सत्यमेव जयते

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

सं. उक्षेविस/ वाणिज्यिक/ 209/ आर पी सी (59वीं)/2022/11410 - 11457 दिनाँक: 25 November 2022

सेवा में / To,

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

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

Ref: MoM vide letter no. उक्षेविस/ वाणिज्यिक/ 209/ आर पी सी (59वीं)/2022/10943-10990 dtd. 11 November 2022

महोदय / Sir,

उत्तर क्षेत्रीय विद्युत समिति की 59वीं बैठक दिनांक **31 अक्टूबर 2022** को **1100** बजे विडियो कोंफ्रेंसिंग के माध्यम से आयोजित की गयी थी । बैठक का कार्यवृत 11 नवंबर 2022 के पत्र द्वारा जारी किया गया था। कार्यवृत का परिशिष्ट संलग्न है।

The 59th meeting of Northern Regional Power Committee (NRPC) was held at **1100 Hrs** on **31 October 2022** via video conferencing. The MoM of the same were issued vide letter dated 11 November 2022. The addendum to the MoM is attached herewith.

भवदीय
Yours faithfully,

Naresh

(नरेश भंडारी) 25/11/22
(Naresh Bhandari)
सदस्य सचिव
Member Secretary

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उत्तरी क्षेत्रीय विद्युत समिति की 59वीं बैठक

59th MEETING OF NORTHERN REGIONAL POWER COMMITTEE

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

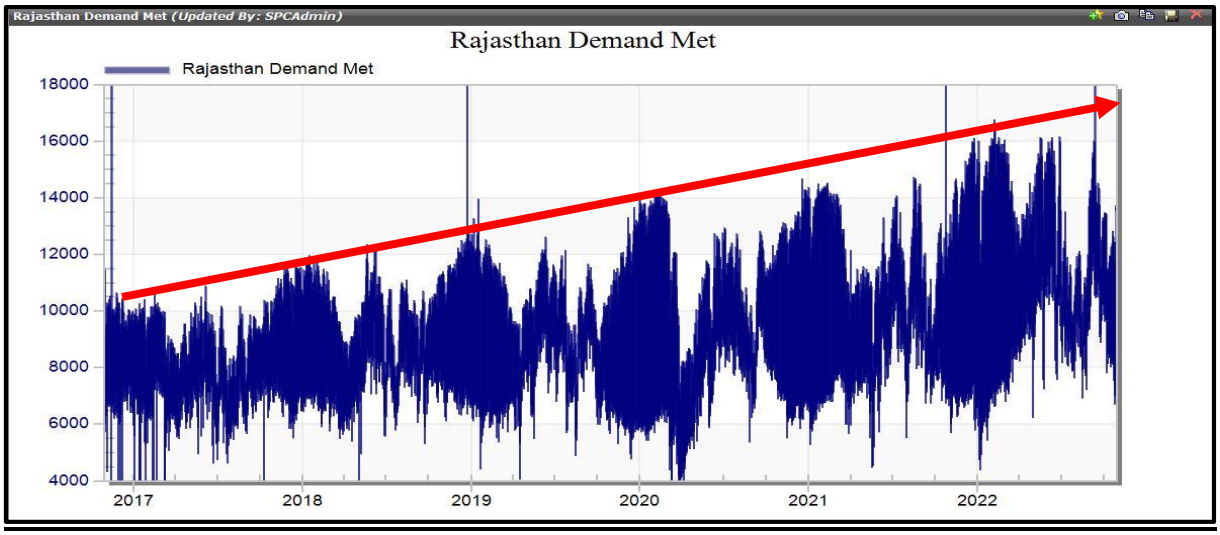
Venue: Video Conferencing

A.1 Preparation to meet high demand of Rajasthan state during winter 2022-23

A.1.1 NRLDC representative stated that during winter months, the demand of Rajasthan is expected to be on the higher side as expected from previous year patterns. Following points were also mentioned by NRLDC representative:

- As per 24th LGBR, peak demand of Rajasthan is anticipated as 16140MW for 2022-23.
- Even before winter, Rajasthan reached its peak demand of 16012MW on June'22 with 9.6% growth as compare to last year. In winter 2022-23, Rajasthan demand may touch 16500-17000MW.
- During high demand of Rajasthan and high drawl by Rajasthan control area from the grid,
  - i. Several ICTs/lines get highly loaded in Rajasthan control area.
  - ii. Voltages at different nodes like 400kV Merta, 400kV Jodhpur, 400kV Kankani, becomes significantly low and at other stations such as 400kV Alwar, 400kV Hindaun and 400kV Akal even below the IEGC limit of 380kV.

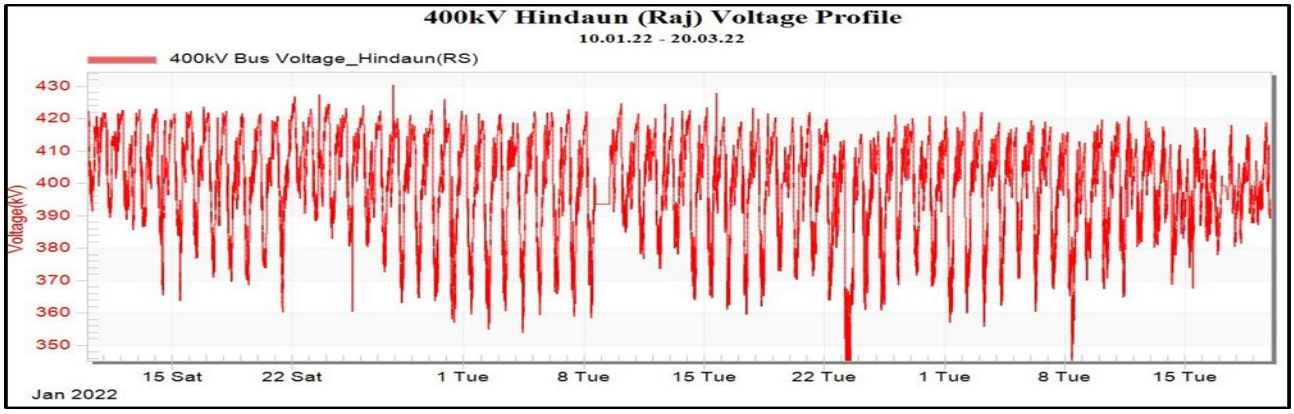
Rising trend of Rajasthan Demand for last 6 years

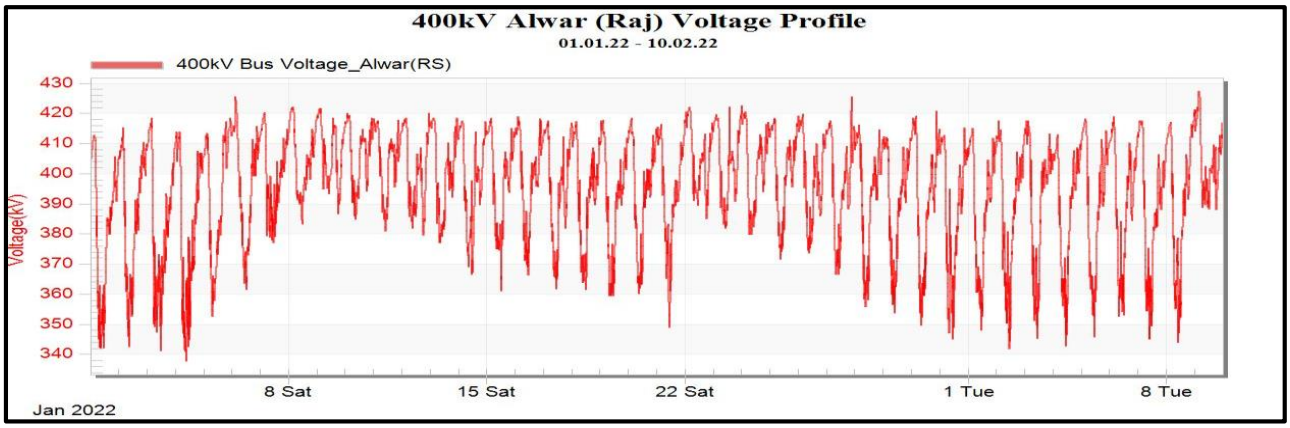


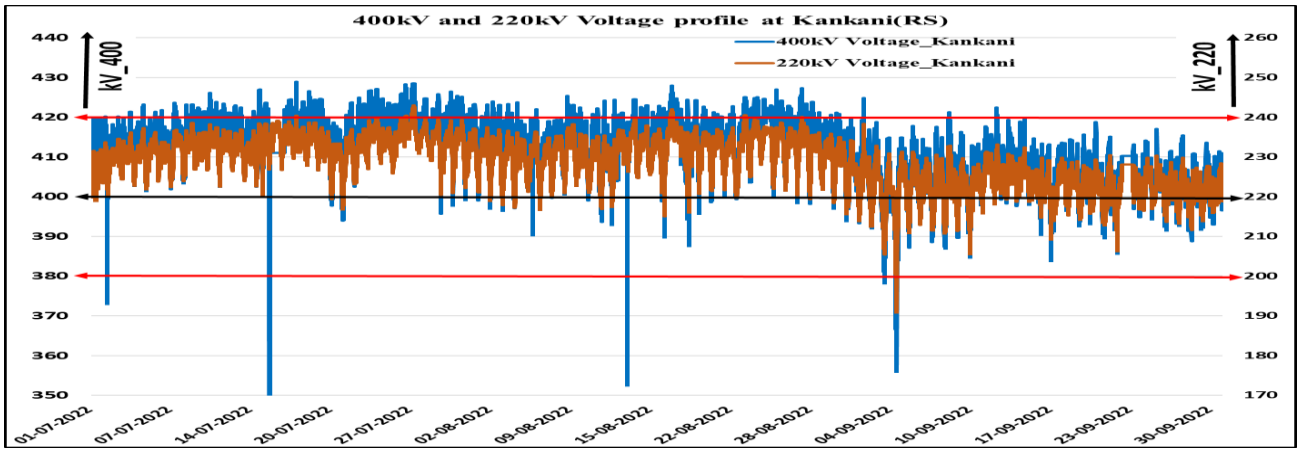
A.1.2 Due to radial connectivity of Hindaun and Alwar, and high load in this area during day-time, low voltages are observed in Hindaun and Alwar area especially during winter months. The plots for huge variation in voltage and low voltage at Hindaun and Alwar as presented in the meeting are shown below:

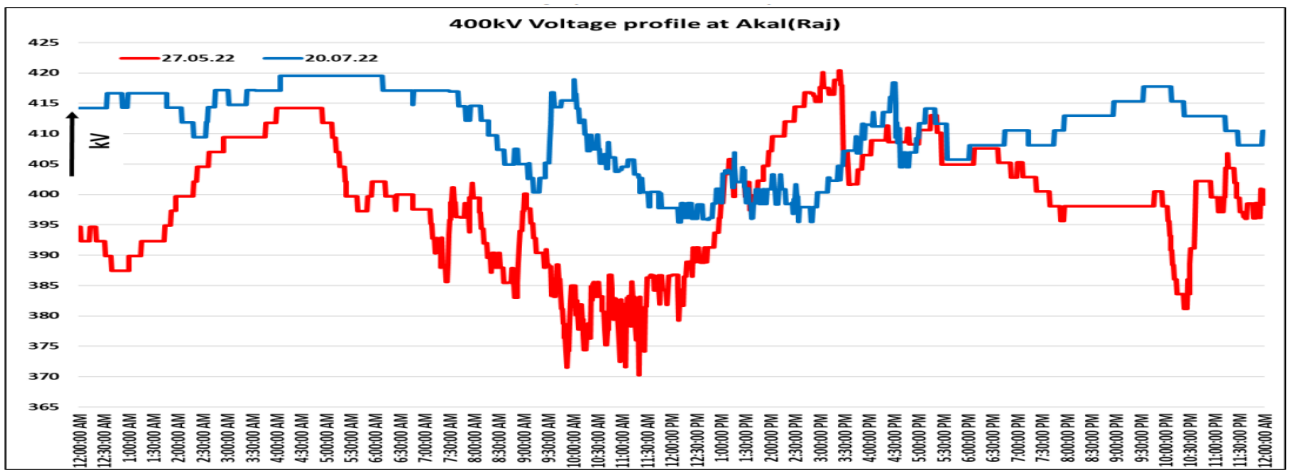
- Hindaun: Voltage variation of 55-60kV in a single day sometimes, significant low voltage observed during moth of Feb'22, voltage fell to 355-360kV sometimes.

- Alwar: Voltage variation of 70-80kV in a single day sometimes, significant low voltage observed during 1st week of Jan'22 and 1st week of Feb'22, voltage fell to 340-350kV sometimes.
- Kankani: Voltage variation of 30-40kV in a single day sometimes. Voltages going below 390kV and also above 425kV i.e. voltages vary on both sides (high voltage and low voltage)
- Akal: Voltage variation of 40-50kV in a single day sometimes. Voltages going below 380kV and also above 420kV i.e. voltages vary on both sides (high voltage and low voltage)









A.1.3 NRLDC representative further highlighted that number of 400/220kV stations are generally N-1 non-compliant during winter months. NRLDC representative also presented loading of various 400/220kV ICTs observed last year.

Sus-Station Name	Transformation Capacity (MVA)/ No. of ICTs	N-1 Loading limit (MW)	Loading observed	Remarks
400/220kV Chittorgarh	2*315 MVA	410	450-570 MW during Jan'22 to 1st week of March'22 and sometimes in Q-1 & Q-2 2022-23	315 MVA ICT to be installed at Chittorgarh(RS) is to be diverted from Kalisindh TPS. The likely timeline of completion is Nov'23 (SPS implemented)
400/220kV Merta	2*315 MVA	420	450-550 MW during Jan'22 to Feb'22 and Sept'22	New 1*500MVA ICT is under implementation at 400/220kV Merta S/s by RVPNL. Tentative timeline for completion may be updated by RVPNL. (SPS implemented)
400/220kV Bikaner (RVPNL)	2*315 MVA	440	450-550 MW Sept'22 and winter of 2021-22	New 1*500MVA ICT is under implementation at 400/220kV Bikaner S/s by RVPNL. Tentative timeline for completion may be updated by RVPNL. (SPS not implemented)
400/220kV Ajmer	2*315 MVA	460	500-600MW during Sept'22 and winter of 2021-22	New 1*500MVA ICT is under implementation at 400/220kV Ajmer S/s by RVPNL. Tentative timeline for completion may be updated by RVPNL. (SPS implemented)
400/220kV Jodhpur	2*315 MVA	440	440-540MW during last week of Aug'22 to 1st week of Sept'22 and winter of 2021-22	New 1*500MVA ICT is under implementation at 400/220kV Jodhpur S/s by RVPNL. Tentative timeline for completion may be updated by RVPNL. (SPS implemented)

A.1.4 CGM (I/C), NRLDC highlighted that there are several issues in Rajasthan control area that are being observed in real-time such as N-1 non-compliance at number of 400/220kV stations as shown above, poor power factor at different stations even in low wind generation scenario, low voltage issues in Hindaun, Alwar, large generation outages in Rajasthan state control area etc.

A.1.5 It was suggested that feeders may be identified at 220kV and 132kV level which are drawing huge MVAR from the grid and suitable actions including capacitor installation for such feeders may be prioritised. Since SPS has been implemented at different stations which is temporary relief measure and loading at different stations is very high, therefore ICT augmentation at these stations may also be prioritised.

A.1.6 MS NRPC also expressed concern on the issues raised by NRLDC and asked RVPN to take suitable actions. It was also mentioned that additional connectivity of 400kV Hindaun/Alwar has been pending at RVPN end since many years and DO letter would be written from MS NRPC side to CMD, RVPN highlighting the issue.

A.1.7 Following actions were requested to RVPN representative by NRLDC in 59th NRPC meeting:

- Rajasthan to share the action plan to meet the 16000-17000MW peak demand during winter to NRPC/NRLDC.
- Suitable SPS may be planned, such that when loading of each ckt of 400kV Barmer(RS)-Bhinmal(PG) D/C line exceeds 570MW, adequate generation at Rajwest TPS would get backed down to keep the line loading within safe operating limit.
- Rajasthan need to pursue the intrastate RE generators to support the grid by operating in voltage control mode and same should be regularly monitored at SLDC level.
- Rajasthan should strictly control the significant MVAR drawl by Solar/Wind generation of Intra-state RE plants and also MVAR drawl by loads especially during winter season.
- Works for already planned upgrading of 400kV Jodhpur (Kankani) to 765kV need to be expedite by RVPN
- Additional connectivity at 220kV by RRVPNL and additional connectivity in Anta-Kota-Chhabra Generation complex may be planned by PGCIL and RRVPNL.
- Additional reactive power support devices for maintaining grid voltages within IEGC prescribed limits and to improve the power factor may be planned by RVPNL especially at substations close to RE generation pockets
- Establishing additional 400 kV connectivity with Alwar from Bhiwadi / Bassi / Phagi to be expedited.
- It is well known that there is low voltage issue at these nodes especially during winter season, therefore Dholpur GTPS may be asked to keep necessary stock of gas so that generation is available whenever required under very low voltage scenario.
- Number of generating units are under planned/ forced outage in Rajasthan. Same needs to be taken up on priority

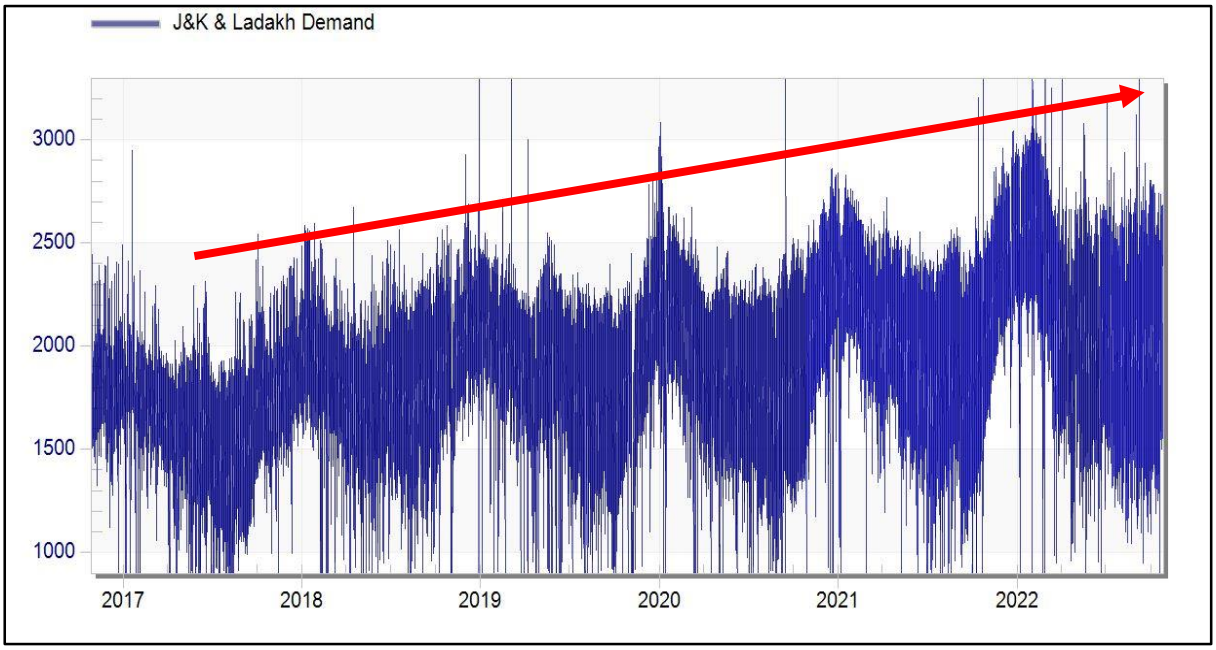
A.1.8 Rajasthan SLDC representative stated that:

- They are taking up the matter with RE generators to operate in voltage control mode to improve voltage profile.
- Meeting was also taken with DISCOM under chairmanship of CMD, RVPN, wherein installation/ repair of faulty shunt capacitors was agreed and is expected to be implemented in one month.
- Inspite of all these actions, it is expected that there would be low voltages in Rajasthan state control area during this winter.
- SPS has been implemented at different 400/220kV stations, however requirement of SPS at some other stations is also being studied and would be shared in OCC.
- For frequent outage of intrastate generators and running of Dholpur gas generation, the matter is being taken up with RUVNL.

A.1.9 NRPC forum asked RVPN to submit pointwise reply to the issues raised by NRLDC during the meeting.

A.2 Preparation to meet J&K and Ladakh (UT) demand growth

A.2.1 NRLDC representative stated that during winter months, the demand of J&K is expected to be on the higher side as expected from previous year patterns.

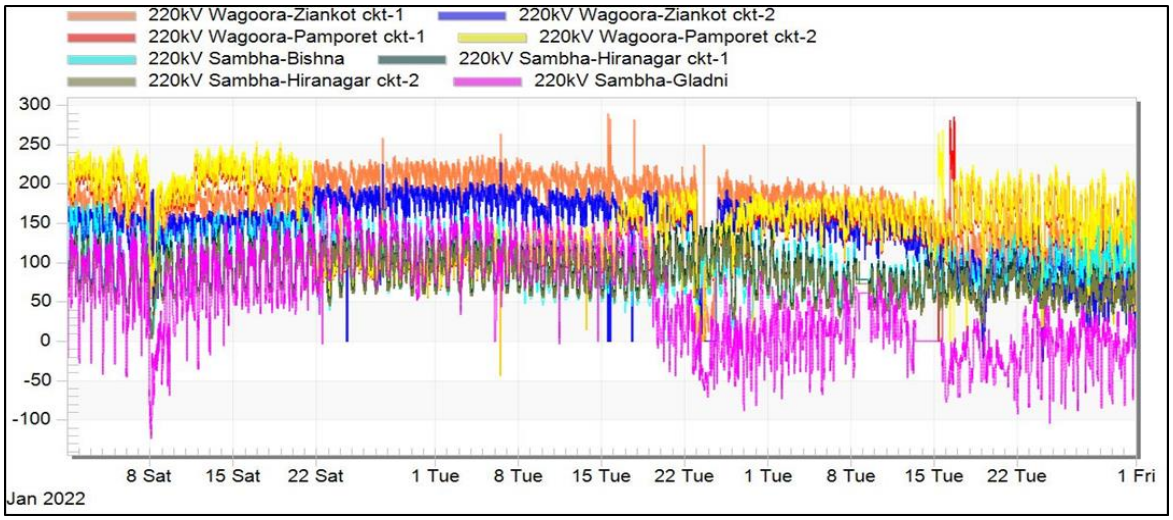


A.2.2 Following points were also mentioned by NRLDC representative:

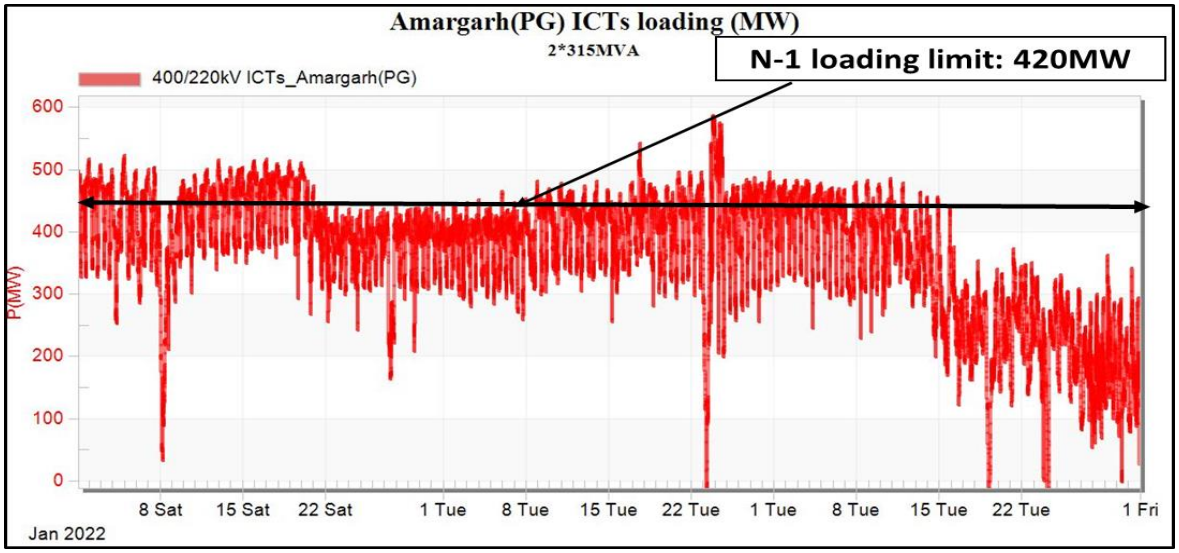
- During winter due to heating load, demand of J&K increases significantly.
- In winter 2021-22, J&K and Laddakh (UT) peak demand was 300-400MW more as compare to winter 2020-21.
- Peak demand of J&K and Ladakh (UT) increased from 2400-2600MW (Winter 2020-21) to 2700-3000MW (Winter 2021-22) which resulted in high loading and N-1 Non-compliance of ICTs and 220kV lines of J&K and Laddakh (UT) system during the peak valley load.

A.2.3 Due to high demand of J&K and Ladakh (UT) in winter'21-22, line loading of following lines were observed high for considerable duration of time in winter 2021-22. Line loading observed during last winter are as follows:

i. 220kV Wagoora-Ziankot ckt-1&2 (150-225MW in each line).
ii. 220kV Wagoora-Pampore Ckt-1&2 (150-250MW in each line).
iii. 220kV Sambha-Bishna (125-175MW).
iv. 220kV Sambha-Hiranagar ckt-1&2 (100-150MW in each line).
v. 220kV New Wanpoh-Mirbazar ckt 1 & 2 (150-200MW in each line)
vi. 220kV Sambha-Glandni (75-150MW).

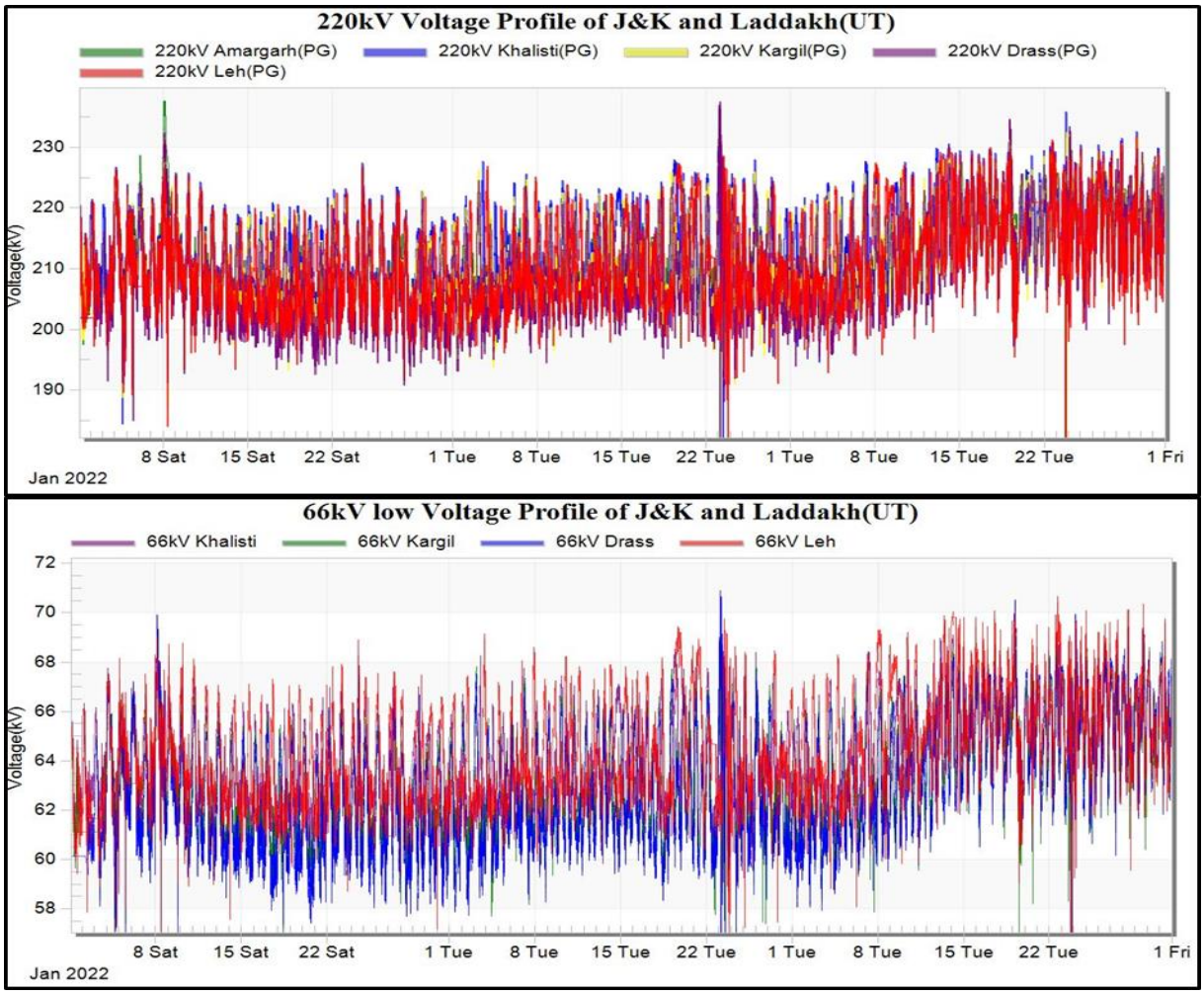


A.2.4 Further, Amargarh (PG) has 2*315MVA ICTs. The ICTs are N-1 non-compliant when sum of loading of both ICTs exceeds 420MW. Loadings above N-1 contingency limits were mainly observed in winter months last year during high demand of J&K and Ladakh (UT).



A.2.5 Since, Leh-Khalsti-Kargil-Drass is the radially connected network to Alusteng through S/C 220kV line, any 220kV line outage would lead to isolation of Ladakh control area and disconnect it from the national grid.

A.2.6 220kV Bus voltage at Amargarh, Wagoora, Ziankote, Kargil, Khalsti and Drass S/s were in the range of 195-220kV during Jan'22 & Feb'22. 66kV Bus voltage at Drass, Kargil, Khalsti and Leh were in the range of 58-68kV during Jan'22 & Feb'22.



A.2.7 CGM(I/C), NRLDC stated that apart from these issues, other issues such as high loading of 220kV line from New Wanpoh and prolonged outage of 220kV Kishenpur-Mirbazar line are still observed in J&K control area. During winter months, most of the intrastate lines and ICTs are highly loaded and there is huge MVAr consumption in these elements and accordingly apart from load there is MVAr requirement in transmission system also.

A.2.8 Rajasthan and J&K both are purchasing huge power in Real Time Market and lesser power in Day ahead market and if state does not get required power in RTM, it will lead to overdrawl by state control area or power curtailment which needs to be avoided.

A.2.9 SCADA data of majority of Sub-stations of J&K and Laddakh (UT) remains suspected/unreliable most of the time. It was informed by J&K in earlier NRPC

meeting that the complete SCADA system would be available by December 2022. Status may be updated by J&K.

A.2.10 Chief Engineer, JKPCL informed that:

- Restoration work of 220kV Kishenpur-Mirbazar line are in progress and line is expected to be revived by end of December'22.
- SCADA works are being taken up with POWERGRID, and due to some payment related issues the project is now delayed and expected to be commissioned by end of FY 2022-23.
- Peak demand is expected to be 3200MW, however, due to power purchase issues presently is remaining in the range of 2800MW.

A.2.11 JKPTCL was asked to provide update on the following points:

- Additional connectivity in line with growing demand of J&K and Laddakh UT may be planned by J&K and Laddakh (UT) and already approved schemes need to be expedited by JKPTCL
- J&K and Laddakh (UT) may share the status of ongoing projects with its tentative completion time and its preparation to meet the expected peak demand of approx. 3670MW (demand as per 24th LGBR).
- Detailed plan to meet the J&K demand in coming winter, with ensuring lines/ICTs loading within safe operating limits and ensuring healthy voltage profile in J&K control area to be shared with NRPC/NRLDC.
- J&K and Ladakh (UT) plans for ensuring the reliability of 220kV Drass, 220kV Kargil, 220kV Khalsti and 220kV Leh and to avoid any power outage in case of tripping of any radial line connecting these station may be shared with NRPC/NRLDC.
- With growing demand of J&K and Laddakh(UT), J&K needs capacitive compensation at Sub-transmission/Distribution level to improve the voltage profile of the system.
- Status of healthiness of capacitors (node wise) may be shared with NRPC/NRLDC and it must be ensured that all capacitors at distribution level are being taken in service in the upcoming winter.
- Status of SCADA upgradation works including RTU healthiness through mail/ letter.

A.2.12 MS NRPC also expressed concern on telemetry issues of J&K and long pending issue of SCADA upgradation. The matter needs to be taken on priority by J&K and latest status needs to be furnished to NRPC/ NRLDC.

A.2.13 NRPC forum asked JKPTCL to submit pointwise reply to the issues raised by NRLDC during the meeting.

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