow on AC tie lines between Rajasthan (NR) and Gujarat (WR) viz 765 kV Chittorgarh – Banaskantha D/C & 400 kV Bhinmal – Zerda and 400 kV Kankroli – Zerda is in the NR to WR direction for most of the time.

The loading of 400 kV Bhinmal-Zerda S/C, 765/400 kV ICTs at Vadodara, 400 kV Banaskantha – Veloda D/C, 3x315 MVA, 400/220 kV ICT at Zerda & 400 kV Kala – Kudus D/C are N-1 non-compliant for considerable amount of time (Annexure-3). There have been instances when the export capability (ATC) of NR-WR corridor is breached during peak export hours.

Recent communication from NLDC dated 07<sup>th</sup> February 2022 regarding high loading in 400 kV inter regional lines between Rajasthan & Gujarat is enclosed for your reference.

The list of LTA/MTOAs granted from the ISTS solar plants in Rajasthan (as on 15.02.22) to other states in same and other regions is provided in Annexure - 4. It is noted that out of the total quantum (4596 MW) of granted LTA from the solar plants in Rajasthan, 1459 MW is allocated to states in Northern Region, 1267 MW to the states in Eastern Region whereas 1730 & 140 MW to states in Western and Southern region respectively.

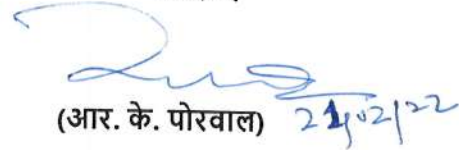
The current TTC/ATC declared in the NR-WR Corridor is 2500/2000 MW with overloading of 400kV Zerda - Bhinmal on tripping of 400 kV Zerda - Kankroli being the limiting constraint. However, the transfer capability limits in the NR-WR corridor (NR Export) could not be located on the CTU website.

Frequent grid incidents involving loss of Solar generation during transmission element switching are also being experienced in Rajasthan area. While a detailed analysis is still underway, the preliminary information indicates that the incidents appear to be associated with low short circuit ratios, low fault levels at the solar pooling stations and HVRT/LVRT/reactive capability related issues of Solar inverters in Rajasthan.

Therefore, it is suggested that the envisaged network strengthening in this corridor may be expedited and the date of operationalization of additional LTAs being granted from Rajasthan may be aligned with the network augmentation to address the above stated constraints.

धन्यवाद,

भवदीय,

  
(आर. के. पोरवाल) 21/02/22

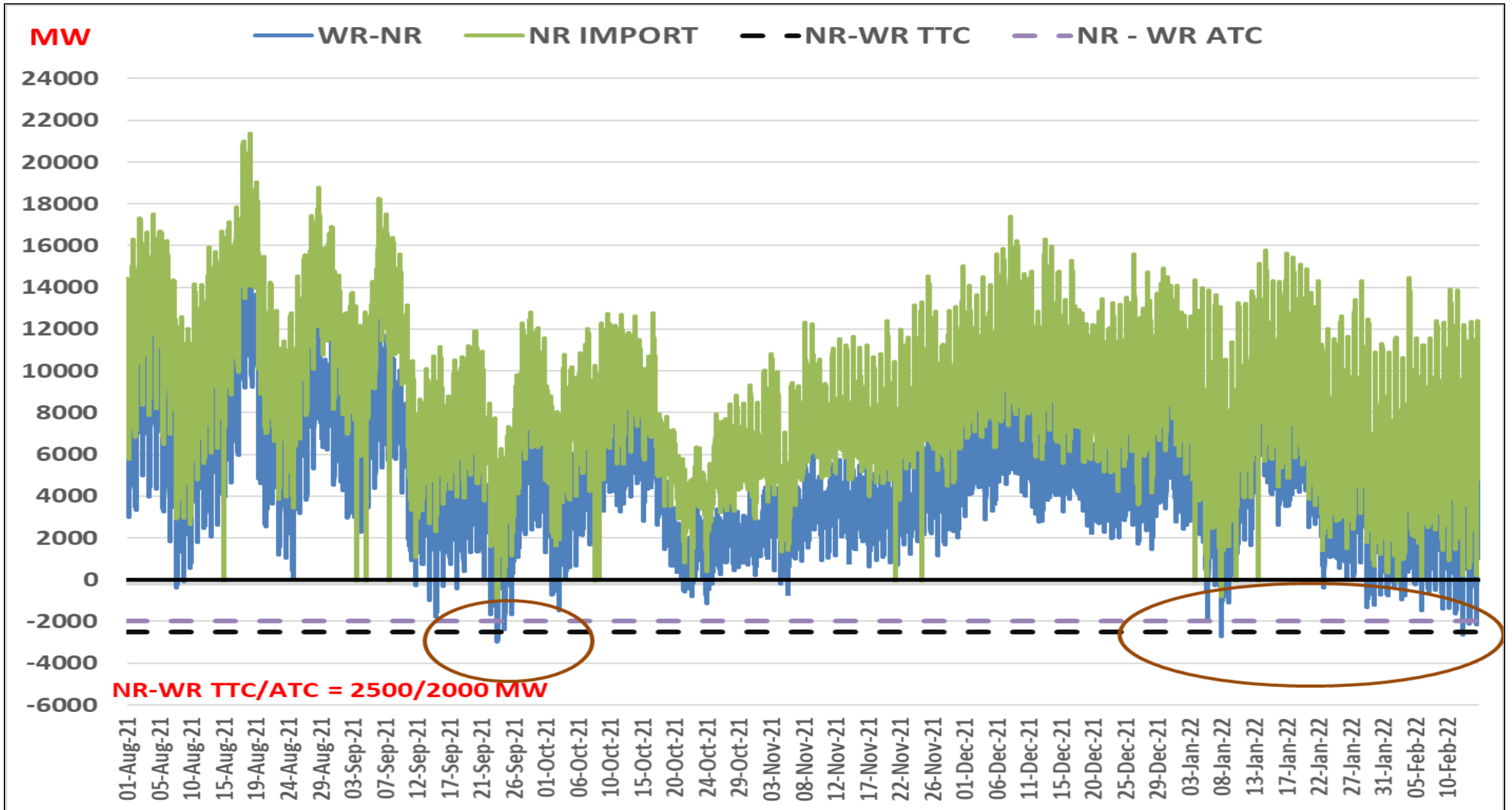
मुख्य महाप्रबंधक, रा भा प्रे के

Encl: As above

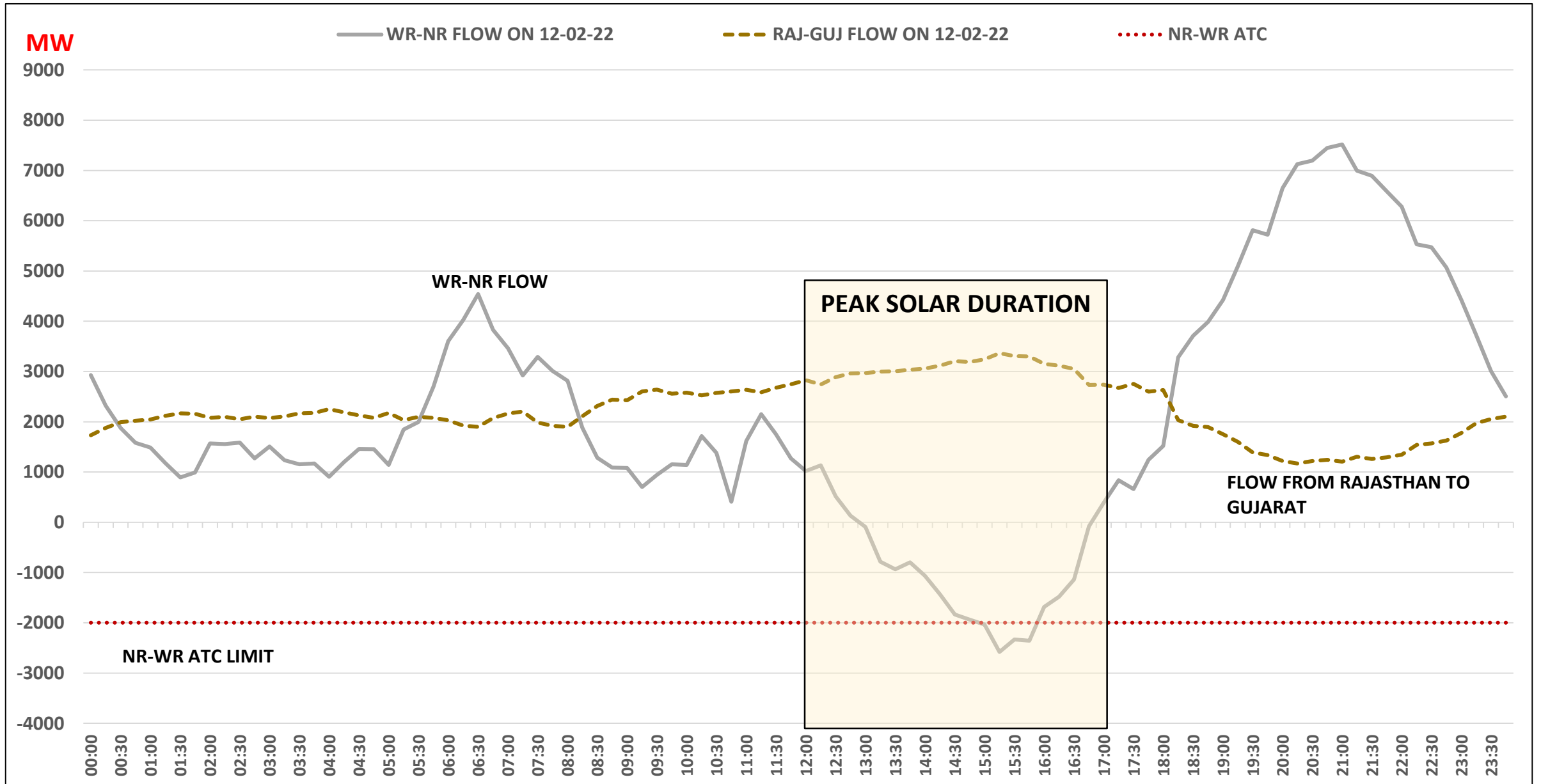
Copy to:

1. सदस्य (पावर सिस्टम), केंद्रीय विद्युत प्राधिकरण, सेवा भवन, आर के पुरम, नई दिल्ली
2. सदस्य सचिव, उत्तरी क्षेत्रीय विद्युत समिति/पश्चिमी क्षेत्रीय विद्युत समिति
3. कार्यकारी निदेशक, उ.क्षे.भा.प्रे.के/ प.क्षे.भा.प्रे.के

# Annexure – 1 - WR-NR & NR Import Flows from 01-Aug-21 to 15-Feb-22



# Annexure – 2(a) Pattern of WR-NR & Raj – Guj (Sec Axis) Flow for a Typical Day (12.02.2022)





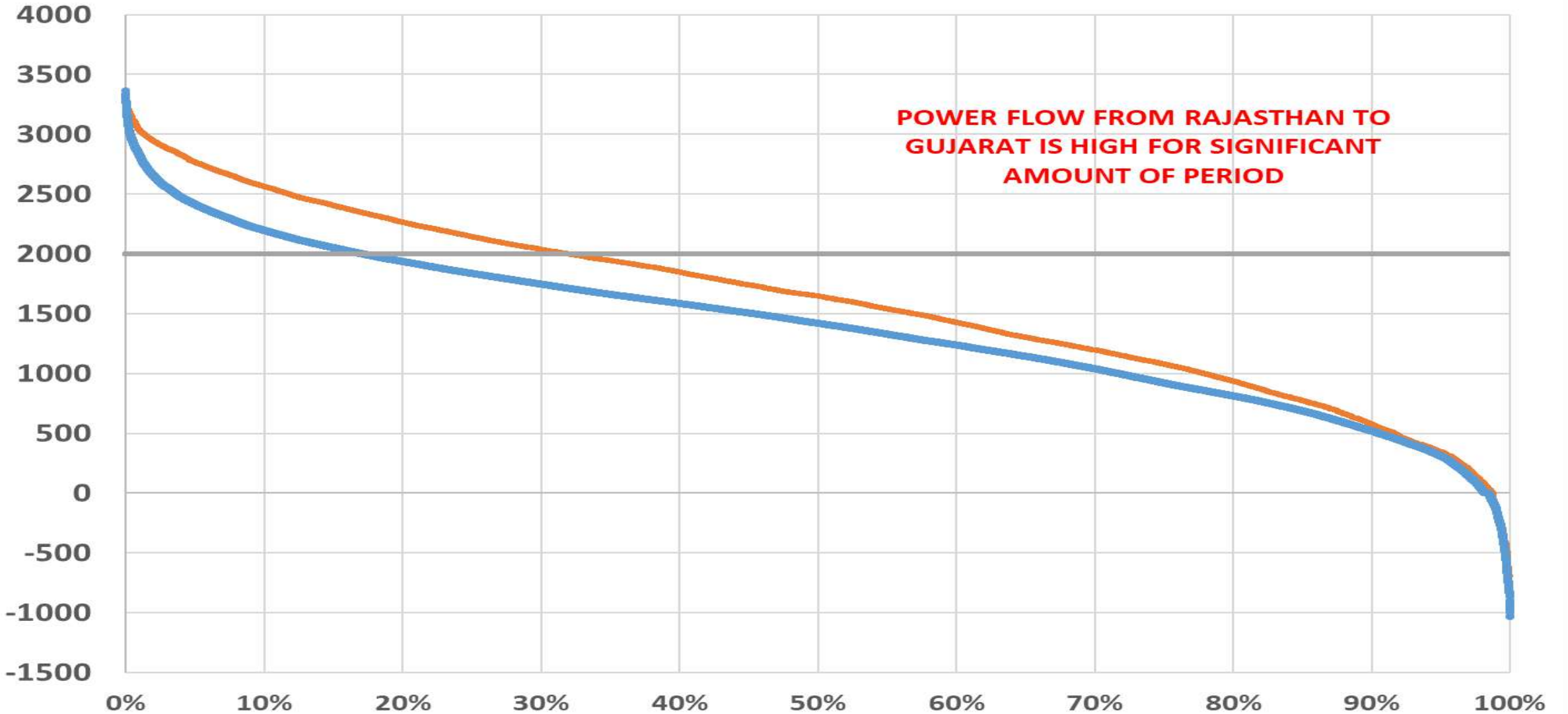
# Annexure – 2 (b) Duration Plot of Rajasthan – Gujarat Flow

## RAJASTHAN - GUJARAT FLOW

**MW**

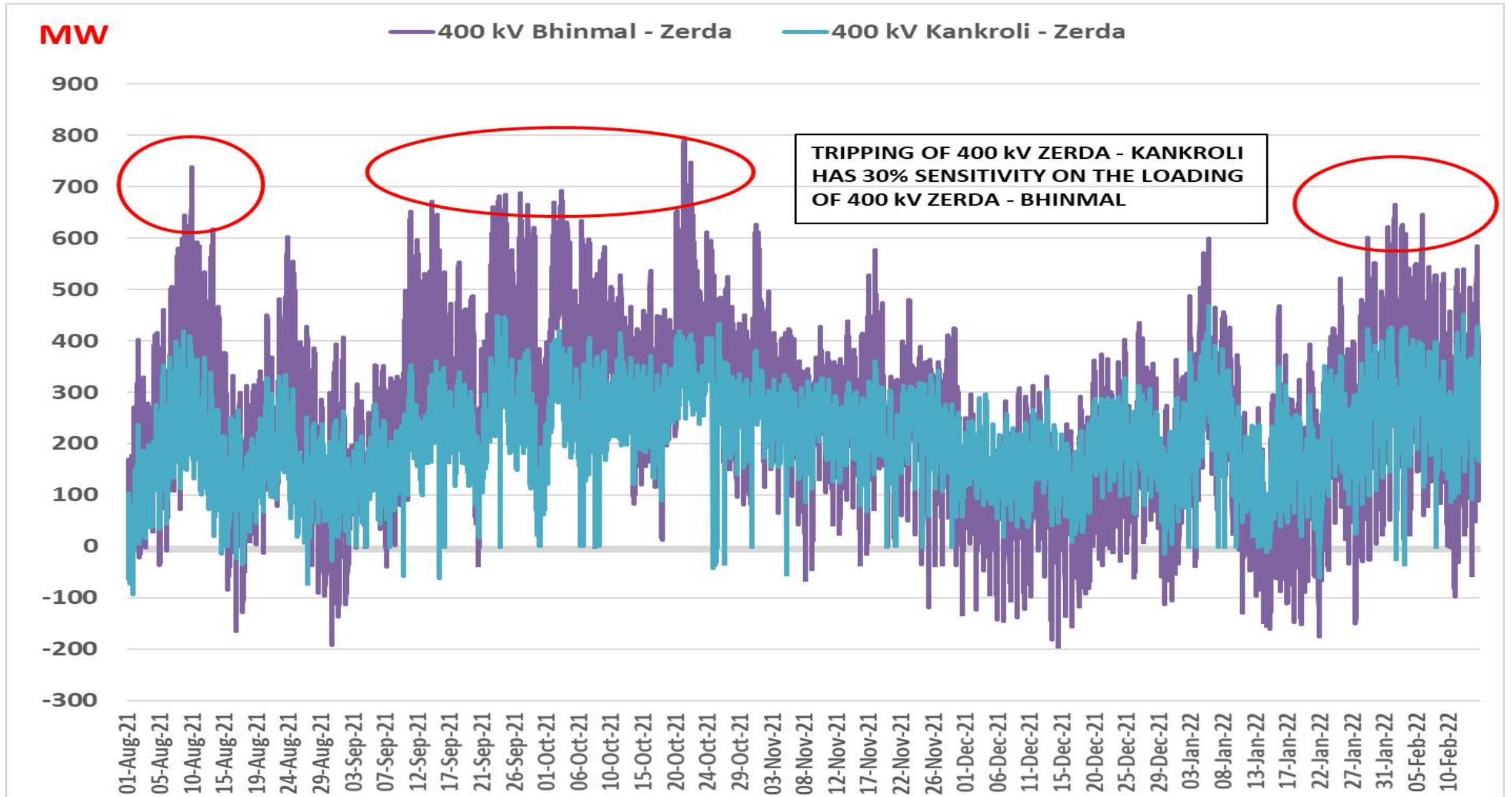
• 01-Aug-21 to 15-Feb-22

• 01-Jan-22 to 15-Feb-2022

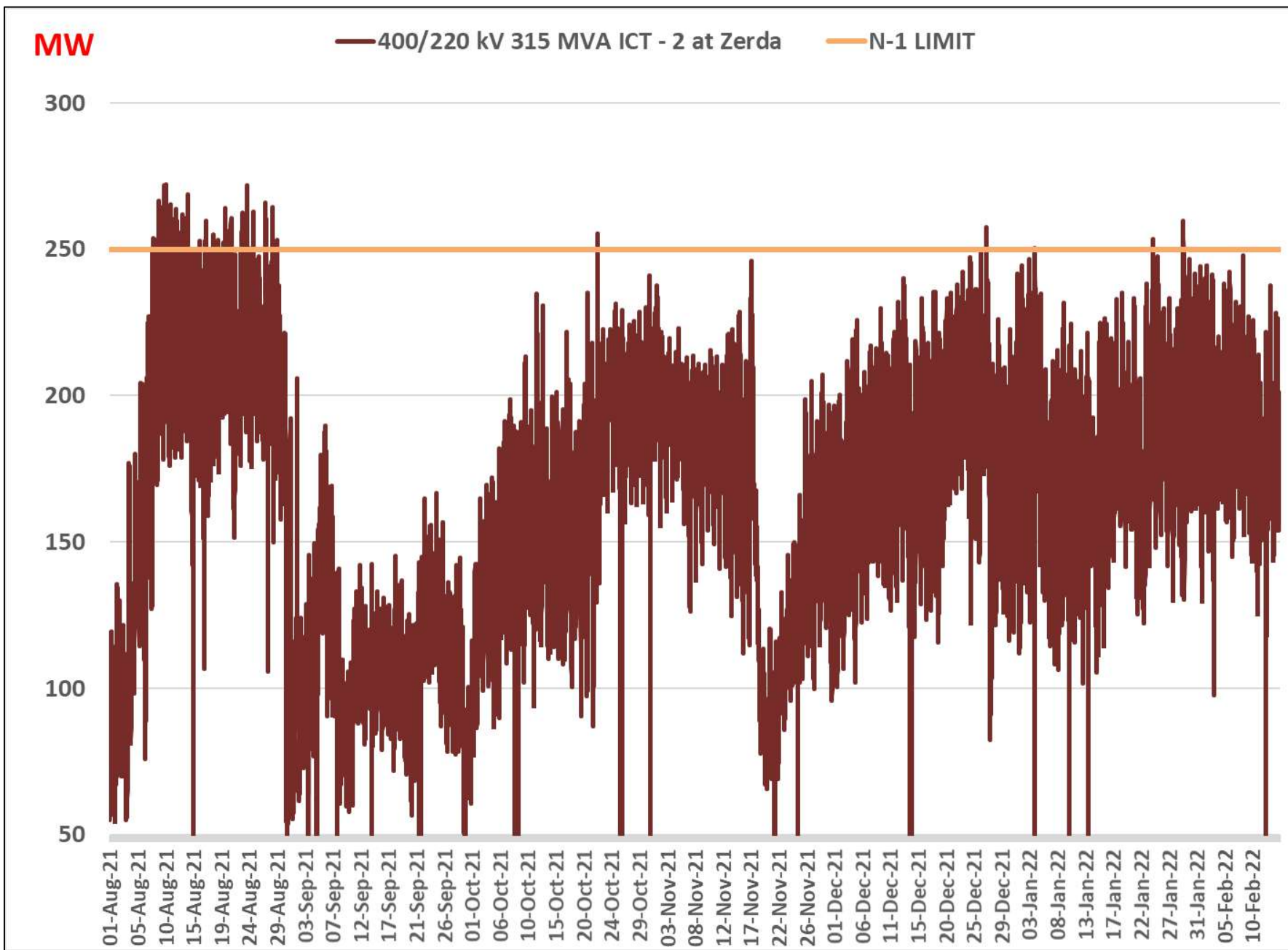




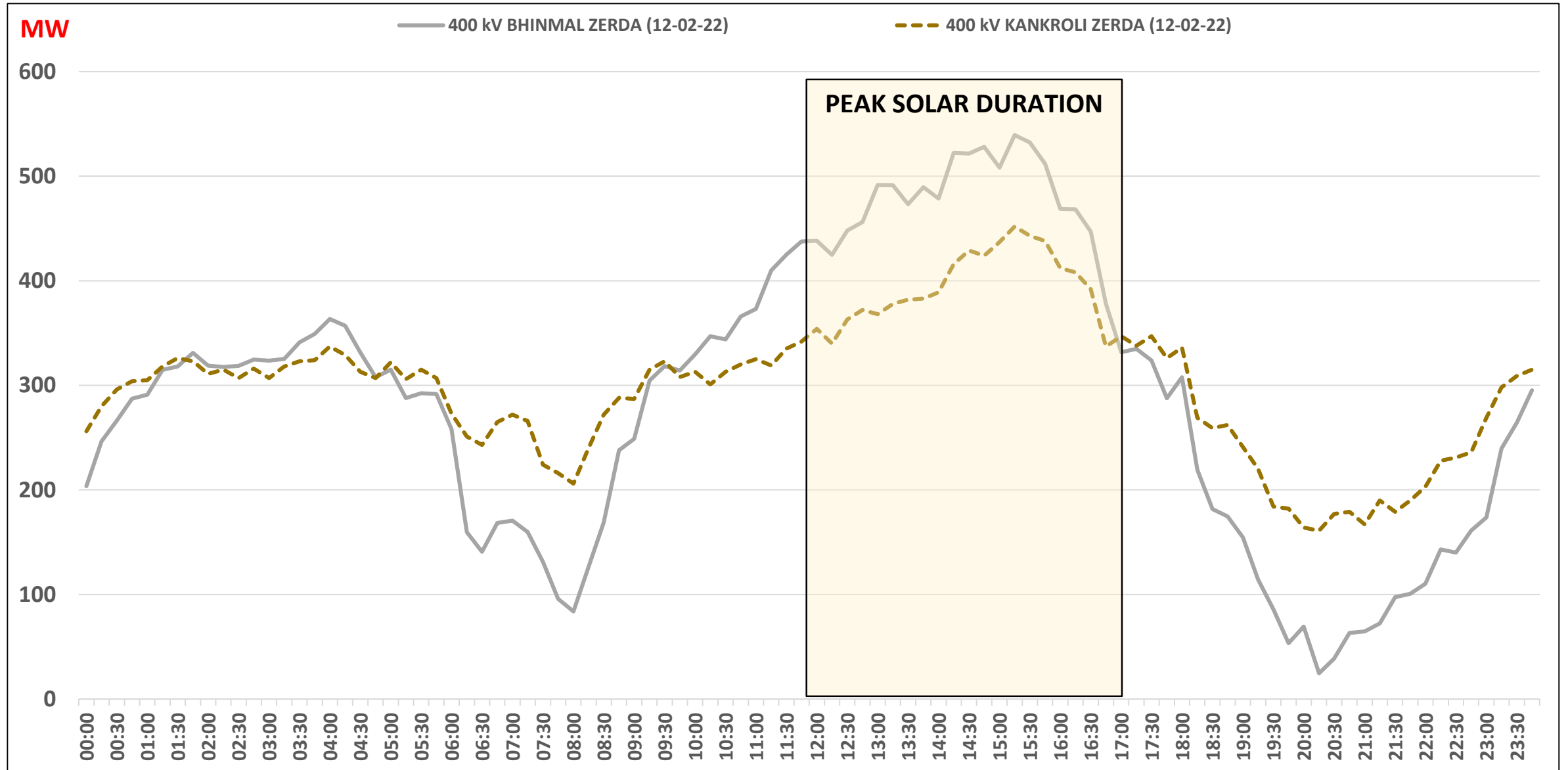
Annexure – 3 (a) – Loadings of 400 kV Zerda – Bhinmal & Zerda – Kankroli from 01-Aug-21 to 15-Feb-22



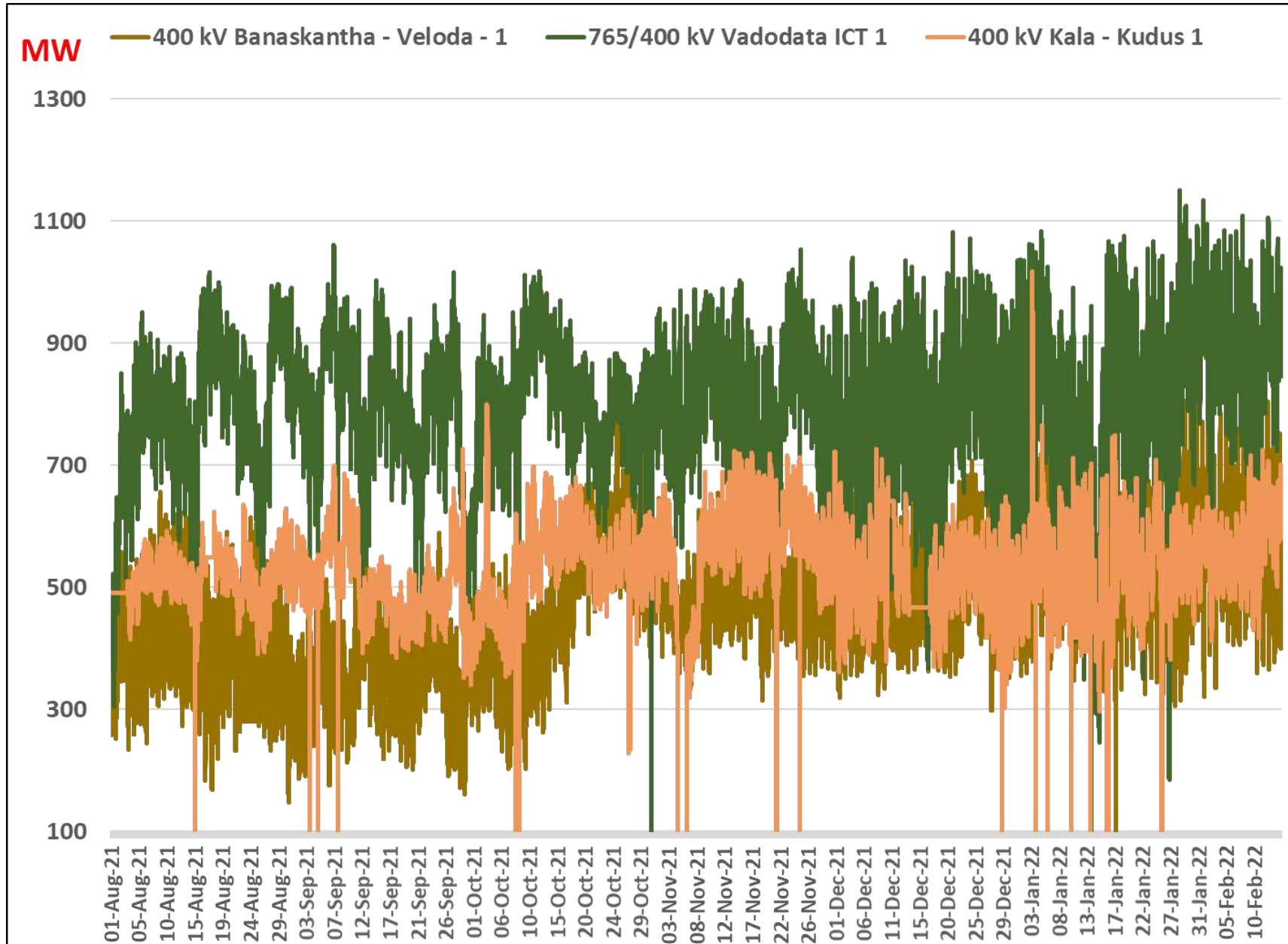
Annexure – 3 (b) – ICT Loading at Zerda from 01-Aug-21 to 15-Feb-22



# Annexure – 3 (c) – Loadings of 400 kV Zerda – Bhinmal & Zerda – Kankroli for a Typical Day (12.02.2022)



# Annexure – 3 (d) – Loading of Elements Constraining Gujarat Import from 01-Aug-21 to 15-Feb-22



## Annexure – 4 - LTA/MTOA GRANTED FROM ISTS SOLAR PLANTS IN RAJASTHAN AS ON 15.02.2022

S.No.	Pooling Station	SPD (Full Name)	Installed Capacity	Commissioned Capacity	SPD (Acronym) Scheduling	LTA/MTOA	Quantum	Beneficiary	Beneficiary Region
1	ADANI (BHADLA)	AZURE POWER INDIA PVT. LTD.	200	200	APIPL	LTA	200	UTTAR PRADESH	NR
2		RENEW SOLAR POWER PVT. LTD.	50	50	RENEW_Bhadla	LTA	50	UTTAR PRADESH	NR
3	SAURYA URJA	CLEAN SOLAR POWER PVT. LTD.	300	300	CSP_Bhadla	LTA	300	UTTAR PRADESH	NR
4		SB ENERGY FOUR PVT. LTD.	200	200	SBEFPL_Bhadla	LTA	200	UTTAR PRADESH	NR
5	TATA POWER	TATA POWER Renewable Energy LTD. (CHHAYAN)	150	150	TPREL	LTA	150	MAHARASHTRA	WR
6	ACME	ACME Chittorgarh Solar Energy Private Limited	250	250	ACSEPL_BHADLA	LTA	250	MAHARASHTRA	WR
7	MAHOBA POWER, RAWARA	Adani Renewable (RJ) Ltd	200	200	ARERJL	LTA	200	MAHARASHTRA	WR
8		Adani Solar Energy Four Private Limited	50	50	ASE4PL	LTA	50	BYPL	NR
9	MRPL	Mahindra Renewables PVT. LTD.	250	250	MRPL	LTA	250	CHATTISGARH	WR
10	AZURE POWER THIRTY FOUR	AZURE POWER THIRTY FOUR PVT. LTD.	130	130	APTFPL_Bhadla	LTA	130	MAHARASHTRA	WR
11	ESSEL IPSS2 & 1 (via MPSS)	SB ENERGY 6 PVT. LTD.	600	300	SBE6PL	LTA	300	BIHAR	ER
12	AZURE 41		100	83.33		LTA	83.33	BRPL	NR
			200	166.67		LTA	166.67	GRIDCO	ER
13	RENEW BIKANER (400)	Renew Solar Power Private Limited Bikaner	250	250	RSPPL_BKN	LTA	250	MAHARASHTRA	WR
14	AZURE 43 (PSS & RSS)	Azure Power Forty Three Private Limited	300	300	AP43PL_BKN	LTA	300	ODISHA	ER
			100	100		LTA	100	HARYANA	NR
			200	200		LTA	200	JHARKHAND	ER
15	SBSRPC11PL_BKN	SBSR Power Cleantech 11Private Ltd. Bikaner	300	50	SBSRPC11PL_BKN	LTA	50	TPDDL and BYPL	NR
16	Avaada	Avaada Sunce Energy Private Limited	350	200	ASunceEPL_BKN	LTA	200	MAHARASHTRA	WR
17	Avaada	Avaada RJHN Private Limited	240	125.75	AvRJHNPL_BKN	MTOA	125.75	Haryana	NR
18	Avaada SustainableRJ pvt ltd	Avaada SustainableRJ pvt ltd	300	150	AvSusRJPPPL_BKN	LTA	140	Telangana (TSSPDCL, TSNPDCL)	SR
19	FATEHGARH-II	Renew Sun wave Pvt. Ltd. Fatehgarh2	300	300	RSWPL3_FTG2	LTA	300	Bihar	ER
		Eden Renewable Cite Private Limited	300	300	ERCPL_FTG2	LTA	300	BRPL and BYPL	NR
		Renew Sun bright Pvt. Ltd. Fatehgarh2	300	300	RSBPL_FTG2	LTA	300	MSEDCL	WR
20	FATEHGARH-I	Nedan Solar NTPC	250	124.8	NSNTPC_FTG1	LTA		TSSPDCL TSNPDCL	SR
						<b>TOTAL</b>	<b>4596 MW</b>		



# पावर सिस्टम ऑपरेशन कॉर्पोरेशन लिमिटेड

(भारत सरकार का उद्यम)

## POWER SYSTEM OPERATION CORPORATION LIMITED

(A Govt. of India Enterprise)



केन्द्रीय कार्यालय : 61, आई एफ सी आई टावर, 8 एवं 9वीं मंजिल, नेहरु प्लेस, नई दिल्ली -110019  
Corporate Office : 61, IFCI Tower, 8 & 9th Floor, Nehru Place, New Delhi - 110019  
CIN : U40105DL2009GOI188682, Website : www.posoco.in, E-mail : posococc@posoco.in, Tel.: 011- 40234672

संदर्भ सं: NLDC/SO/Transmission Constraints/

दिनांक: 07<sup>th</sup> Feb 2022

सेवा मे,

सदस्य (पावर सिस्टम),  
केंद्रीय विद्युत प्राधिकरण,  
सेवा भवन, आर के पुरम, नई दिल्ली.

मुख्य परिचालन अधिकारी (के पा कं),  
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड,  
गुडगाँव

विषय: High loading in 400 kV inter regional transmission lines between Gujarat in western region and Rajasthan in northern region

महोदय,

400 kV Bhinmal-Zerda and 400 kV Kankroli- Zerda are important lines for power transfer between Rajasthan in Northern region to Gujarat in Western region. 400 kV Bhinmal-Zerda and 400 kV Kankroli- Zerda lines are 143 and 234 ckt km long respectively and have twin moose conductor with thermal rating rated for 2 x 714 Amp. Thus, the thermal capacity of lines would be roughly around 800-900 MVA assuming high ambient temperature in Rajasthan . The power flow pattern of these lines for last one year is enclosed as Annex-I. It may be observed that the direction of flow on these lines is mostly from NR to WR and the loading on 400 kV Bhinmal-Zerda is above 500 MW for 5 % of time which lies mostly during March & April month. The loading is n-1 insecure particularly when the generation within Gujarat is low and demand in Gujarat is high. Similar aggravates when the above coincides with high RE in Rajasthan and low demand in Northern Region. The non-availability of reverse power flow on HVDC Mundra-Mohendergarh Bipole further compounded the problem in operational horizon. In the coming months, the new RE capacity addition in Jaisalmer, Barmer and Ramgarh area of Rajasthan is expected. The incremental RE injection may aggravate the situation causing further increase in line loadings.

The proposals to address the issue of overloading of 400 kV Bhinmal-Zerda like LILO of 2nd ckt of 400 kV Kankroli-Zerda line at Bhinmal (PG) and reconductoring of existing Bhinmal-Zerda section with high capacity (Quad Moose/Twin HTLS) conductor have already been discussed in 3<sup>rd</sup> and 4<sup>th</sup> Northern Regional Power Committee (Transmission Planning) but decision on the issue is still under process. The high loadings on these lines are limiting constraint in ATC/TTC calculation between western region and northern region and are likely to be in future also.

Therefore, it is kindly requested to look into the matter and advise all the concerned to take actions to relieve the transmission constraints due to high loadings on these lines.

Thanking you.

भवदीय,

(आर. के. पोरवाल)

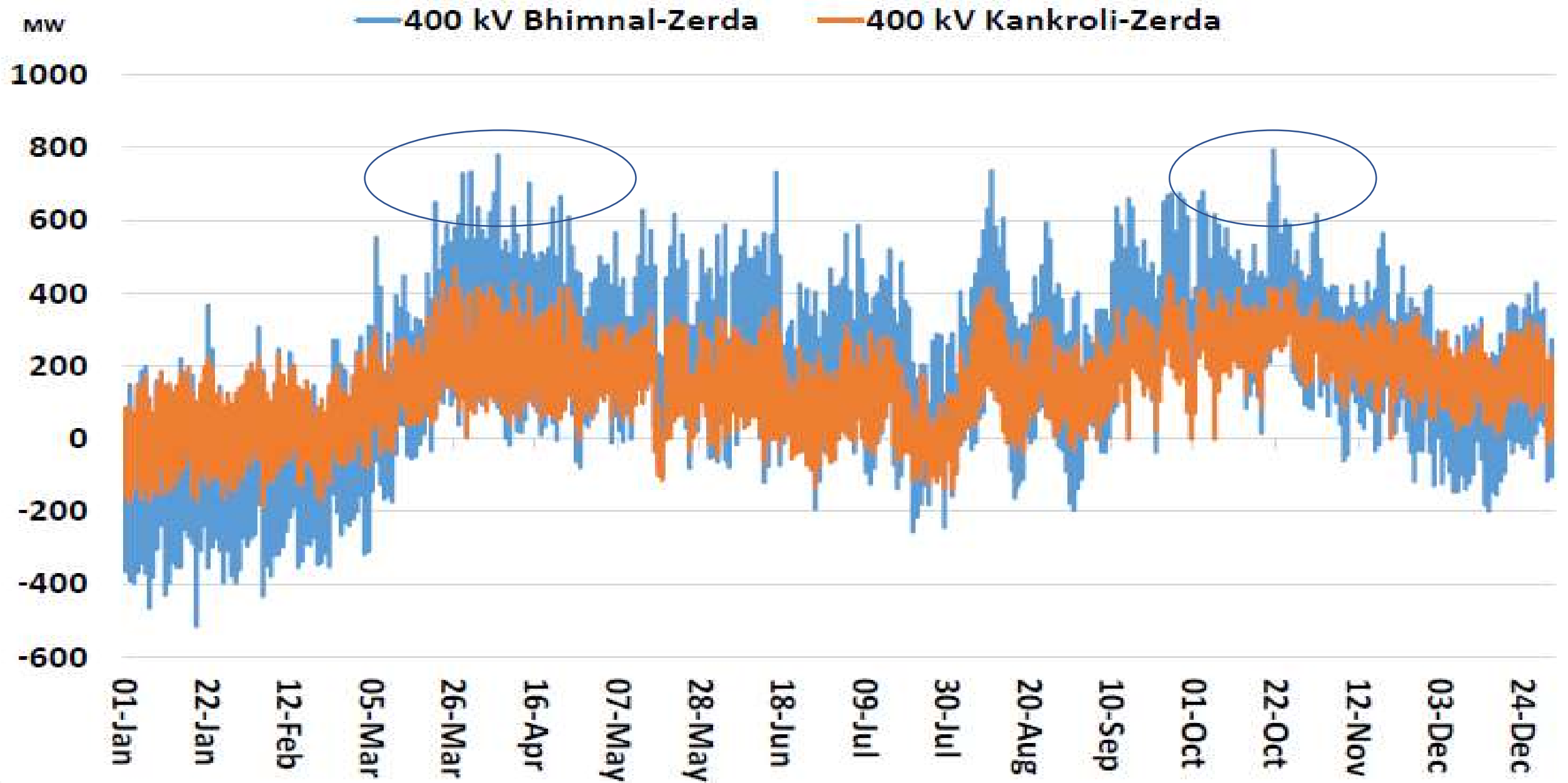
Copy to:

1. Member Secretary, NRPC/WRPC
2. Executive Director, WRLDC/NRLDC

मुख्य- महाप्रबंधक (प्र प्र), रा.भा.प्रे.के.

# Power Flow

Annexe-1



### Conditional FTC given to RE plants in NR after CEA MoM dated 05.03.23)

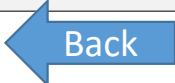
#### Conditional FTC given to RE plants RE plants after CEA MoM dated 05.03.2023

S. No.	RE Developer	Total Envisaged I/C (MW)	Capacity already commissioned as on 05.03.23	Conditional FTC given for the quantum (MW)	3a. Non-submission or incomplete submission of Type Test/ Measurement Report	3b. Non-submission or deficiencies In mathematical models	3c. Non-availability of real-time telemetry and/or PMU data	3d. Pending installation of Power Plant Controller or( Input to PPC from POI)	3e. Inadequate reactive power support capability at Point of Interconnection.	Remarks	CEA registration no.
1	Renew Surya Ravi Pvt. Ltd.	300	150	150	Completed	Completed	Completed	Completed	1. PO copies for Inverters (31MVA) submitted 2. PO copy for capacitor bank (88MVar) submitted	<a href="#">Conditional FTC issued</a>	1400004024
2	Azure Power Maple Private Limited_	300	257	43	Completed	Completed	Completed	Completed	1. PO copies for Inverters (31MVA) submitted 2. PO copy for capacitor bank (88MVar) submitted	<a href="#">Conditional FTC issued</a>	1400003110
3	Nokhra Solar Plant, NTPC Ltd <sup>#</sup>	300	150	100	Completed	Completed	Completed	Completed	1. With 300MVA generation, scheduling was allowed for de-rated capacity of 250MW ensuring B2(1) compliance.	<a href="#">Conditional FTC issued</a>	1400004616

**Total Quantum (MW) for which conditional FTC issued= 293MW**


*# Consent for 250MW of NTPC Nokhra was allowed based on its capability of injecting 250MW and 82MVar at POI with 300MVA generation. With 300MVA generation, scheduling was allowed for de-rated capacity of 250MW ensuring B2(1) compliance.*

## Conditional FTC given to RE plants after CEA MoM dated 05.03.23 \_Renew Surya Ravi Pvt. Ltd.

Sl. No.	Name of RE Plant	Type	Registered IC	Capacity Commissioned till 05.03.2023	Balance capacity for which conditional FTC was given	Total Capacity as on 10.04.23	Pooling Station	Remarks	Documents
1	Renew Surya Ravi Private Limited Bikaner	Solar	300	150	150	300	Bikaner (PG)	<p><b>In reference to section-3 (Point 3.a to 3.e) of CEA MoM dated 05.03.23, following are the compliance status;</b></p> <p><b>3.a:</b> Test report, benchmarking report and study report were received &amp; checked for RSRPL.</p> <p><b>3.b:</b> PSSE and PSCAD model were received &amp; checked for RSRPL. <i>(As came form simulation, LVRT/HVRT K-actors, LVRT/HVRT settings, OV &amp; UV settings of Inverters were revised by plant in consultation with OEM to ensure LVRT/HVRT compliance).</i></p> <p><b>3.c:</b> PMU is installed in RSRPL, telemetry data were validated by NRLDC SCADA team.</p> <p><b>3.d:</b> PPC is installed in RSRPL.</p> <p><b>3.e:</b> Plant submitted PO copy for (11MVA*8) 88MVA capacitor bank and 31MVA inverter capacity (Product delivery by 15<sup>th</sup> June'23 as per PO copy).</p> <p><b>Condition of FTC</b></p> <p>1. Plant is given conditional FTC based on CEA MoM dated 05.03.23, in case plant fails to install the additional 88MVA capacitor bank and 31MVA inverter capacity by 30<sup>th</sup> June'23, FTC approval shall stand withdrawn w.e.f 0000 hrs of 1<sup>st</sup> July'23.</p> <p>2. After installation of required inverters and capacitor bank, 300MW RSRPL would have 331MVA capacity in addition to 88MVA capacitor bank. (Reactive power compensation @50°C shall be addressed by 31MVA additional inverters capacity and 88MVA capacitor bank.</p>	<p style="text-align: right;"> Back</p> <ol style="list-style-type: none"> <li><b>Compliance sheet:</b> <a href="https://drive.google.com/file/d/1EkVJ37RoQAkaRexnT73ZbwXPiDdzOPze/view?usp=share_link">https://drive.google.com/file/d/1EkVJ37RoQAkaRexnT73ZbwXPiDdzOPze/view?usp=share_link</a></li> <li><b>PO copies for Inverters:</b> <a href="https://drive.google.com/file/d/1P45zHc0ErJIOH4AyoBEMj9OHgVaR3HdF/view?usp=sharing">https://drive.google.com/file/d/1P45zHc0ErJIOH4AyoBEMj9OHgVaR3HdF/view?usp=sharing</a></li> <li><b>PO copy for capacitor bank:</b> <a href="https://drive.google.com/file/d/1449RmfQ9jPifLD4qDz0Q9V8ogZwDpIL6/view?usp=share_link">https://drive.google.com/file/d/1449RmfQ9jPifLD4qDz0Q9V8ogZwDpIL6/view?usp=share_link</a></li> <li><b>Mail communication b/w RSRPL &amp; NRLDC:</b> <a href="https://drive.google.com/file/d/1wSiMnFss7zDfT-b_bIns-UfBF-16oNoN/view?usp=share_link">https://drive.google.com/file/d/1wSiMnFss7zDfT-b_bIns-UfBF-16oNoN/view?usp=share_link</a></li> </ol>




## Conditional FTC given to RE plants after CEA MoM dated 05.03.23\_Azure Maple Pvt. Ltd.

Sl. No.	Name of RE Plant	Type	Registered IC	Capacity Commissioned till 05.03.2023	Balance capacity for which conditional FTC was given	Total Capacity as on 10.04.23	Pooling Station	Remarks	Documents
2	Azure Power Maple Private Limited	Solar	300	257	43	300	Bhadla (PG)	<p><b>In reference to section-3 (Point 3.a to 3.e) of CEA MoM dated 05.03.23, following are the compliance status;</b></p> <p><b>3.a:</b> Test report, benchmarking report and study report were received &amp; checked for Azure Maple Pvt. Ltd.</p> <p><b>3.b:</b> PSSE and PSCAD model were received &amp; checked for Azure Maple Pvt. Ltd. (As came form simulation, LVRT/HVRT K-actors, LVRT/HVRT settings, OV &amp; UV settings of Inverters were revised by plant in consultation with OEM to ensure LVRT/HVRT compliance).</p> <p><b>3.c:</b> PMU is installed in Azure Maple Pvt. Ltd., telemetry data were validated by NRLDC SCADA team.</p> <p><b>3.d:</b> PPC is installed in Azure Maple Pvt. Ltd.</p> <p><b>3.e:</b> Plant submitted PO copy for 55MVA inverter capacity (Product delivery by 15<sup>th</sup> June'23 as per PO copy).</p> <p><b>Condition of FTC</b></p> <p>1. Plant is given conditional FTC based on CEA MoM dated 05.03.23, in case plant fails to install the additional 55MVA inverter capacity (296 no. of HUAWEI SUN2000-200KTL-H2 Inverters) by 30<sup>th</sup> June'23, FTC approval shall stand withdrawn w.e.f 0000 hrs of 1<sup>st</sup> July'23.</p> <p>2. After installation of required inverters, 300MW Azure Maple Pvt. Ltd. would have 355MVA capacity (Reactive power compensation @50°C shall be addressed by 55MVA additional inverters capacity).</p>	<p style="text-align: right;"> Back</p> <ol style="list-style-type: none"> <li>1. <u>Compliance sheet:</u> <a href="https://drive.google.com/file/d/13fcQduQQekVd9MjY6JTIAEQdJv-Ot1vg/view?usp=share_link">https://drive.google.com/file/d/13fcQduQQekVd9MjY6JTIAEQdJv-Ot1vg/view?usp=share_link</a></li> <li>2. <u>PO copies for Inverters:</u> <a href="https://drive.google.com/file/d/1dmoH-ss6Gr3iCChDQK_5pjVQk1B7xQ3j/view?usp=share_link">https://drive.google.com/file/d/1dmoH-ss6Gr3iCChDQK_5pjVQk1B7xQ3j/view?usp=share_link</a></li> <li>3. <u>Mail communication b/w Azure Maple &amp; NRLDC:</u> <a href="https://drive.google.com/file/d/1mfEf2HPmrJ_HxlxUPkE8qAXMcsIUe1C-/view?usp=share_link">https://drive.google.com/file/d/1mfEf2HPmrJ_HxlxUPkE8qAXMcsIUe1C-/view?usp=share_link</a></li> </ol>

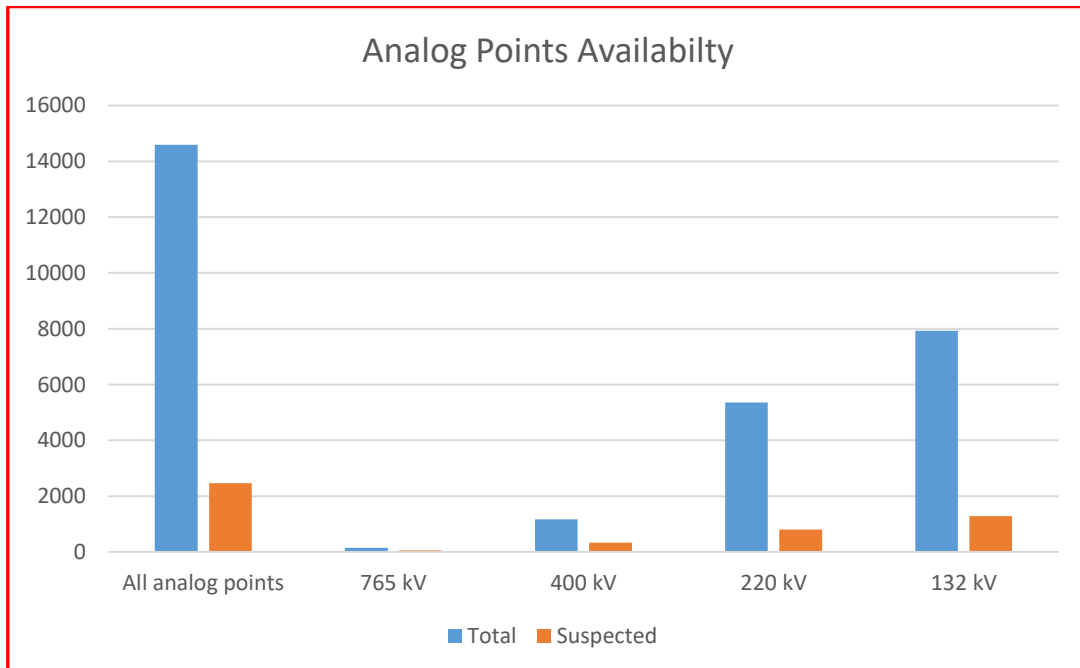
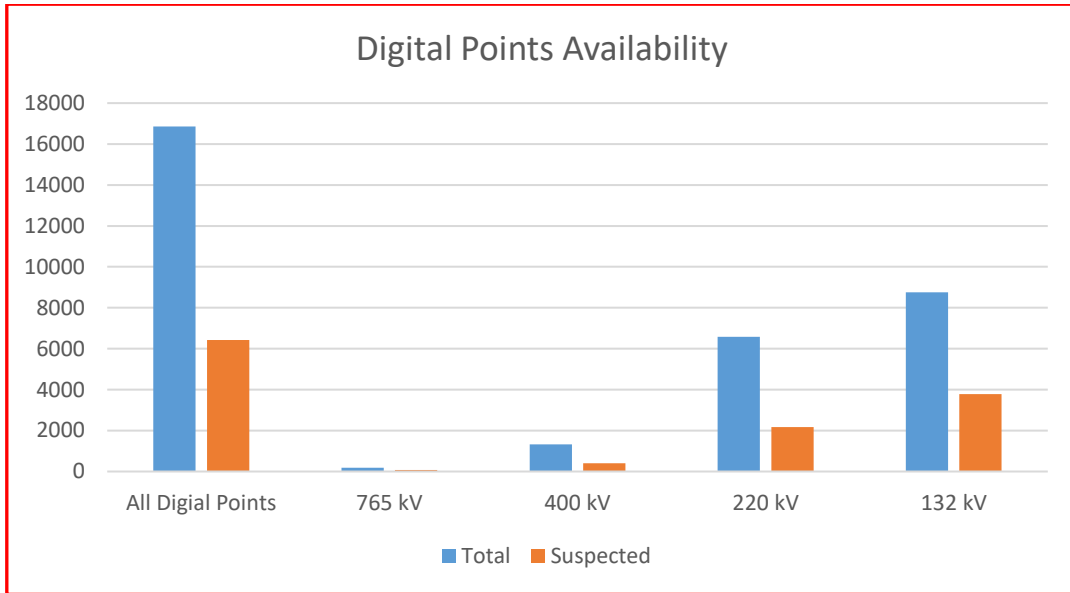


**Conditional FTC given to RE plants after CEA MoM dated 05.03.23\_NTPC Nokhra**

Sl. No.	Name of RE Plant	Type	Registered IC	Capacity Commissioned till 05.03.2023	Balance capacity for which conditional FTC was given	Total Capacity as on 10.04.23	Pooling Station	Remarks	Documents
3	Nokhra Solar Plant, NTPC Ltd	Solar	300	150	100	250	Bhadla-II (PG)	<p>1. NOC for STOA and further FTC of Inverters was kept in hold in reference to CEA letter dated 03.02.23 that “<i>FTC should be issued by Grid-India only after compliance of the regulations of CEA</i>”.</p> <p><b>In reference to section-3 (Point 3.a to 3.e) of CEA MoM dated 05.03.23, following are the compliance status;</b>  <b>3.a:</b> Test report, benchmarking report and study report were received &amp; checked for NTPC Nokhra.  <b>3.b:</b> PSSE and PSCAD model were received &amp; checked for NTPC Nokhra. (As came form simulation, LVRT/HVRT K-actors, LVRT/HVRT settings, OV &amp; UV settings of Inverters were revised by plant in consultation with OEM to ensure LVRT/HVRT compliance).  <b>3.c:</b> PMU is installed in NTPC Nokhra, telemetry data were validated by NRLDC SCADA team.  <b>3.d:</b> PPC is installed in NTPC Nokhra.  <b>3.e:</b> Plant demonstrated the CEA B2(1) compliance by injecting 250MW and 82MVAR at POI with 300MVA generation. With 300MVA generation, scheduling was allowed for de-rated capacity of 250MW</p> <p><b>Condition for allowing further FTC &amp; STOA:</b>                      1. Consent for STOA of additional 50MW (150MW + 50MW) of NTPC Nokhra was accorded dated 24.03.23. Plant was capable of injecting 200MW and 67MVAR at POI with 250MVA generation. With 250MVA generation, scheduling was allowed for de-rated capacity of 200MW ensuring B2(1) compliance.                      2. Consent for STOA of additional 50MW of NTPC Nokhra is accorded dated 06.04.23. Plant was capable of injecting 250MW and 82MVAR at POI with 300MVA generation. With 300MVA generation, scheduling was allowed for de-rated capacity of 250MW ensuring B2(1) compliance.</p>	<div style="text-align: right;">  </div> <ol style="list-style-type: none"> <li>Reactive power capability testing for 200MW and 67MVAR injection at POI. <a href="https://drive.google.com/file/d/1i9Bpq4Foj5C-KRcNY8zug7IJy3j1nKla/viw?usp=share_link">https://drive.google.com/file/d/1i9Bpq4Foj5C-KRcNY8zug7IJy3j1nKla/viw?usp=share_link</a></li> <li>Reactive power capability testing for 250MW and 82MVAR injection at POI. <a href="https://docs.google.com/spreadsheets/d/1YSKRwUY-7fZKbGWcPpfx844150jkFhqv/edit?usp=share_link&amp;oid=116564959777146685176&amp;rtf=true&amp;sd=true">https://docs.google.com/spreadsheets/d/1YSKRwUY-7fZKbGWcPpfx844150jkFhqv/edit?usp=share_link&amp;oid=116564959777146685176&amp;rtf=true&amp;sd=true</a></li> </ol>

## TELEMETRY ISSUES OF RAJASTHAN

*Low availability of analog and digital DATA*



## Intermittent Telemetry of Generating Stations Based on March 2023 data

Station Name	Voltage Level	Percentage Availability
CHHABRA	400	88
GIRAL	220	0
JAWAHAR SAGAR	132	19
KALISINDH	400	17
MAHI-1	132	63
MAHI-2	132	81
RANA PRATAP SAGAR	132	0
SHAHPURA	132	0
VS LIGNITE	220	44

## Intermittent Telemetry of Substations Based on March 2023 data

*Not reported at all*

Station Name	Voltage Level	Percentage Availability
BHILWARA 400kV	400	0
HEERAPURA 400kV	400	0
BHARATPUR	220	0
BHILWARA 220kV	220	0
BHOPALGARH	220	0
DHOLPUR	220	0
IG NAGAR	220	0
KAWAI	220	0
NADBAI	220	0
RAS	220	0
SANCHORE	220	0
SAWA	220	0
SRIGANGANAGAR	220	0
GOTAN	132	0
JAISALMER	132	0
JAITARAN	132	0
KOTA IA	132	0
MARKHI	132	0
NEEM KA THANA	132	0
SOYLA	132	0

*Intermittent Reporting*

Name	Voltage level	Percentage Availability
KUCHAMANCITY	220	2
JODHPUR 220kV	220	2
BANSWARA	220	3
CHITTORGARH 220kV	220	3
FALODI	220	3
CHAKSU	220	3
JALORE	220	4
NIWANA	220	4
AAU	220	4
SURATGARH 220kV	220	4
AKAL	400	6
DECHU	220	6
ALWAR 400kV	400	8
OSIAN	132	8
PINDWARA	220	12
AJMER 220kV	220	12
RAWATBHATA	132	12
CHITTORGARH 400kV	400	24
TEHANDESAR	220	29
BEAWAR	220	40
BABAI	400	40
ALWAR 220kV	220	43
BIKANER 400kV	400	44
BHADLA 400kV	400	50
ANTA	765	54
PRATAPGARH	220	55
RAJGARH	132	57
MALPURA	132	60
MANOHARPUR	220	60
NOKHA	220	67
JETHANA	220	69
GANGAPUR CITY	220	71
BAITHWASIA	220	75
HINDAUN 400kV	400	77
BHIWADI	220	79
DEEDWANA	400	81
MANDAWAR	220	82
AMARSAGAR	220	82
DHORIMANNA	220	83
GOVINDGARH	132	83
BARMER 400kV	400	84

CHIRAWA	220	85
NAGPUR	220	85
CHOKARWADA	220	86
REENGUS	220	88
KANKANI	400	88
BHINMAL	220	88
KHARCHI	132	89
SIROHI	220	89
BALI	220	89
BAGRU	220	90
BHERUNDA	220	90
HINDAUN 220kV	220	90
ALWAR MIA	220	90
AJEETGARH	132	91
GAJNER	220	91
MORAK	220	92
FATEHPUR (RS)	132	93
SEZ-1	220	93
BHADLA 220kV	220	93
KISHANGARH	220	93
DEBARI	220	93
BARLI	220	94
MANDALGARH 132kV	132	94
JHUNJHUNU	220	94
BUNDI	220	95
SAYLA	220	95
NEEMRANA	220	95
VKIA	220	95