सत्यमेव जयते

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

सं: उ.क्षे.वि.स./प्रचालन/106/01/2022/ 12244-12285

दिनांक: 14.12.2022

विषय: प्रचालन समन्वय उप-समिति की 202वीं बैठक की कार्यसूची।

Subject: Agenda of 202nd OCC meeting.

प्रचालन समन्वय उप-समिति की **202वीं** बैठक का आयोजन वीडियो कॉन्फ्रेंसिंग के माध्यम से दिनांक **16.12.2022** को **10:30** बजे से किया जायेगा। उक्त बैठक की कार्यसूची उत्तर क्षेत्रीय विद्युत् समिति की वेबसाइट http://164.100.60.165 पर उपलब्ध है।

बैठक में सम्मिलित होने के लिए लिंक व पासवर्ड सभी सदस्यों को ई-मेल द्वारा प्रदान किया जाएगा।

कृपया बैठक में उपस्थित होने की सुविधा प्रदान करें।

202nd meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **16.12.2022** from **10:30 Hrs**. The agenda of this meeting has been uploaded on the NRPC web-site http://164.100.60.165.

The link and password for joining the meeting will be e-mailed to respective e-mail IDs in due course.

Kindly make it convenient to attend the meeting.

Santosh 14/12/22

(संतोष कुमार)
अधीक्षण अभियंता (प्रचालन)

सेवा में : प्रचालन समन्वय उप समिति के सभी सदस्य।
To : All Members of OCC

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1. Confirmation of Minutes

The minutes of the 201st OCC meeting were issued vide letter of even number dated 07.12.2022.

Sub-committee may deliberate and kindly confirm the Minutes.

2. Review of Grid operations

2.1 Power Supply Position (Provisional) for November 2022

Anticipated Power Supply Position v/s Actual Power Supply Position (Provisional) of Northern Region during the month of November-2022 is as under:

State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	110	99	-9.6%	270	254	-5.9%
	(Req)	100	99	-0.6%	210	254	21.0%
DELHI	(Avl)	2694	2041	-24.2%	4050	3941	-2.7%
	(Req)	2000	2042	2.1%	3900	3941	1.1%
HARYANA	(Avl)	4230	3843	-9.1%	10700	7578	-29.2%
	(Req)	3610	3847	6.6%	6930	7578	9.4%
HIMACHAL PRADESH	(Avl)	969	985	1.7%	1841	1965	6.7%
	(Req)	966	986	2.1%	1830	1965	7.4%
J&K and LADAKH	(Avl)	940	1628	73.2%	3340	2764	-17.2%
	(Req)	1660	1649	-0.7%	2560	3074	20.1%
PUNJAB	(Avl)	4970	3813	-23.3%	10920	7253	-33.6%
	(Req)	3340	3819	14.4%	6200	7253	17.0%
RAJASTHAN	(Avl)	7640	8752	14.6%	18430	16023	-13.1%
	(Req)	9455	8788	-7.1%	14500	16023	10.5%
UTTAR PRADESH	(Avl)	9000	9109	1.2%	17000	17387	2.3%
	(Req)	8700	9117	4.8%	17000	17387	2.3%
UTTARAKHAND	(Avl)	1024	1072	4.7%	2043	2141	4.8%
	(Req)	1050	1083	3.1%	2070	2141	3.4%
NORTHERN REGION	(Avl)	31577	31345	-0.7%	72900	54000	-25.9%
	(Req)	30881	31429	1.8%	51300	54000	5.3%

As per above, negative / significant variation (≥5%) in Actual Power Supply Position(Provisional) vis-à-vis Anticipated figures is observed for the month of November-2022 in terms of Energy Requirement for Chandigarh, Haryana, UTs of J&K and Ladakh, Punjab, Rajasthan, and in terms of Peak Demand similar variation is noted for Chandigarh, Haryana, HP, UTs of J&K and Ladakh, Punjab, Rajasthan, . These states/UTs are requested to submit reason for such variations so that the same can be deliberated in the meeting.

All SLDCs are requested to furnish provisional and revised power supply position in prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively for the compliance of Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.

3. Maintenance Programme of Generating Units and Transmission Lines

3.1. Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of January-2023 is scheduled on 15-December-2022 via Video Conferencing

3.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of January-2023 is scheduled on 15-December-2022 via Video conferencing.

4. Planning of Grid Operation

4.1. Anticipated Power Supply Position in Northern Region for January 2023

The Anticipated Power Supply Position in Northern Region for January 2023 is as under:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	120	270	No Revision submitted
	Requirement	130	280	
	Surplus / Shortfall	-10	-10	
	% Surplus / Shortfall	-7.7%	-3.6%	
DELHI	Availability	2360	6040	No Revision submitted
	Requirement	2400	5560	
	Surplus / Shortfall	-40	480	
	% Surplus / Shortfall	-1.7%	8.6%	
HARYANA	Availability	4630	11110	No Revision submitted
	Requirement	4190	7930	
	Surplus / Shortfall	440	3180	
	% Surplus / Shortfall	10.5%	40.1%	
HIMACHAL PRADESH	Availability	1116	2060	09-Dec-22
	Requirement	1113	2080	
	Surplus / Shortfall	3	-20	
	% Surplus / Shortfall	0.3%	-1.0%	
J&K and LADAKH	Availability	920	3240	No Revision submitted
	Requirement	1930	3000	
	Surplus / Shortfall	-1010	240	
	% Surplus / Shortfall	-52.3%	8.0%	
PUNJAB	Availability	5160	11390	No Revision submitted
	Requirement	3970	7450	
	Surplus / Shortfall	1190	3940	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	% Surplus / Shortfall	30.0%	52.9%	
RAJASTHAN	Availability	8520	19200	No Revision submitted
	Requirement	9130	15130	
	Surplus / Shortfall	-610	4070	
	% Surplus / Shortfall	-6.7%	26.9%	
UTTAR PRADESH	Availability	9920	20500	12-Dec-22
	Requirement	10075	20500	
	Surplus / Shortfall	-155	0	
	% Surplus / Shortfall	-1.5%	0.0%	
UTTARAKHAND	Availability	1302	2450	06-Dec-22
	Requirement	1333	2550	
	Surplus / Shortfall	-31	-100	
	% Surplus / Shortfall	-2.3%	-3.9%	
NORTHERN REGION	Availability	33482	72200	
	Requirement	34158	60400	
	Surplus / Shortfall	-676	11800	
	% Surplus / Shortfall	-2.0%	19.5%	

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of November-2022 and submit the measures proposed to be taken to bridge the gap between demand & availability, as well to dispose-off the surplus, if any, in the prescribed format.

5. Submission of breakup of Energy Consumption by the states

5.1 The updated status on the submission of energy consumption breakup is presented below:

State / UT	From	To
DELHI	Apr-2018	Oct-2022
HARYANA	Apr-2018	Oct-2022
HIMACHAL PRADESH	Apr-2018	Nov-2022
PUNJAB	Apr-2018	Aug-2022
RAJASTHAN	Apr-2018	Sep-2022
UTTAR PRADESH	Apr-2018	Oct-2022
UTTARAKHAND	Apr-2018	Sep-2022

All the remaining UTs viz., J&K and Ladakh and Chandigarh are requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the format given as under:

Category→	Consumption by Domestic Loads	Consumption by Commercial Loads	Consumption by Agricultural Loads	Consumption by Industrial Loads	Traction supply load	Miscellaneous / Others

<Month>						

6. Follow-up of issues from previous OCC Meetings- Status update.

The updated status of agenda items is enclosed at ***Annexure-A.I***.

All utilities are requested to update the status.

7. NR Islanding scheme

7.1 Based on the decisions taken in the meeting taken by Hon'ble Minister of State (IC) for Power and New & Renewable Energy on 28.12.2020, Islanding Schemes for NR have been continuously reviewed/discussed in various forums.

7.2 In 187th OCC, it was decided that respective states would submit MIS report before every OCC meeting so that same may be discussed. It was also highlighted that MoP has agreed for PSDF funding for implementation of islanding schemes and states were requested to prepare and submit DPR for the same. Further, a sample DPR on implementation of Islanding scheme for PSDF funding has been already circulated vide email dated 07.10.2021 and requested to expedite the preparation of DPR.

7.3 Utilities were requested to refer and submit SOP for every Islanding scheme in their control area.

7.4 A meeting was also taken by Honorable Cabinet Minister (Power, New & Renewable Energy) on 07.10.2021 wherein emphasis was given on PSDF funding for Islanding schemes and DPR submission for the same. MoM has been issued and copy of the same was enclosed as Annexure-A.II of 189th OCC agenda.

7.5 In 189th OCC, NRPC representative highlighted no progress from states of Punjab, Uttarakhand, Himachal, J&K, Ladakh.

7.6 In the meeting, UP and Punjab representatives stated that they have sent the offer along with data to CPRI for study of Islanding Schemes. HP intimated that system study is under process at DISCOM end. Rajasthan SLDC assured the submission of RAPS SCADA display on the same day.

7.7 NRLDC submitted that they use PSSE software for system study but Rajasthan has submitted details of Islands in MI Power Software, therefore, they are exploring whether they can use that file.

7.8 MS, NRPC desired to know the reason for sending data to CPRI for system study. He stated that it may be done at state level itself.

7.9 UP representative stated that they are not able to perform dynamic system study as it involves parameters like rotor inertia, hunting, etc.

7.10 MS, NRPC expressed concern regarding apathy of states in implementation of Islanding Schemes. He stated that all SLDCs will intimate the names of Islands for which system study from CPRI is required along with justification for the same by 30th Nov, 2021. He also set timeline of 30th Nov, 2021 for Delhi to submit SOP data. He stated that communication may be sent to RAPS for submission of SOP data at the earliest.

7.11 In the 190th OCC, NRPC representative informed that SOP data in respect of Delhi and RAPS have been received.

7.12 UPSLDC vide email dated 01.12.2021 has submitted the names of islands for which system study from CPRI is required. UPSLDC has highlighted, *inter-alia*, that involvement of long length 765kV line and high number of buses necessitates them to go for system study by CPRI. It has mentioned that SLDC/STU has no expertise in such studies and before doing any investment on the project, proper study is must for successful implementation and operation of Islands.

7.13 HPSLDC vide letter dtd. 18.12.2021 has intimated that a meeting was held on 26.11.2021 between HPSLDC and HPSEBL wherein a team of officers from HPSLDC and HPSEBL has been formed to carry out transient study of all islands within a month.

7.14 In 190th OCC, UPSLDC representative informed that CPRI has asked for some additional details and technical commercial offer would be provided to them by CPRI by 15th Jan 22.

7.15 NRLDC representative informed that report received from Rajasthan regarding the Jodhpur-Barmer-Rajwest islanding scheme and Suratgarh islanding scheme is in order and Rajasthan SLDC can proceed ahead. Further, NRLDC submitted that they use PSSE software for system study but Rajasthan has submitted details of Islands in MI Power Software, therefore, they are not able to access the file.

7.16 Rajasthan SLDC representative informed that they have given the details in the hard copy of the load and generation to be considered for islanding scheme, and based on that have requested NRLDC to simulate it in PSSE software for validation. NRLDC representative agreed to the request of the Rajasthan SLDC.

7.17 Uttarakhand SLDC representative informed that hydro stations near Dehradun are peaking stations and the proposed Dehradun islanding scheme appears to be infeasible. NRPC representative informed that some schemes in NR have been proposed by considering Hydro stations and Dehradun islanding scheme was proposed by the state SLDC itself in view of all factors. Thus, Uttarakhand SLDC shall immediately conduct study on the proposed Islanding Scheme having Khodri & Chibro units and provide status on the feasibility of scheme with supporting data so that same may be communicated to the Ministry.

7.18 In 191st OCC, HPSLDC representative informed that they need further two weeks to submit the outcome of transient study of all islands.

7.19 Uttarakhand representative informed that major hydro stations e.g. Chibro, Khodri etc at Dehradun Region in Yamuna valley are non-must run and peaking stations. Therefore, it is technically not feasible to implement Dehradun as an islanding scheme. However, nominations of nodal officers from various utilities (PTCUL, UJVN Ltd & UPCL) are being sought for the formation of internal committee for accessing the possibility of Dehradun as Islanding scheme and the report shall be submitted to NRPC Secretariat subsequently.

7.20 NRPC representative asked Uttarakhand to expedite the submission regarding the status on feasibility of the proposed Islanding scheme.

7.21 MS, NRPC stated that all constituents that have given their information about the planning of islanding scheme shall take up the work on top priority and submit the progress in time bound manner by submitting the updated MIS format every month.

7.22 NRLDC representative informed that Rajasthan SLDC is modelling data on PSSE

software and it is expected to be completed within one week. Thereafter, NRLDC will submit its comments on the same. Rajasthan representative consented for the same.

7.23 UP and Punjab were asked to update the status of their study being done by CPRI. Both informed that there is no progress since last OCC and they are waiting for response from CPRI.

7.24 A meeting was convened by HPSLDC with officials of NRPC Sectt., NRLDC, HPSEBL, & HPPTCL on 11.02.2022 for apprising the status on implementation of Islanding scheme and MoM of the same is awaited. In the meeting, it was observed that system study work has been pending due to pre-occupation of the concerned resource. Therefore, it was decided that HPSLDC shall write letters to MDs of HPSEBL & HPPTCL for expediting the implementation and NRPC Sectt may be kept in copy so that the matter may be apprised to MoP in next review meeting. Further, it was decided to review the status in another meeting in the first week of March 22.

7.25 HPSLDC convened a meeting with the officials of NRPC Sectt., NRLDC, HPSEBL & HPPTCL on 04.03.2022 and presented the results of static and dynamic study of the islanding scheme in the HP control area.

7.26 A meeting was convened by UPSLDC with officials of NRPC Sectt., NRLDC & UPPTCL on 07.03.2022 to review progress of implementation of Unchahar and Agra Islanding schemes and MoM of the same is awaited.

7.27 In the 193rd OCC, Punjab and J&K representative were requested to convene a meeting in the last week of March with the officials of NRPC and NRLDC to deliberate about the updated status of the islanding scheme in their control area.

7.28 Observing slow pace of implementation of Islanding Schemes in NR states, a series of review meetings has been conducted by NRPC Secretariat as detailed below:

State	Meeting Date
Punjab	05/07/2022
Rajasthan	06/07/2022
Uttar Pradesh	07/07/2022
Delhi	13/07/2022
Himachal Pradesh	15/07/2022

States are requested to expedite the submission of data/study results as discussed in meetings above.

7.29 A meeting was convened by NRPC Sectt. with officials of NRLDC, UPSLDC & NTPC Unchahar on 07.10.2022 for discussing implementation of Unchahar Islanding schemes. MoM of the same is attached at Annexure-A.III of agenda of 200th OCC.

7.30 Uttarakhand SLDC vide letter dated 07.10.2022 (copy enclosed as Annexure-A.IV of agenda of 200th OCC) has submitted the feasibility study report of Dehradun as proposed islanding scheme.

7.31 In regard to discussion held in meeting conducted by NRPC Sectt.on 04.11.2022 with the officials of RVPN and NRLDC to discuss the implementation of Islanding schemes for the Suratgarh Thermal Power plant and Rajwest LTPS in Rajasthan, RVPN has submitted the updated version of these islanding schemes which is attached as

Annexure-A.VIII of 201st OCC agenda.

7.32 UPSLDC vide letter dated 08.12.2022 (copy enclosed as **Annexure-A.III**) have mentioned that it would be appropriate that UFRs to be installed at NTPC Unchahar and PGCIL end be installed and maintained by respective entity.

Latest status of Islanding Scheme of NR is attached as **Annexure-A.II.**

Members may kindly deliberate.

8. Coal Supply Position of Thermal Plants in Northern Region

8.1 In 186th OCC meeting, it was agreed that coal stock position of generating stations in northern region may be reviewed in the OCC meetings on the monthly basis.

8.2 Accordingly, coal stock position of generating stations in northern region during current month (till 10th December 2022) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	73.25	15	4.9
ANPARA TPS	2630	87.72	15	20.9
BARKHERA TPS	90	9.12	23	24.7
DADRI (NCTPP)	1820	45.49	23	13.5
GH TPS (LEH.MOH.)	920	22.43	23	9.3
GOINDWAL SAHIB TPP	540	32.09	23	**3.2**
HARDUAGANJ TPS	1265	36.06	23	15.6
INDIRA GANDHI STPP	1500	35.61	23	20.7
KAWAI TPS	1320	87.31	23	15.3
KHAMBARKHERA TPS	90	9.02	23	24.6
KOTA TPS	1240	71.17	23	**3.5**
KUNDARKI TPS	90	9.12	23	31.9
LALITPUR TPS	1980	46.07	23	17.7
MAHATMA GANDHI TPS	1320	46.65	23	17.4
MAQSOODPUR TPS	90	9.15	23	26.8
MEJA STPP	1320	48.84	23	7.5
OBRA TPS	1094	61.05	23	4.8
PANIPAT TPS	710	83.88	23	9.3
PARICHHA TPS	1140	52.09	23	8.3
PRAYAGRAJ TPP	1980	78.01	23	**2.3**
RAJIV GANDHI TPS	1200	68.66	23	8.7
RAJPURA TPP	1400	78.38	23	22.7
RIHAND STPS	3000	90.81	15	26.2
ROPAR TPS	840	13.94	23	14.4
ROSA TPP Ph-I	1200	64.37	23	4.7

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
SINGRAULI STPS	2000	93.19	15	15.5
SURATGARH TPS	1500	32.74	23	4.8
TALWANDI SABO TPP	1980	51.98	23	**3.3**
TANDA TPS	1760	13.29	23	16.5
UNCHAHAR TPS	1550	32.10	23	26.5
UTRAULA TPS	90	9.17	23	35.3
YAMUNA NAGAR TPS	600	83.52	23	16.9
CHHABRA-I PH-1 TPP	500	71.31	23	**0.7**
KALISINDH TPS	1200	36.65	23	8.5
SURATGARH STPS	1320	0.00	23	7.0
CHHABRA-I PH-2 TPP	500	39.67	23	**1.4**
CHHABRA-II TPP	1320	59.10	23	**2.2**

9. Regularization of shutdown of 765kV S/C Moga -Bhiwani line taken for diversion work on request of M/s Northern Railways for construction of New Railway line in Meham – Hassi section by them. (Agenda by Powergrid, NR-1)

9.1 Powergrid, NR-1 vide letter dated 01.12.2022 (copy attached as **Annexure-A.IV**) has requested for regularization of outage of 765kV S/C Moga -Bhiwani line taken for diversion work on request of M/s Northern Railways for construction of New Railway line in Meham – Hassi section by them.

9.2 The detailed reasons of the extension of the outage period of 765kV S/C Moga - Bhiwani line for the cited work is mentioned in the aforesaid letter.

Members may kindly deliberate.

10. Testing of circuit breakers at PPGCL BARA UNIT 1,2,3 (Agenda by PPGCL)

10.1 PPGCL vide mail dated 12.12.2022 have intimated that for New ICT# 2 (commissioning stage) Bus bar protection commissioning they have to configure Dead zone protection in PUA and PUB relay. For this configuration they have to disable 765 kV bus bar protection for four hours on **02-January-2023**. All system will be charged condition, all lines will be available.

10.2 Further, PPGCL have stated that PPGCL 765 / 400 kV Schneider make SCADA has been updated from Windows XP to Windows 10. All upgradation job has been completed but remote operation checking by OEM through SCADA to operate (open & close) all 765 KV & 400 KV circuit Breakers are pending. During operation and testing of circuit breakers at PPGCL BARA UNIT 1,2,3 Generation & power transmission will be not affected. Henceforth, they have requested to allow PPGCL-BARA to check the following breakers (details mentioned in **Annexure-A.V**) on 03-January-2023.

Members may kindly deliberate.

खण्ड-ख: उ.क्षे.भा.प्रे.के.	Part-B: NRLDC

11. NR Grid Highlights for November 2022

- Maximum energy consumption of Northern Region was **1081 Mus** on 25th November'22 and it was 10.9 % higher than November' 2021 (975 Mus 30th November'21)

- Average energy consumption per day of Northern Region was **1042 Mus** and it was 13.75 % higher than November'21 (916 Mus per day)

- Maximum Demand met of Northern Region was **54006 MW** on 25th November'22 @11:00 hours (*based on data submitted by Constituents)* as compared to 49319 MW on 26th November'21 @11:00 hours

- **Comparison of Average Energy Consumption (MUs/Day) of NR States for the November'21 vs November'22**

क्षेत्र/राज्य	नवम्बर - 2021	नवम्बर - 2022	% अंतर
चंडीगढ़	3.0	3.3	11.2
दिल्ली	60.4	67.7	11.9
हिमाचल प्रदेश	29.9	32.2	7.8
हरियाणा	115.2	129.0	12.0
जम्मू और कश्मीर	51.3	54.3	5.8
पंजाब	112.2	127.0	13.1
राजस्थान	239.4	291.8	21.9
उत्तराखंड	33.9	36.2	6.8
उत्तर प्रदेश	270.7	300.8	11.1
उत्तरी क्षेत्र	**916.1**	**1042.3**	**13.8**

Frequency Data

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Nov'22	50.00	50.27	49.44	6.7	77.0	16.3
Nov'21	50.00	50.27	49.63	8.0	74.1	17.9

Detailed presentation on grid highlights of Nov'2022 to be shared by NRLDC in OCC meeting

12. Actions to control over drawl as directed by Hon'ble Commission:

In the matter of dealing with over drawal from grid by the regional entities leading to insecure operation of the grid and other associated matters, Hon'ble commission has directed actions at SLDC as well as RLDC level.

NRLDC had pointed out the number of instances when the over-drawal status was not changed to under drawal by the Constituents after the issuance of over-drawal messages by NRLDC (including when the frequency was below 49.85 Hz) from 1st March – 24th to April, 2022. NRLDC even had to take emergency physical regulatory measures such as the opening of identified radial feeds to contain the over-drawal and to restore the grid frequency within the safe operating limits.

CERC vide their order dated 29.11.2022 **(Annexure-B.I)** has directed NRLDC to convene a meeting with the SLDCs of the concerned region and to prepare a State-wise report inter-alia including the actions measures to be taken by the concerned SLDCs at the State level in the event of overdrawals at the lower frequencies after having the detailed discussions/consultations in this regard and file a report within fifteen days thereafter. A meeting with the staff of the Commission, if required, be also convened subsequently.

Accordingly a meeting is proposed to be held in first fortnight of Jan 2022 and accordingly all states are requested to provide their inputs at the earliest so that the same can be examined at NRLDC level and discussed in meeting.

Members may like to discuss.

13. Restoration of 400kV Jhajjar-Mundka Ckt1 and 2

Shutdown of 400kV Jhajjar-Mundka Ckt 1& 2 line was allowed from 08:00Hrs of 03.11.22 – 18:00Hrs of 17.11.22 on continuous basis after detailed discussion in special meeting called by NRPC on 27.11.22.

Due to this Shutdown, Haryana was directed to defer the planned Shutdown of 400kV Jhajjar-Daulatabad Transmission line for replacement of porcelain insulator with polymer insulator till the revival of 400kV Jhajjar-Mundka D/C, even though this activity is extremely important before winters for system resiliency.

Further, it was categorically advised to NHAI to expedite the mobilization of manpower/gang for the cited Shutdown and completer the work before 15.11.2022.

On 02.12.2022 at 04:05 Hrs 400kV Jhajjar-Daulatabad Ckt-1 tripped due to Phase to Earth fault (R-N). Any further tripping of Ckt-2 would have caused total loss of generation at APCPL Jhajjar. 400kV Jhajjar-Daulatabad D/C is not n-1 compliant for evacuation of the generation of all three units.

Delhi and Haryana are major beneficiaries of APCPL Jhajjar generation. In case of loss of generation of APCPL Jhajjar due to weak evacuation path, it may cause hardship of load shedding in Delhi and Haryana.

NRLDC has been regularly following up with Transmission licensee and well as NHAI through mail and also through our earlier letter उ0क्षे0भा0प्रे0कें0/प्र0सं0/151/337 dated 28.11.2022 and उ0क्षे0भा0प्रे0कें0/प्र0सं0/151 dated 02.12.2022.

Revival of the above line has been inordinately delayed (delay of 100% days) and there was lack of update from NHAI sided regarding likely date of completion of work. Line was subsequently charged on 08.12.2022.

It is again requested to make sure in future that the shutdown of lines is returned within the approved dates.

Members may like to discuss.

14. Grid Operation related issues

a) Delay in submission of FTC documents in LILO/Multiple ownership cases

As deliberated and agreed in OCC-185th (refer clause 17 (iii) in MoM) and 194th meeting, Utilities were asked to advise the concerned to ensure timely intimation for processing the consent and charging of elements within stipulated time as per new element charging procedure. It was also discussed that protection settings should be shared by all concerned utilities in case of LILO or transmission lines involving multiple agencies to NRLDC to ensure smooth process during first time charging. However, in some cases, the remote end utilities has not submitted the documents on time resulting in delay in charging of transmission lines after completion of works.

Members may like to discuss.

b) Submission of PTCC Advisory after line diversion works

As deliberated in meeting with CEI (CEA) dated 10.05.2022 and CEA clarification vide No. PTCC/Misc/200/391-393 dated 06.05.2022, utilities are advised to ensure submission of Electrical safety clearance, Annexure-B7 undertaking and Fresh PTCC Clearance or Suitable Advisory on requirement of fresh PTCC Clearance by CEA (Not required for increase in tower height only). It was also discussed and agreed in OCC-195 (refer clause 16 in MoM).

However, in some cases, delay in submission of PTCC Clearance or Suitable Advisory results in delay in revival of transmission lines after completion of diversion works.

Procedure for Charging/Energization and Integration of Altered (including modified/replaced/upgraded) Power System Elements issued by NLDC/RLDC has already been circulated. All the utilities are requested to follow the procedure.

Members may like to discuss.

c) Long outage of transmission elements

Following important grid elements are out since long time:

S. No.	Element Name	**Owner**	Outage Date	Reason
1	400/220 kV 500 MVA ICT 1 at Bhiwani(BB)	**BBMB**	31-07-2022	Tripped due to tripping of 220 KV Bhiwani-Hissar ckt-2.ICT under inspection.
2	400/220 kV 315 MVA ICT 3 at Mundka(DV)	**DTL**	05-09-2022	Fire observed on both sides bushing of 315 MVA ICT-3.

3	400KV Bus 1 at Vishnuprayag(JP)	**JPVL**	02-12-2021	Bus bar protection operated at Vishnuprayag. Sparking in Bus Coupler CB.
4	400KV Bus 2 at Parbati_3(NH)	**NHPC**	14-09-2022	Rectification work in Generator GIS Bay CB.
5	400KV Bus 2 at Parbati_2(NH)	**NHPC**	29-07-2020	Fire incident took place in Generating unit, control cables of Bus coupler CB damaged.
6	220 KV Kishenpur(PG)-Mir Bazar(PDD) (PDD) Ckt-1	**PDD JK**	19-02-2022	Tower no. 170 collapsed.
7	FSC(40%) of 400 KV Kala Amb(PKTL)-Sorang(Greenko) (Greenko) Ckt-1 at Kala Amb(PKTL)	**POWERGRID**	26-09-2022	To attend Unbalance current that is rapidly increasing in B phase.
8	50 MVAR Non-Switchable LR on Allahabad-Fatehpur (PG) Ckt-2 @Allahabad(PG)		27-11-2021	After multiple emails and telephonic conversations to furnish the reason for the outage no reply has been obtained from CPCC-3
9	50 MVAR Non-Switchable LR on Allahabad-Fatehpur (PG) Ckt-1 @Allahabad(PG)		27-11-2021	
10	FSC(40%) of 400 KV Fatehpur-Mainpuri (PG) Ckt-1 at Mainpuri(PG)		24-10-2021	VME protection system was blocking the FSC back to in service
11	FSC(40%) of 400 KV Fatehpur-Mainpuri (PG) Ckt-2 at Mainpuri(PG)		29-01-2022	
12	705 TIE BAY - 765 KV BIKANER-BHADLA_2 (PG) CKT-1 (POWERGRID) AND 330 MVAR BUS REACTOR NO 1 AT 765 KV BIKANER(PG) AT 765 KV BIKANER(PG) (POWERGRID)		22-11-2022	Mechanical structure of operating mechanism of R-phase pole of 705 CB has got broken.
13	400 KV Parbati_3(NH)-Sainj(HP) (PKTCL) Ckt-1		11-03-2022	R-phase XLPE cable has been punctured between GIS and Pothead yard of Parbati-III PS.
14	50 MVAR LR ON 400 KV AKAL-RAMGARH (RS) CKT-1 @RAMGARH(RS)	**RRVPNL**	23-04-2018	Reactor is out as line is yet to be commissioned. Shifted to Bhadla line.
15	50 MVAR Non-Switchable LR on Akal-		07-07-2022	To take-out Line Reactor out of service due to high DGA violation; for internal inspection by OEM.

	Jodhpur (RS) Ckt-1 @Jodhpur(RS)			
16	50 MVAR LR on Akal-Jodhpur (RS) Ckt-1 @Akal(RS)		17-08-2021	NA
17	125 MVAR Bus Reactor No 1 at 400 KV Jaisalmer(RS)		01-11-2022	To replace the burnt TB in the M.K Box and wiring to be done in M.K box.
18	125 MVAR Bus Reactor No 1 at 400 KV Akal(RS)		30-11-2022	Buchholz relay trip as conservator tank is empty.
19	50 MVAR BUS REACTOR NO 1 AT 400KV PANKI(UP)	**UPPTCL**	29-01-2022	Replacement of 50 MVAR Bus reactor by new 125 MVAR Bus Reactor.
20	220 KV Gazipur(DTL)-Noida Sec62(UP) (UP) Ckt-1		30-04-2022	Tower tilted on one side at tower no 10 from Gazipur (DTL) end.
21	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)		13-03-2020	Buccholz relay alarm and Local Breaker Backup protection operated.
22	400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP)		19-08-2020	ICT tripped on REF protection. Transformer caught fire and got damaged.
23	50 MVAR Non-Switchable LR on Agra-Unnao (UP) Ckt-1 @Agra(UP)		28-10-2021	R and Y phase bushing damaged at Agra(UP).
24	50 MVAR Bus Reactor No 1 at 400KV Moradabad(UP)		03-12-2021	R-phase bushing damaged.
25	400KV Bus 3 at Gorakhpur(UP)		21-02-2022	disc insulator of B phase 400 kv transfer Bus coupler damaged
26	220 KV Gazipur(DTL)-Shahibabad(UP) (UP) Ckt-2		30-04-2022	Line remains charge at No load from UP end. Manually open at 19:30 on 30/04/22 due bending of tower no. 4
27	400/220 kV 240 MVA ICT 2 at Orai(UP)		24-09-2022	Differential protection Trip, REF protection Trip.

It is requested to expedite restoration of the above-mentioned Grid elements at the earliest and also provide an update regarding their expected restoration date/time.

Member may like to discuss.

15. Winter action plan by state control areas:

Issue of high voltages were discussed in 199, 200 and 201 OCC meetings, wherein utilities were asked to take necessary actions which would help in ensuring safe and secure operation of grid and managing high voltages in the grid.

In 200 OCC meeting, all states were requested to prepare and share high voltage management plan for winter months with NRPC/ NRLDC. MS NRPC had also stated that such plan developed by states should be readily available with NRLDC as well as SLDC control room officials so that effective voltage control is possible during winter months and real-time operator at SLDC as well as RLDC end are aware of the actions to be taken. Same was also requested vide NRLDC letter NRLDC/TS-65/ 1324 dated 14.11.2022.

SCADA snapshots of some of the 400/220kV stations such as Maharanibagh, Dhanonda, Mandola, Sohna Road, Patran, Makhu for 03:00hrs were presented in 60NRPC meeting and it was mentioned that there are several 400/220kV nodes where MVAR flow is from 220kV side to 400kV side and samples are being shown in the meeting. MVAR injection from 220kV to 400kV side as presented in the meeting were Maharanibagh (230MVAR), Dhanonda (130MVAR), Mandola (120MVAR), Sohna Road (90MVAR), Patran (80MVAR), Makhu (70MVAR). All utilities were asked to take necessary actions to minimize MVAR injection from 220kV side to 400kV side.

It was also mentioned that states are paying reactive energy charges for MVAR injection from low voltage side to high voltage side. Some of such nodes identified for 7-13 November 2022 as presented in the meeting are shown below:

State	Name of Drawal Point
Delhi	Bamnauli, Bawana, Dadri, Maharani Bagh, Mandola, Tughlakabad, Mundka
Haryana	Sohna, Abdullapur, Dhanoda, Gurgaon, Hisar, Jhajjar, Jind, Manesar
Punjab	Amritsar, Moga, Patran, Ludhiana
Others	Gumma, Karcham, Lucknow(PG), Kanpur(PG), Shahjahapur

In view of above and anticipated high voltage scenario during winter months, actions at lower voltage level also become critical for managing high voltage at regional grid level. Therefore, it was requested that all preparations for winter 2022-23 are reviewed at utility end and action plan, inclusive of at least following points be submitted to NRLDC/NRPC at the earliest:

a. Actions taken/ to be taken at utility level for High Voltage management including analysis of nodes injecting MVAR from low voltage level to high voltage level.
b. Ensuring healthiness of Reactive power resources such as reactors, SVCs, STATCOMs etc. (NRLDC reactive power document available @ *https://nrldc.in/download/nr-reactive-power-management-2022/?wpdmdl=9908* may also be referred)
c. Reactive Power absorption utilizing full capability of on-bar generating units to control voltages
d. Running units in synchronous condenser mode wherever applicable for voltage control.
e. Maintaining availability of lines/avoiding tripping during fog by pre-action of insulator replacement/insulator cleaning etc.
f. Ready list of EHV lines to be opened for high voltage management, including any prioritization.
g. Confirmation that Over Voltage settings of lines and Over flux settings of transformers are as approved by NRPC.

h. Ensuring switching off capacitors and switching on reactors

States may kindly provide update.

16. TTC/ATC of state control areas for winter 2022

Most of the NR states except J&K, Ladakh and Chandigarh U/Ts are sharing basecase and ATC/TTC assessment with NRLDC. OCC has advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement.

Based on feedbacks received till date, SLDCs are requested to go through the tentative ATC/TTC limits for January 2023 (**Annexure-B.II**) and provide comments. If no comments are received, these limits will be assumed confirmed and uploaded on NLDC website. SLDCs are also requested to upload these limits in their respective websites. States are also requested to regularly provide update regarding the upcoming transmission elements which would improve import capability of respective state control area.

Loading of 400/220kV ICTs and important 220kV lines observed above or close to N-1 contingency limits is also attached as **Annexure-B.III**.

Punjab

Punjab SLDC is requested to share:

- ATC/TTC limits for low demand period i.e. winter months based on anticipated state generation scenario.
- Plan to control high voltages during winter months including list of 220kV lines that are being kept open continously during winter months

UP

UP SLDC to provide update on:

- ATC/TTC limits for low demand period i.e. winter months based on anticipated state generation scenario.
- Status of Obra and Sohawal SPS

In 201 OCC meeting, UP representative stated that testing of SPS of Sohawal is completed and will be operational in 2-3 days. Regarding SPS of Obra, order been placed to Siemens and work will be completed within 30 days.

Rajasthan

As discussed in 59 and 60 NRPC meeting, RVPN was asked to submit pointwise reply to following issues:

- Action plan to meet the 16000-17000MW peak demand during winter
- **Establishing additional connectivity of 400 kV Alwar from Bhiwadi / Bassi / Phagi. Gas generation at Dholpur may also help till connectivity established**
- Minimising planned/ forced outage of intrastate thermal generating units
- Operating intrastate RE generators in voltage control mode
- **Load MVAR drawl management including identification of nodes at 220kV and 132kV level which are drawing huge MVAR from the grid**

- Expediting upgradation of 400kV Jodhpur (Kankani) to 765kV along with associated 765kV lines
- Additional reactive power support devices for maintaining grid voltages within IEGC prescribed limits

Same is still pending from RVPN end.

From, the available data it can be seen that loading of 400/220kV ICTs is remaining very high since last two weeks (under import of 6500-7000MW), therefore, it is requested that loading of 400/220kV ICTs may be kept below their N-1 contingency limits and at places where SPS is installed, loading needs to be such that SPS relief is able to manage loading within safe limits in case of N-1 contingency. Plots showing loading of highly loaded 400/220kV ICTs such as Jodhpur, Merta, Ajmer, Chittorgarh, Bikaner, Bhilwara, Bhinmal along with their N-1 contingency limits is attached as Annexure-B.III. It is to be noted that as per information available with NRLDC, there is no SPS implementeddat 400/220kV Bikaner, Bhinmal and Bhilwara ICTs and therefore loading of these ICTs needs to be below their N-1 contingency limits.

Rajasthan SLDC to provide update.

Delhi

Delhi SLDC is requested to share:

- Plan to control high voltages during winter months
- Status of commissioning of reactors.

In 201 OCC meeting, Delhi representative stated that undergroud cables are opened as and when required during high voltage scenario. Further ICT tap positions are optimized to minimize high voltages.

NRLDC representative again requested Delhi to share the detail action plan of Delhi.

Haryana

Haryana SLDC to provide update on:

- ATC/TTC limits for low demand period i.e. winter months based on anticipated state generation scenario.
- Plan to manage loading of 400/220kV Deepalpur and Panipat ICTs.
- Plan to control high voltages during winter months

In 201 OCC meeting, Haryana representative agreed to submit the above data in 7-10 days to NRPC/NRLDC. However, it is still pending.

Uttarakhand

Uttarakhand SLDC to provide update on implementation of Kashipur SPS.

HP

HP SLDC to provide update on:

- Revised ATC/TTC limits of HP state control area for winter 2022-23.
- Switchgear capacity augmentation at Nallagarh (220kV) for 220kV Nallagarh-Upernangal line.

J&K

Loading of 400/220kV Amagarh ICTs was close to N-1 contingency limits for last 30 days

Not assessing its ATC. J&K representatives had intimated during 47th TCC and 49th NRPC meeting that they would be sharing ATC/TTC assessment with NRLDC from October 2021, however the same is still awaited.

J&K and Ladakh U/Ts are once again requested to advise the concerned officers to evaluate their ATC/TTC limits in coordination with NRLDC and share latest assessment with NRLDC and NRPC. ***J&K officers may also take online/ offline assistance from NRLDC officers if required.***
It is again requested that SLDCs may ensure that loading of ICTs and lines are below their N-1 contingency limits. While requisitioning power from various sources, states should take care to limit their scheduled drawl as well as actual drawl in real time within the Available Transfer Capability (ATC) limits assessed by SLDC and NRLDC. NRLDC is continuously sending emails in real-time for ensuring N-1 compliances as well as restricting schedule till ATC limit and maximizing internal generation. SLDCs need to ensure this during real-time operation.

Members may like to discuss.

17. MVAR support from generators

During winter season, demand of Northern region is low and high voltages are a common phenomenon predominantly in Punjab, Haryana and Delhi area. Even after several actions being taken by control centers, it is seen that there is persistent high voltage in Northern region. The reactive power absorption by generators becomes an important resource that helps in managing high voltages in the grid. However, even after continuous follow up in OCC meetings, it is seen that MVAR data telemetry is poor/ inaccurate from most of the generating stations. For some of the generators it is seen that there is inadequate reactive power absorption based on their capability curve especially during night hours. The performance of generators in absorption of reactive power for last 30 days (10 Nov 2022 – 10 Dec 2022) is shown below:

S.No.	Station	Unit No.	Capacity	Geographical location	MVAR capacity as per capability curve (on LV side)	MVAR performance (-) Absorption (+) Generation (HV side data)	Voltage absorption above (in KV)
1	Dadri NTPC	1	490	Delhi-NCR	-147 to 294	-170 to 150	415
		2	490		-147 to 294	-150 to 80	415
2	Singrauli NTPC	1	200	UP	-60 to 120	-30 to 10	405
		2	200		-60 to 120	-20 to 10	408
		3	200		-60 to 120	-20 to 20	408
		4	200		-60 to 120	-35 to 0	402
		5	200		-60 to 120	-40 to 20	408

		6	500		-150 to 300	-70 to 20	405
		7	500		-150 to 300	-70 to 20	405
3	Rihand NTPC	1	500	UP	-150 to 300	-	-
		2	500		-150 to 300	-60 to 60	408
		3	500		-150 to 300	-130 to 0	402
		4	500		-150 to 300	-90 to 10	402
4	Kalisindh RS	1	600	Rajasthan	-180 to 360	-130 to 100	404
		2	600		-180 to 360	-150 to 70	404
5	Anpara C UP	1	600	UP	-180 to 360	-60 to 80	765
		2	600		-180 to 360	-20 to 40	765
6	Talwandi Saboo PB	1	660	Punjab	-198 to 396	-200 to 0	410
		2	660		-198 to 396	-200 to 0	410
		3	660		-198 to 396	-	-
7	Kawai RS	1	660	Rajasthan	-198 to 396	-120 to 50	405
		2	660		-198 to 396	-100 to 50	400
8	IGSTPP Jhajjar	1	500	Haryana	-150 to 300		
		2	500		-150 to 300	-75 to 100	415
		3	500		-150 to 300	-75 to 100	415
9	Rajpura (NPL)	1	700	Punjab	-210 to 420	-	-
		2	700		-210 to 420	-250 to 30	405
10	MGTPS	1	660	Haryana	-198 to 396	-150 to 120	415
		2	660		-198 to 396	-150 to 70	412
11	Bawana	1	216	Delhi-NCR	-65 to 130	-60 to 40	415
		2	216		-65 to 130	-	-
		3	216		-65 to 130	-70 to 20	410
		4	216		-65 to 130	-	-
		5	253		-65 to 130	-40 to 60	420
		6	253		-65 to 130	-40 to 60	415
12	Bara PPGCL	1	660	UP	-198 to 396	-60 to 60	775

		2	660		-198 to 396	-50 to 60	775
		3	660		-198 to 396	-50 to 70	775
13	Lalitpur TPS	1	660	UP	-198 to 396	-70 to 100	765
		2	660		-198 to 396	-60 to 60	765
		3	660		-198 to 396	-100 to 80	760
14	Anpara D UP	1	500	UP	-150 to 300	-60 to 40	760
		2	500		-150 to 300	-80 to 50	765
15	Chhabra TPS	1	250	Rajasthan	-75 to 150	-80 to 0	404
		2	250		-75 to 150	-0 to 20	405
		3	250		-75 to 150	-	-
		4	250		-75 to 150	-	-
		5	660		-198 to 396	-60 to 100	408
		6	660		-198 to 396	-60 to 90	408

All generating stations are requested to resolve any issues related to telemetry and make sure that MVAr absorption is as per grid requirement and capability curve of machine.

Some of the generating units such as Dadri, Bawana need to explore possibility of further MVAR absorption. Generators may also set their Vsch (voltage set point) such that units are absorbing MVAR as per their capability and grid requirement.

Members may like to discuss.

18. Frequent forced outages of transmission elements in the month of November'22:

The following transmission elements were frequently under forced outages during the month of

November 22:

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	400 KV Bareilly-Unnao (UP) Ckt-1	4	UP
2	400 KV Gr.Noida_2(UPC)-Gr.Noida(UPC) (UP) Ckt-2	3	UP
3	400/220 kV 315 MVA ICT 2 at Hindaun(RS)	3	Rajasthan

The complete details are attached at **Annexure-B.IV**. It may be noted that frequent outages of such elements affect the reliability and security of the grid. Hence, utilities are requested to analyze the root cause of the tripping and share the remedial measures taken/being taken in this respect.

Members may like to discuss.

19. Multiple element tripping events in Northern region in the month of November '22:

A total of 15 grid events occurred in the month of November '22 of which **10** are of GD-1 category **05** is of GI-2 Category. The preliminary report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.V.**

Further, despite persistent discussions/follow-up in various OCC/PCC meetings, it is observed that provisions 5.2(r) and 5.9.4(d) of the IEGC, pertaining to reporting of events / tripping to RLDC, is not being complied with by many utilities.

Maximum Fault Duration observed is 1000 msec in the event of multiple element tripping at 400/220kV Muzaffarnagar(UP). As reported at 07:04 hrs, while charging of 220kV Muzaffarnagar-Jansath ckt, Y-N phase to earth fault occurred. However line didn't not trip. As fault was still persisting, all four ICTs tripped on over current earth fault protection operation. At the same time, 220kV feeders to Nara tripped on distance protection operation in Z-1, 220kV feeder to Shamli in Z-4 and 220kV feeders to Modipuram & Charla tripped in Z-3.

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total 4 events out of **15** grid events occurred in the month.

Members may take necessary preventive measures to avoid such grid incidents / disturbances in future and report actions taken by respective utilities in OCC & PSC forum. Moreover, utilities may impress upon all concerned for providing the Preliminary Report, DR/EL & Detailed Report of the events to RLDC in line with the regulations.

Members may like to discuss.

20. Details of tripping of Inter-Regional lines from Northern Region for November' 22:

A total of 12 inter-regional lines tripping occurred in the month of November'22. The list is attached at **Annexure-B.VI.** The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees / ISGSs is in violation of regulation 5.2(r) of IEGC and regulation 15(3) of CEA Grid Standards. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than that mandated by CEA (Grid Standard) Regulations.

Members may please note and advise the concerned for taking corrective action to avoid such tripping as well as timely submission of the information.

21. Status of submission of DR/EL and tripping report of utilities for the month of November'22.

The status of receipt of DR/EL and tripping report of utilities for the month of September'2022 is attached at **Annexure-B.VII**. It is to be noted that as per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement. Also, it is observed that reporting status has been improved from POWERGRID, CPCC2, Delhi, Haryana Uttarakhand and Uttar Pradesh in September'2022 compared to the previous month.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the trippings shall be **uploaded on Web Based Tripping Monitoring System "http://103.7.128.184/Account/Login.aspx"** within 24 hours of the events as per IEGC clause 5.2.r and clause 15.3 of CEA grid standard. Apart from prints of DR outputs, the corresponding COMTRADE files may please also be submitted in tripping portal / through email.

22. Status of PSS tuning/ re-tuning and Step Response Test of generator

In last 19 OCC meetings, this point was discussed and Utilities were requested to submit the present status of PSS tuning/re-tuning and Step Response Test of their respective generators as per the below mentioned format.

S. No.	Name of the Generating Station	Date of last PSS tuning / re-tuning performed (in DD/MM/YYYY format)	Date of last Step Response Test performed (in DD/MM/YYYY format)	Report submitted to NRLDC (Yes/ No)	Remarks (if any)

The status of test performed till date is attached at **Annexure-B.VIII.**

It is to be noted that as per regulation 5.2(k) of IEGC, Power System Stabilizers (PSS) in AVRs of generating units (wherever provided), shall be got properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the CTU/RPC from time to time.

Members were requested to update about their future plan for PSS tuning as there is no significant progress despite including this agenda in every OCC meeting and a separate meeting may be called for detail discussion on this matter.

Members may please discuss.

23. Mock black start exercises in NR:

As per Indian Electricity Grid Code (IEGC) clause 5.8(b)

"*Detailed plans and procedures for restoration after partial/total blackout of each user's/STU/CTU system within a Region, will be finalized by the concerned user's/STU/CTU in coordination with the RLDC. The procedure will be reviewed, confirmed and/or revised once every subsequent year. Mock trial runs of the procedure for different subsystems shall be carried out by the users/CTU/STU at least once every six months under intimation to the RLDC*".

Mock Black-start exercise of power stations therefore needs to be carried out in-order to ensure healthiness of black start facility.

The summary of last conducted mock black start exercise of ISGS hydro & gas stations during 2020-21 & 2021-22 is tabulated below:

Hydro Power Stations:

Name of stations	**Last conducted exercise date**	**Remark**
Uri-I, II HEP, Lower Jhelum HEP, Upper Sindh and Kishenganga	–	
Dhauliganga	28th Dec 2021	Exercise carried out successfully
Bairasiul	04th Dec 2020	
Sewa-2	29th May 2022	
N. Jhakri and Rampur	17th Dec 2019	
Karcham and Baspa	29th Dec 2021	Exercise was partially successful
Budhil	–	
Parbati-3 and Sainj	22nd Dec 2020	Black start of only Parbati-3 was carried out successfully. Sainj to explore blackstart capability.
Salal	-	
Chamera-3	-	
Kishenganga	-	
Koteshwar	19th Jan 2022	Exercise carried out successfully
Chamera-1 and Chamera-2	08th Dec 2020	
Malana-2, AD Hydro and Phozal	08th Jan 2021	
Tehri	12th Jan 2022	
Koldam	22nd Jan 2021	Partially successful.

Gas Power Stations:

Name of stations	**Last conducted exercise date**	**Remark**

Anta GPS	09th Feb 2021 (with load) 01st Feb 2022 (without load)	Exercise carried out successfully
Auraiya GPS	-	
Dadri GPS	28th Jan 2022 (without load)	Exercise carried out successfully

The winter months are off peak hydro period and therefore good time to carry out such exercises. Therefore, the schedule of mock exercise dates for different hydro & Gas power station need to be finalized. The power stations may propose the tentative date for mock black start exercise of their generating units. Power stations may confirm and inform to all the concerned persons of control centre/ substations to facilitate the exercise.

Hydro Power Stations:

Name of stations	**Tentative Date for Mock Black start exercise (proposed by power plants)**
*Uri-I, II HEP, Lower Jhelum HEP, Upper Sindh and Kishenganga	31st Jan 2023
Dhauliganga	28th Feb 2023
*Bairasiul	**Carried out successfully on 30th Nov 2022**
Sewa-2	12th Jan 2023
*N. Jhakri and Rampur	**Carried out successfully on 09th Dec 2022**
Karcham and Baspa	
*Budhil	
*Parbati-3 and Sainj	09th Nov 2022(to be rescheduled)
*Salal	15th Dec 2022
*Chamera-3	27th Jan 2023
*Kishenganga	
Koteshwar	**Carried out successfully on 07th Dec 2022**
*Chamera-1 and Chamera-2	**Carried out successfully on 02nd Dec 2022**
*Malana-2, AD Hydro and Phozal	12th Dec 2022 (to be rescheduled)
Tehri	14th Dec 2022
*Koldam	**Carried out successfully on 11th Nov 2022**

*Mock Black start exercise not carried out during Year 2021-22

Gas Power Stations:

Name of stations	Tentative Date for Mock Black start exercise (proposed by power plants)
Anta GPS	23rd Jan 2023
*Auraiya GPS	Mar 2023
Dadri GPS	Jan 2023

Mock Black start exercise not carried out during Year 2021-22

SLDC's may also carryout mock black-start of station in their respective control area & inform the tentative dates to the OCC as well as outcome of these exercises. The proposed Hydro Power Stations to undergo the exercise are as follows:

S. NO.	Utility	Hydro Power Station	Installed Capacity(MW)
1	J&K	Baglihar	3x150
2		Baglihar stage-2	3x150
3		Lower Jhelum	3x35
4		Upper Sindh	2x11+3x35
5		Larji	3x42
6		Bhabha	3x40
7		Malana -I	2x43
8		Baspa	3x100
9	Punjab	Anandpur Sahib	4x33.5
10		Ranjit Sagar	4x150
11	Rajasthan	Mahi-I&II	2x25+2x45
12		Rana Pratap Sagar	4x43
13		Jawahar Sagar	3x33
14		Gandhi Sagar	5x23
15		Dholpur GPS	3x110
16		Ramgarh GPS	1x35.5+2x37.5+1x110
17	UP	Rihand	6x50
18		Obra	3x33
19		Vishnuprayag	4x100
20 21		Srinagar (Alaknanda)	4x82.5
	Uttarakhand	Gamma Infra	2x76+1x73
22		Shravanti	6x75
23		Ramganga	3x66
24		Chibro	4x60
25		Khodri	4x30
26		Chilla	4x36
27		Maneri Bhali-I&II	3x30+4x76
28	Delhi	IP Extn GTs	6x30+3x30
29		Pragati GPS	2x104.6+1x121.2
30		Rithala	3x36
31	Haryana	Faridabad GPS	2x137.75+1x156.07

SLDCs shall submit the reports of black start exercise in their respective control area. SLDCs may also identify further generating stations/unit for black start exercise.

24. Revision of document for Reactive Power Management and System Restoration Procedure (SRP) for Northern Region:

NRLDC has been issuing 'Reactive Power document of Northern Region' on annual basis. Reactive Power Management document for Northern region was last revised on 31st Dec 2021 & updated document link is as below:

https://nrldc.in/download/nr-reactive-power-management-2022/.

Document is password protected and password was already informed to all the NR constituents through letter dated 31st Dec 2021.

In view of new addition/modification of transmission & generation element in NR grid since Dec'21, the document is being review for update.

Constituents were requested to provide the feedback, suggestion and updated information by 30th Nov 2022.

A communication regarding the same from NRLDC has already been shared with all the constituents vide letter dated 03rd Nov 2022.

Data from Punjab not received yet.

System restoration procedure document for Northern region has been revised on 31stJan 2022 & updated document link is as below:

https://nrldc.in/wp-content/uploads/2022/01/System-Restoration-Procedure_NR_2022.pdf

Document is password protected and for password request can be sent to nrldcso2@gmail.com Constituents are requested to go through the document and provide any modification/addition in respect of their system. SLDC/Generating utilities are requested to kindly update and share the restoration procedure in respect of their state/generating station.

Constituents are requested to provide the feedback, suggestion and updated information by 31st Dec 2022.

All the NR constituent may please go through these document and provide the feedback, suggestion if any. All the state SLDCs are also requested to kindly prepare these documents for their own control area.

25. RE related special agenda

As per Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2013, Part-II, clause B2, Sub-clause (1) states for RE generators that

"The generating station shall be capable of supplying dynamically varying reactive power support so as to maintain power factor within the limits of 0.95 lagging to 0.95 leading".

As per the above clause Plant should be capable of delivering MVAR=33% of MW at POI at plant rated MW(considering 0.95 lagging pf). In order to support MVAR during low voltages same is expected from RE Plants.

It has been observed that RE Plant is not providing Reactive Power (MVAR) support as per CEA clause B2(1) according to the grid conditions even at low voltages at point of interconnection(POI).

It has been already discussed in the NRLDC meetings (dated 13th June 2022, 21st June 2022 and 06-08 Sept2022) with RE developers to operate their plants in Voltage Control Mode of operation to supply dynamically varying reactive power support to the grid.

Performance of RE plants is attached as **Annexure-B.IX.**

Regarding this several communication have been sent via mail/telephonically to plant to reduce the MAVR drawl but no fruitful action is being observed yet. Hence it is again requested to take the necessary action and maintain the 220kV/400kV Bus voltage by operating PPC in voltage control mode and provide adequate reactive support at POI.

Members may please discuss.

Follow up issues from previous OCC meetings

Annexure-A.I

<table>
<tr><td>1</td><td>Down Stream network by State utilities from ISTS Station</td><td>Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.</td><td>List of downstream networks is enclosed in Annexure-A.I.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Sep-2019
◎ DELHI — Nov-2022
◎ HARYANA — Aug-2022
◎ HP — Jan-2022
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jul-2022
◎ RAJASTHAN — Oct-2022
◎ UP — Nov-2022
◎ UTTARAKHAND — Nov-2022
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td>3</td><td>Healthiness of defence mechanism: Self-certification</td><td>Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that “All the UFRs are checked and found functional”.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Not Available
◎ DELHI — Sep-2022
◎ HARYANA — Sep-2022
◎ HP — Oct-2022
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jun-2022
◎ RAJASTHAN — Sep-2022
◎ UP — Sep-2022
◎ UTTARAKHAND — Sep-2022
◎ BBMB — Sep-2022
All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quartely basis for the rest .</td></tr>
<tr><td></td><td></td><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td>Status:
◎ CHANDIGARH — Not Available
◎ DELHI — Increased
◎ HARYANA — Increased
◎ HP — Increased
◎ J&K and LADAKH — Not increased
◎ PUNJAB — Increased
◎ RAJASTHAN — Increased
◎ UP — Increased
◎ UTTARAKHAND — Increased
◎ BBMB — Increased</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td colspan="3">BBMB was requested to submit the updated self certification report indicating increase of 0.2 Hz in AUFR settings, within one week. J&K and LADAKH were requested to update status for increasing settings of UFRs.</td></tr>
<tr><td>4</td><td>Status of FGD installation vis-à-vis installation plan at identified TPS</td><td>List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed.
Further, progress of FGD installation work on monthly basis is monitored in OCC meetings.</td><td colspan="3">Status of the information submission (month) from states / utilities is as under:
◎ HARYANA — Sep-2022
◎ PUNJAB — Sep-2022
◎ RAJASTHAN — Nov-2022
◎ UP — Sep-2022
◎ NTPC — Feb-2022
FGD status details are enclosed as Annexure-A.I.II.
All States/utilities are requested to update status of FGD installation progress on monthly basis.</td></tr>
<tr><td>5</td><td>Information about variable charges of all generating units in the Region</td><td>The variable charges detail for different generating units are available on the MERIT Order Portal.</td><td colspan="3">All states/UTs are requested to submit daily data on MERIT Order Portal timely.</td></tr>
<tr><td>6</td><td>Status of Automatic Demand Management Sysytem in NR states/UT's</td><td>The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:</td><td colspan="3">Status:
◎ DELHI — Fully implemented
◎ HARYANA — Scheme not implemented
◎ HP — Scheme not implemented
◎ PUNJAB — Scheme not implemented
◎ RAJASTHAN — Under implementation. Likely completion schedule is 31.12.2022.
◎ UP — Scheme implemented by NPCIL only</td></tr>
</table>

7	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVAr TCR	Testintg is under progress and Anticipated commissioning: Nov'22/Dec'22
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under final stage inspection. GIS Bay is already available.
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under final stage inspection. GIS Bay is already available.
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vii	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
viii	PUNJAB	Dhuri	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	400kV Reactors - LOA issued on dated. 17.08.2021 and date of completion of project is 18 months from the date of LOA. 220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA.
ix	PUNJAB	Nakodar	1x25 MVAr at 220 kV	220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA.
x	PTCUL	Kashipur	1x125 MVAR at 400 kV	Price bid has been opened and is under evaluation
xi	RAJASTHAN	Akal	1x25 MVAr	1x25 MVAR Reactor at Akal has been commissioned on dated 25th July' 2022.

xii	RAJASTHAN	Bikaner	1x25 MVAr	Erection work of 1x25 MVAR Reactors at Bikaner and Suratgarh completed and testing work is pending. The same are likely to be commissioned in Aug / Sept 2022.
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	Erection work of 1x25 MVAR Reactors at Bikaner and Suratgarh completed and testing work is pending. The same are likely to be commissioned in Aug / Sept 2022.
xiv	RAJASTHAN	Barmer & others	13x25 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 &work order placed on dt. 7.04.2022 to M/s Kanohar Electricals Ltd.
xv	RAJASTHAN	Jodhpur	1x125 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 &work order placed on dt. 7.04.2022 to M/s Kanohar Electricals Ltd.

Annexure-A-I.I

1. Down Stream network by State utilities from ISTS Station:

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	-	PDD, J&K to update the status.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	-	PDD, J&K to update the status.
				• 220 kV New Wanpoh - Mattan D/c Line	-	PDD, J&K to update the status.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 6 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	-	PDD, J&K to update the status.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	-	HVPNL to update the status.
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1 Total: 7	Utilized: 5 Unutilized: 1 (1 bays to be utilized shortly) Approved/Under Implementation:1	• 220 kV D/C Shahajahanpur (PG) - Gola line	Feb'23	Updated in 201st OCC by UPPTCL
				• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG)	Commissioned	Energization date: 25.02.2022 updated by UPPTCL in 196th OCC
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4 (2 bays to be utilized shortly)	• 220 kV Hamirpur-Dehan D/c line	Commissioned	Commisioned date: 09.06.2022. Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Dec'22	Updated in 197th OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Dec'22	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Apr'24	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0 Approved:4	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	May'24	Updated in 197th OCC by HVPNL
11	400/220kV Tughlakabad GIS	Commissioned: 6 Under Implementation: 4 Total: 10	Utilized: 6 Unutilized: 0 Under Implementation:4	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	-	DTL to update the status.
				• Masjid Mor – Tughlakabad 220kV D/c line.	-	DTL to update the status.
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Mar'23	Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur	Commissioned: 8	Utilized: 0	• LILO of both circuits of 220 KV Pali - Sector 56 D/C line at Kadarpur along with augmentation of existing conductor from 220 KV Sector-56 to LILO point with 0.4 sq inch AL-59 conductor.	Mar'23	Updated in 197th OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
13	Sub-station	Total: 8	Unutilized: 8	• LILO of both circuits of 220KV Sector 65 - Pali D/C line at Kadarpur along with augmentation of balance 0.4 sq. inch ACSR conductor of 220 kV Kadarpur - Sector 65 D/C line with 0.4sq inch AL-59 conductor	May'23	Updated in 197th OCC by HVPNL
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 2 Unutilized: 4	• LILO of both circuits of 220kV D/c Sector-69 - Roj Ka Meo line at 400kV Sohna Road	Jun'23	Updated in 197th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	Jun'23	Updated in 197th OCC by HVPNL
15	400/220kV Prithla Sub-station	Commissioned: 8 Total: 8	Utilized: 2 Unutilized: 4 Under Implementation:2	• Prithla - Harfali 220kV D/c line with LILO of one ckt at Meerpur Kurali	Commissioned	Commisioned date: 31.12.2021. Updated in 198th OCC by HVPNL
				• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	-	HVPNL to update the status
				• 220kV D/C for Sector78, Faridabad	02.03.2023	Updated in 198th OCC by HVPNL
				• Prithla - Sector 89 Faridabad 220kV D/c line	31.03.2024	Under Implementation (Mar'24). Updated in 198th OCC by HVPNL
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 2 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	-	HVPNL to update the status.
				• Sonepat - HSIISC Rai 220kV D/c line	Mar'23	Line work is complete howere substation work is under progress. Updated in 201st OCC by HVPNL
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG)	-	Work order is finalized as updated in 201st OCC by RVPNL.. 5 months from layout finalization.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	Bid documents under approval as updated in 195th OCC by RVPNL.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	May'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line comiisioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	Jan'23	• Lucknow -Kanduni, 220 kV D/C line expected energization date Jan'23 updated by UPPTCL in 201st OCC _____ • No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	Dec'22	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line expected energization date Dec'22 updated by UPPCL in 196th OCC
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 2 bays	-	• UPPTCL intimated that 02 no. of bays under finalization stage. In 201st OCC, UPPTCL intimated that it is finalized that Khaga s/s will be connected (tentative time 1.5 years). _____ • No planning for 2 no. of bays updated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
24	400/220kV Abdullapur Sub-station	Commissioned: 10 Under Implementation:2 Total: 12	Utilized: 10 Unutilized: 0 Under Implementation:2	• Abdullapur – Rajokheri 220kV D/c line	Oct'22	Updated in 198th OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
25	400/220kV Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 Out of these 10 nos. 220kV Line Bays, 2 bays would be used by the lines being constructed by POWERGRID (Chandigarh-2) and balance 8 nos. bays would be used by HVPNL	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Pinjore 220kV D/c line	31.12.2022	Updated in 194th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	31.12.2022	Updated in 194th OCC by HVPNL
				• Panchkula – Raiwali 220kV D/c line	Commissioned	Updated in 194th OCC by HVPNL
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	Sept'23	Updated in 194th OCC by HVPNL
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Unutilized: 1 Approved in 50th NRPC- 1 no.	• Amritsar – Patti 220kV S/c line	May'23	Route survey/tender under process. Work expected to be completed by May 2023. Updated in 198th OCC by PSTCL.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	May'23	Route survey/tender under process. Work expected to be completed by May 2023. Updated in 198th OCC by PSTCL.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	• Bagpat - Modipuram 220kV D/c line	Commissioned	Updated in 201st OCC by UPPTCL
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• Network to be planned for 2 bays.	Mar'24 and July'24	Updated in 198th OCC by HVPNL
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• Network to be planned for 2 bays.	-	LILO case of 220 kV Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG) is under WTD approval as updated by RVPNL in 195th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	-	RVPNL to update the status
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	One bay 220 kV Manesar (PG)-Panchgaon ckt commissioned on 05.09.2022
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	31.12.2022	Saharanpur(PG)-Devband D/c line expected energization date Dec'22 updated by UPPTCL in 201st OCC
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	Mar'23	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work expected to be completed by March 2023.Updated in 198th OCC by PSTCL.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	-	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is not ready.Updated in 198th OCC by HPPTCL
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC.
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	May'24	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.

2. Establishment of new 400/220kV substations in Northern Region:

Sl. No.	Name of Substation	MVA Capacity	Expected Schedule		Downstream connectivity by States
1	400/220kV Dwarka-I GIS (8 nos. of 220kV bays)	4x 500	Mar'22		DTL to update the status
2	220/66kV Chandigarh GIS (8 nos. of 66kV bays)	2x 160	Apr'22		Chandigarh to update the status.
3	400/220kV Jauljivi GIS Out of these 8 nos. 220kV Line Bays, 4 nos. (Pithoragath-2, & Dhauliganga-2) would be used by the lines being constructed by POWERGRID and balance 4 nos. bays would be used by the lines being constructed by PTCUL.	2x315	Feb'22		• 220kV Almora-Jauljibi line • 220kV Brammah-Jauljibi line PTCUL to update the status of lines.

FGD Status

Updated status of FGD related data submission

NTPC (25.02.2022)
MEJA Stage-I (Updated by UP on 18.06.2022)
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (14.11.2022)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (14.11.2022)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (14.11.2022)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Lalitpur Power Gen. Co. Ltd. (17.10.2022)
Lalitpur TPS
Lanco Anpara Power Ltd. (18.06.2022)
ANPARA-C TPS

HGPCL (14.09.2022)
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS

Adani Power Ltd. (18.02.2022)
KAWAI TPS

Rosa Power Supply Company (18.06.2022)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (17.10.2022)
Prayagraj TPP
APCPL (25.02.2022)
INDIRA GANDHI STPP

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB

NTPC
DADRI (NCTPP)
Talwandi Sabo Power Ltd.
TALWANDI SABO TPP
L&T Power Development Ltd.
Nabha TPP (Rajpura TPP)

Target Dates for FGD Commissioning (Utility-wise)

Adani Power Ltd.	KAWAI TPS U#1 (Target: 31-12-2024), KAWAI TPS U#2 (Target: 31-12-2024)
APCPL	INDIRA GANDHI STPP U#1 (Target: 30-09-2022), INDIRA GANDHI STPP U#2 (Target: 30-09-2022), INDIRA GANDHI STPP U#3 (Target: 30-09-2022)
GVK Power Ltd.	GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020)
HGPCL	PANIPAT TPS U#6 (Target: 30-04-2021), PANIPAT TPS U#7 (Target: 28-02-2021), PANIPAT TPS U#8 (Target: 31-12-2020), RAJIV GANDHI TPS U#1 (Target: 30-04-2022), RAJIV GANDHI TPS U#2 (Target: 28-02-2022), YAMUNA NAGAR TPS U#1 (Target: 31-12-2021), YAMUNA NAGAR TPS U#2 (Target: 31-10-2021)

NTPC	DADRI (NCTPP) U#1 (Target: 31-12-2020), DADRI (NCTPP) U#2 (Target: 31-10-2020), DADRI (NCTPP) U#3 (Target: 31-08-2020), DADRI (NCTPP) U#4 (Target: 30-06-2020), DADRI (NCTPP) U#5 (Target: 30-06-2022), DADRI (NCTPP) U#6 (Target: 30-06-2022), RIHAND STPS U#1 (Target: 30-06-2024), RIHAND STPS U#2 (Target: 30-06-2024), RIHAND STPS U#3 (Target: 31-12-2023), RIHAND STPS U#4 (Target: 31-12-2023), RIHAND STPS U#5 (Target: 30-06-2023), RIHAND STPS U#6 (Target: 30-06-2023), SINGRAULI STPS U#1 (Target: 30-06-2024), SINGRAULI STPS U#2 (Target: 30-06-2024), SINGRAULI STPS U#3 (Target: 30-06-2024), SINGRAULI STPS U#4 (Target: 30-06-2024), SINGRAULI STPS U#5 (Target: 30-06-2024), SINGRAULI STPS U#6 (Target: 31-03-2023), SINGRAULI STPS U#7 (Target: 31-03-2023), UNCHAHAR TPS U#1 (Target: 31-12-2023), UNCHAHAR TPS U#2 (Target: 31-12-2023), UNCHAHAR TPS U#3 (Target: 30-06-2024), UNCHAHAR TPS U#4 (Target: 30-06-2024), UNCHAHAR TPS U#5 (Target: 30-06-2024), UNCHAHAR TPS U#6 (Target: 30-06-2022), MEJA Stage-I U#1 (Target: 31-12-2022), MEJA Stage-I U#2 (Target: 31-03-2023), TANDA Stage-I U#3 (Target:), TANDA Stage-I U#4 (Target:), TANDA Stage-II U#3 (Target: 31-12-2022), TANDA Stage-II U#4 (Target: 31-12-2022)

L&T Power Development Ltd (Nabha)	Nabha TPP (Rajpura TPP) U#1 (Target: 30-04-2021), Nabha TPP (Rajpura TPP) U#2 (Target: 28-02-2021)
Lalitpur Power Gen. Company Ltd.	LALITPUR TPS U#1 (Target: 31-12-2026), LALITPUR TPS U#2 (Target: 30-09-2026), LALITPUR TPS U#3 (Target: 30-06-2026)
Lanco Anpara Power Ltd.	ANPARA C TPS U#1 (Target: 31-12-2023), ANPARA C TPS U#2 (Target: 31-12-2023)
Prayagraj Power Generation Company Ltd.	PRAYAGRAJ TPP U#1 (Target: 31-12-2024), PRAYAGRAJ TPP U#2 (Target: 31-12-2024), PRAYAGRAJ TPP U#3 (Target: 31-12-2024)
PSPCL	GH TPS (LEH.MOH.) U#1 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#2 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#3 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#4 (Target: 31-12-2024), GGSSTP, Ropar U#3 (Target: 31-03-2022), GGSSTP, Ropar U#4 (Target: 31-05-2022), GGSSTP, Ropar U#5 (Target: 31-07-2022), GGSSTP, Ropar U#6 (Target: 30-09-2022)

Rosa Power Supply Company	ROSA TPP Ph-I U#1 (Target: 31-12-2026), ROSA TPP Ph-I U#2 (Target: 31-12-2026), ROSA TPP Ph-I U#3 (Target: 31-12-2026), ROSA TPP Ph-I U#4 (Target: 31-12-2026)
RRVUNL	KOTA TPS U#5 (Target: 31-08-2022), KOTA TPS U#6 (Target: 31-08-2022), KOTA TPS U#7 (Target: 31-08-2022), SURATGARH TPS U#1 (Target: 31-12-2026), SURATGARH TPS U#2 (Target: 31-12-2026), SURATGARH TPS U#3 (Target: 31-12-2026), SURATGARH TPS U#4 (Target: 31-12-2026), SURATGARH TPS U#5 (Target: 31-12-2026), SURATGARH TPS U#6 (Target: 31-12-2026), SURATGARH SCTPS U#7 (Target: 28-02-2025), SURATGARH SCTPS U#8 (Target: 28-02-2025), CHHABRA TPP U#1 (Target: 31-12-2026), CHHABRA TPP U#2 (Target: 31-12-2026), CHHABRA TPP U#3 (Target: 31-12-2026), CHHABRA TPP U#4 (Target: 31-12-2026), CHHABRA SCPP U#5 (Target: 28-02-2025), CHHABRA SCPP U#6 (Target: 28-02-2025), KALISINDH TPS U#1 (Target: 28-02-2025), KALISINDH TPS U#2 (Target: 28-02-2025)
Talwandi Sabo Power Ltd.	TALWANDI SABO TPP U#1 (Target: 28-02-2021), TALWANDI SABO TPP U#2 (Target: 31-12-2020), TALWANDI SABO TPP U#3 (Target: 31-10-2020)
UPRVUNL	ANPARA TPS U#1 (Target: 31-12-2023), ANPARA TPS U#2 (Target: 31-12-2023), ANPARA TPS U#3 (Target: 31-12-2023), ANPARA TPS U#4 (Target: 31-12-2023), ANPARA TPS U#5 (Target: 31-12-2023), ANPARA TPS U#6 (Target: 31-12-2023), ANPARA TPS U#7 (Target: 31-12-2023), HARDUAGANJ TPS U#8 (Target: 31-12-2024), HARDUAGANJ TPS U#9 (Target: 31-12-2024), OBRA TPS U#9 (Target: 31-12-2024), OBRA TPS U#10 (Target: 31-12-2024), OBRA TPS U#11 (Target: 31-12-2024), OBRA TPS U#12 (Target: 31-12-2024), OBRA TPS U#13 (Target: 31-12-2024), PARICHHA TPS U#3 (Target: 30-04-2022), PARICHHA TPS U#4 (Target: 31-12-2024), PARICHHA TPS U#5 (Target: 31-12-2024), PARICHHA TPS U#6 (Target: 31-12-2024)

MIS Report for Status of Islanding Schemes

Implemented Schemes

Sl. No.	Islanding Scheme	SLDC	Status	Submission of Self Certification of Healitheness	SOP	SCADA Display Page	Remarks
1	Delhi IS	Delhi	Implemented	Yes (Sept - 2021)	No	Yes	List of officials in-charge and relays in Delhi IS submitted by DTL on 16.08.2021.
2	NAPS IS	UP	Implemented	Yes (08-10-2021)	Yes	Yes	-
3	RAPS IS	Rajasthan	Implemented	16-Aug-21	Yes	Yes	List of officials in-charge, format for generation, islanding scheme sld and relays in RAPP IS submitted by RVPN on 04.12.2021.

Under Implementation/ Newly Proposed/Under Discussion

Sl. No.	Islanding Scheme	SLDC	Status	Details of progress	DPR for PSDF funding (Required /	Timelines Status - Proposed/Actual									
						Study		Design		Approval		Procurement		Commissioning	
						Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual
1	Lucknow-Unchahar IS	UP	Under Implementation	Scheme has been approved in 59th NRPC meeting held on 31.10.2022.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Newly Proposed	UP has placed offer to CPRI for dynamic study in July, 2022. The estimated time of study is 5 months from date of acceptance.		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Newly Proposed	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Scheme implementation timeline: July,2023	-	-		-	-	-	-	-	-	-	-
4	Patiala-Nabha Power Rajpura IS	Punjab	Newly Proposed	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. SCADA display implementation timeline: Dec, 2022; Scheme implementation timeline: July,2023		-		-	-	-	-	-	-	-	-
5	Pathankot-RSD IS	Punjab	Newly Proposed	Scheme has been approved in 60th NRPC meeting held on 30.11.2022.. SCADA display as well as scheme implementation timeline: Dec, 2022		-		-	-	-	-	-	-	-	-
6	Talwandi Sabo IS	Punjab	Newly Proposed	Punjab has submitted islanding scheme on 12.07.2022 which has been examined. Punjab has been requested for clarification on few points. However, reply is awaited. However, tentative timeline intimated by Punjab is 2 years to implement TSPL islanding Schemes as some changes in downstream network is under planning phase.		-		-	-	-	-	-	-	-	-
7	Dehradun IS	Uttarakhand	Newly Proposed	Uttarakhand has submitted feasibility report of Dehradun IS vide letter dated 07.10.2022 whcih was deliberated in 200 th OCC meeting. A group of NRLDC and UK SLDC to be constituted for examining feasibility report. Nomination received only from NRLDC		-	-	-	-	-	-	-	-	-	-
8	Jammu-Salal IS	J &K	Under Discussion	No proposal submitted by J&K.		-	-	-	-	-	-	-	-	-	-
9	Suratgarh IS	Rajasthan	Under Discussion	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. SCADA display implementation timeline: Dec, 2022; Scheme implementation timeline: July,2023	-	-		-	-	-	-	-	-	-	-
10	Chamba-Chamera IS	HP	Withdrawn	Scheme has been withdrawn by HPSLDC in meeting dtd. 15/07/2022.		-	-	-	-	-	-	-	-	-	-
11	Kangra-Chamba-Bairasuil IS	HP	Withdrawn	Scheme has been withdrawn by HPSLDC in meeting dtd. 15/07/2022.		-	-	-	-	-	-	-	-	-	-
12	Kullu-Dehar IS	HP	Withdrawn	HP has withdrwan this scheme and has proposed Kullu-Manali-Mandi islanding scheme, and Shimla-Solan Islanding scheme in meeting dtd. 15/07/2022.		-	-	-	-	-	-	-	-	-	-
13	Kullu-Manali-Mandi IS	HP	Newly Proposed	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Timeline to be intimated by HPSLDC											
14	Shimla-Solan IS	HP	Newly Proposed	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Timeline to be intimated by HPSLDC											
13	Butari-Jamsher-Verpal IS	Punjab	Under Discussion	No proposal submitted by Punjab.		-	-	-	-	-	-	-	-	-	-
14	Kargil-Ladakh IS	Ladakh	Under Discussion	No proposal submitted by J&K.		-	-	-	-	-	-	-	-	-	-

Annexure-A.III

उत्तर प्रदेश राज्य भार प्रेषण केन्द्र
उ0प्र0पॉवर ट्रांसमिशन कारपोरेशन लि0
(उत्तर प्रदेश सरकार का उपक्रम)
यू0पी0एस0एल0डी0सी0 परिसर, विभूति खण्ड–II
गोमती नगर, लखनऊ–226010
ई–मेल : cepso@upsldc.org
sera@upsldc.org

U.P. State Load Despatch Centre
U.P. Power Transmission Corporation Ltd.
(A U.P. Govt. Undertaking)
UPSLDC Complex, Vibhuti Khand – II
Gomti Nagar, Lucknow- 226010
E-mail: cepso@upsldc.org
sera@upsldc.org

No: - 3509 /CE (PSO)/SE(R&A)/EE-II/Islanding Dated: - 08-12- 2022

Member Secretary, NRPC,
18 – A, SJSS Marg, Katwaria Sarai,
New Delhi, 110016.

Subject-Agenda regarding Unchahar Islanding Scheme

It is to inform you that a committee to review the progress of implementation of Unchahar and Agra Islanding Scheme has been constituted by Director (Operation), UPPTCL. The first meeting of the committee was held on 03.12.2022. In the said meeting, it was decided that it would be appropriate that UFRs to be installed at NTPC Unchahar and PGCIL end be installed and maintained by respective entity.

It is therefore, requested to include this issue in the agenda of 202nd OCC meeting of NRPC so that the same may be discussed with NTPC Unchahar and PGCIL in the next OCC meeting of NRPC.

(Emaduddin Khan)
Chief Engineer (PSO)

No: - 3509 /CE (PSO)/SE(R&A)/EE-II/Islanding Dated: - 08-12- 2022

Copy forwarded to following for kind information and necessary action:-

1. Director, UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.
2. Director (Operation), UPPTCL, 11th Floor, Shakti Bhawan Extn., Lucknow.
3. Superintending Engineer (System Control), UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow **(via -email).**

(Emaduddin Khan)
Chief Engineer (PSO)

Annexure-A.IV

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

Ref:- N1/AM/

Date:- 1st December'2022

Member Secretary (NRPC),
18-A, Shaheed Jeet Singh Sansanwal Marg,
Katwaria Sarai, New Delhi - 110016

Subject:- **Regularization of shutdown of 765KV S/C Moga -Bhiwani line taken for diversion work on request of M/s Northern Railways for construction of New Railway line in Meham – Hassi section by them.**

Sir,

This has reference to shutdown of 765KV Moga – Bhiwani line taken for diversion work on request of M/s Northern Railways for construction of New Railway line in Meham – Hassi section by them.

		From	To
a)	765KV S/C Moga – Bhiwani	10:37Hrs of 18-10-2022	17:53Hrs of 17-11-2022

For said diversion work, the shutdown of 765KV Moga-Bhiwani line was approved in 199th & 200th OCC meeting for 15 days in the month of Oct'22 and Nov'22. However, the work could not be completed within approved time frame due to following unforeseen reasons which were beyond the control of POWERGRID:

a) For shifting of line from existing tower location nos. #131 to 132, 04nos. new towers were envisaged in the vicinity of existing of line. Due to bad weather & high induction, 02 out of 04no. towers were erected during line shutdown.

b) The erection work of 02nos. towers got hamper due to heavy rain in 1st week of Oct'2022 in and around the said area, which result the water logging on filed. Therefore, POWERGRID could not deploy the crane for easy & fast erection of towers and we were forced to erect the towers manually. This took almost 1 more week in tower erection.




Photographs of filed

c) The unforeseen ROW issue created by farmers from 19th Oct'22 to 22nd Oct'22. The issue was resolved after series of meeting with farmers and after intervention of gram Pradhan. This resulted no work almost 04days. Letter dt. 19th Oct'22 & 25th Oct'22 written to M/s Railway to resolve the ROW issue are placed in file at **Annexure-'A'.**

d) Subsequently, after erection of towers, for stringing/destringing work, the shutdown of 33kV feeder of DHBVN was requested from 07th Nov'22 to 10th Nov'22. The shutdown of 33kV feeder was not provided 08th Nov'22 onward by state board despite of various meetings with concerned authority in view of VVIP visit in nearby area. The shutdown was provided on 15th Nov'2022 after lots of deliberation. Letter dt. 07th Nov'22 & 11th Nov'22 written to M/s DHBPN on the matter are placed in file at **Annexure-'B'.**

The work was finally completed on 15th Nov'22. The line was taken in service at 17:53Hrs of 17th Nov'22 after receipt of requisite CEA and PTCC clearance.

The same is summarized as under:

Sl. No.	Description	Time taken more than estimated time
i)	Erection of02nos. towers manually	Almost 7 days
ii)	ROW issue by farmer	4 days
iii)	Non-allowance of shutdown by M/s DHBPN for 33KV line	6 days
iv)	CEA & PTCC clearance	2 days
		Almost 19 days

In view of above, it is requested to kindly regularize the said outage of 400KV Moga – Bhiwani line taken for diversion work on request of M/s Northern Railways for construction of New Railway line in Meham – Hassi section by them and it is also requested to kindly consider this outage as deemed available while calculating the monthly transmission system availability of Oct'22 and Nov'22 by NRPC for POWERGRID.

Thanking your with reagrds,

01/12/2022

(A. K. Behera)
Chief GM(AM), NR1

Copy for kind information please :-

i) ED, NR1
ii) ED(AM), CC

पावरग्रिड कार्पोरेशन ऑफ इंडिया लिमिटेड

पावरग्रिड
POWERGRID

POWERGRID CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
400/220 केवी उपकेन्द्र हिसार (हरियाणा)- 125044
400/220 KV Sub-Station Hisar (Haryana) - 125044
दूरभाष PHONE: +918295903705

CIN: L40101DL1989GOI038121

Speed Post/email

Ref: NHS/ TL/ 2022-23/80

Date: 19.10.2022

To,

Deputy Chief Electrical Engineer,
Shivaji Bridge,
Northern Railway
New Delhi.

Name of work: Diversion of Powergrid 765 KV, S/C Bhiwani-Moga transmission line due to Rohtak-Maham- Hansi new railway project.

Subject: Solving of ROW issue at AP2 loc-regarding.

Dear Sir,

It is to inform you that some farmers at sites are creating hinderance at site. The above have resulted RoW issue. The above has also been communicated to your representative over phone.

For completion of work, RoW issue need to be resolved immediately. We are making efforts and various meetings are arranged with farmers.

Your help is required in resolving the issue. Please depute your representative to site for helping the issue get resolved.

Thanking you.

Dinesh Chandra Nainwal
DGM, Hisar

पावरग्रिड कार्पोरेशन ऑफ इंडिया लिमिटेड

पावरग्रिड
POWERGRID

POWERGRID CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
400/220 केवी उपकेन्द्र हिसार (हरियाणा)- 125044
400/220 KV Sub-Station Hisar (Haryana) - 125044
दूरभाष / PHONE: +918295903705

CIN: L40101DL1989GOI038121

Speed Post/email

Ref: N1HS/TL/2022-23/80

Date: 25.10.2022

To

Deputy Chief Electrical Engineer,
Shivaji Bridge,
Northern Railway
New Delhi.

Subject: Diversion work of 765 KV, S/C Bhiwani-Moga transmission line due to Rohtak-Maham-Hansi new railway project.

Dear Sir,

In reference to above subject work, it is to inform you that shut down for the line has been taken from 18.10.2022 and work is going on full swing at site and approx. 100 numbers have been deployed by working agency. The work of 02 numbers tower erection below the line has started. After completion of the erection, stringing and dismantling work will be started. As already communicated, some farmers in the foundation number AP02 are creating ROW issue the issue has been resolved now. Further, work was also disrupted due discharge of water at working site by some farmer at night.

Further, to avoid future RoW issue your help will be required and we will request you to deploy your representative at site so that RoW, if arises can be addressed suitably to avoid intermittent disruption in work progress.

Thanking you.

Dinesh Chandra Nainwal
DGM, Hisar

cc: 1) CGM ASM RNS
2) Sr GM Sonipat
3) Sr GM ASM RNS

पावरग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उपक्रम)
POWERGRID CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
400/220 केवी उपकेन्द्र हिसार (हरियाणा)- 125044
400/220 KV Sub-Station Hisar (Haryana) - 125044
दूरभाष / PHONE +918295903705
CIN: L40101DL1989GOI038121

Ref: NHS/TL/Diversion/2022-23/09

Date: 07.11.2022

To,

Executive Engineer
DHBVN, Hansi

Subject: Regarding the shut-down/permit on 33KV Badsi-Mundhal Feeder.

Dear Sir,

Our railway diversion work is in progress. At tower no AP3, DHBVN 33 KV Badsi-Mundhal feeder is passing. We require s/d of said feeder for on 07.11.2022 to 10.11.2022 for de-stringing/dismantling of conductor in span 331-332 on continuous basis.

Please provide s/d of said feeder.

Thanking you.

Deepak Kumar
Engineer
दीपक कुमार / DEEPAK KUMAR
अभियंता / Engineer-16717
पावरग्रिड हिसार / POWERGRID, HISAR

CC: 1. DGM, Hisar

Endst. no CH-162 HDM dt 7-11-2022

Copy of the above forwarded to SDO of Dhbvn mundhal for information and Taking action in the matter as desired

Xen of Dhbvn Hansi

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)
400/220KV Sub Station, NH-9, VPO-Mayyar, Hisar-125044 (Haryana)
Contact No.: 8295903705 | CIN No. L40101DL1989GOI038121

Ref: NHIS/TL/Diversion/2022-23/101/1011 Date: 11.11.2022

To

Executive Engineer
DHBVN, Hansi

Subject: Regarding the shut-down/permit on 33KV Badsi-Mundhal Feeder for diversion work of 765 KV S/C Bhiwani-Moga TL.

Dear Sir

This has reference to our letter dated 07.11.2022 and various communication/meetings requesting shutdown of your 33kV Badsi-Mundhal feeder during day time for the period 07.11.2022 to 10.11.2022, required for diversion of 765 KV S/C Bhiwani-Moga Transmission Line. As per our request shutdown was provided on 07.11.2022. On the next day shutdown was provided around 4:00 PM and was taken back at 6:30 PM assuring that it will be arranged on 09.11.2022. However, shut down of 33kV feeder was not provided from 09.11.2022 onward because of which the diversion work is withheld.

The diversion of this line is taken on the request of Northern Railway and diversion work is being monitored by the higher authority on regular basis. The subject 765kV line is very critical for bulk transfer of power and shutdown of same was provided by RPC after several request of POWERGRID and Northern Railway.

Sir, as you are aware this diversion work is going on from last couple of days and is about to complete. Without arranging shutdown of 33 KV Badsi-Mundhal feeder destringing and stringing work cannot be taken up and work of diversion will remain uncompleted.

You are therefore, once again requested to arrange shut down of 33 KV Badsi-Mundhal feeder so that held up diversion work of 765kV Moga-Bhiwani may be completed at the earliest.

Thanking you.

[illegible]
Dinesh Chandra Nainwal, DGM
Dy. General Manager
Powergrid Corporation of India Ltd
400/220 KV S/S
Delhi-Hisar NH-9 VPO Mayar
Hisar (HR) - 125044

Encl: - 4 Pg

S.NO	BAY NAME	Bay No	Name of Elements	Requested time Schedule for CB DO (Remote operation) checking by OEM through SCADA (PPGCL permission required)	Remarks
1	ICT-1	BAY701	701 MAIN BAY - 765KV BUS 2 AT BARA AND 1500MVA ICT AT 765 KV BARA	03-01-2023 (10:00 to 10:15) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
2	TIE-1	BAY702	702 TIE BAY - 765/21 KV 825 MVA GT-1 AT BARA AND 1500MVA ICT AT 765 KV BARA	03-01-2023 (10:15 to 10:30) hrs	During Tie Breaker Opening power evacuation will be through Main Breaker
3	GT-1	BAY703	703 MAIN BAY - 765/21 KV 825 MVA GT 1 AT BARA	03-01-2023 (10:30 to 10:45) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
4	ICT-2	BAY704	704 MAIN BAY - 765KV BUS 2 AT BARA AND FUTURE AT 765 KV BARA	03-01-2023 (10:45 to 11:00) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
5	TIE-2	BAY705	705 TIE BAY - 765/21 KV 825 MVA GT 2 AT BARA AND FUTURE AT 765 KV BARA	03-01-2023 (11:00 to 11:15) hrs	During Tie Breaker Opening power evacuation will be through Main Breaker
6	GT-2	BAY706	706 MAIN BAY - 765/21 KV 825 MVA GT 2 AT BARA	03-01-2023 (11:15 to 11:30) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker

7	**MAINPURI L-2**	BAY707	**707 MAIN BAY - 765KV BUS 2 AT BARA AND 765KV MAINPURI CKT-II AT 765 KV BARA**	03-01-2023 (11:30 to 11:45) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
7	**MAINPURI LR-2**	BAY707LR		03-01-2023 (11:45 to 12:00) hrs	During Tie Breaker Opening power evacuation will be through Main Breaker
8	**TIE-3**	BAY708	**708 TIE BAY - 240 MVAR BUS REACTOR AT 765KV BARA AND 765KV MAINPURI CKT-II AT 765 KV BARA**	03-01-2023 (12:00 to 12:15) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
9	**BR**	BAY709	**709 MAIN BAY - 240 MVAR BUS REACTOR AT 765KV BARA**	03-01-2023 (12:15 to 12:30) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
10	**MAINPURI L-1**	BAY710	**710 MAIN BAY - 765KV BUS 2 AT BARA AND FUTURE AT 765 KV BARA**	03-01-2023 (14:30 to 14:45) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
11	**TIE-4**	BAY711	**711 TIE BAY - 765/21 KV 825 MVA GT-3 AT BARA AND FUTURE AT 765 KV BARA**	03-01-2023 (14:45 to 15:00) hrs	During Tie Breaker Opening power evacuation will be through Main Breaker
12	**GT-3**	BAY712	**712 MAIN BAY - 765/21 KV 825 MVA GT-3 AT BARA**	03-01-2023 (15:00 to 15:15) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker

15	**ICT#2**	BAY 402	**402- 1500MVA FUTURE ICT-2 BAY**	03-01-2023 (15:15 to 15:30) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
16	**TIE**	BAY 403	**403- TIE BAY FUTURE ICT-2 BAY**	03-01-2023 (15:30 to 15:45) hrs	During Tie Breaker Opening power evacuation will be through Main Breaker
18	**ICT#1**	BAY 405	**405- 1500MVA ICT-1 BAY**	03-01-2023 (15:45 to 16:00) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
19	**TIE**	BAY 406	**406-TIE BAY-STARTUP TRANSFORMER 75MVA 400KV/11KV/33KV / 1500MVA ICT-1 BAY**	03-01-2023 (16:00 to 16:15) hrs	During Tie Breaker Opening power evacuation will be through Main Breaker
20	**STRT TRF**	BAY 407	**407-MAIN BREAKER 400KV BUS-A ,75MVA STARTUP TANSFORMER**	03-01-2023 (16:15 to 16:30) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
21	**BARA - MEZA L-1**	BAY 408	**408- BARA MEJA LINE-1 MAIN BUS-2 400KV**	03-01-2023 (16:30 to 16:45) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
22	**TIE**	BAY 409	**409- TIE BREAKER 400KV BARA-MEJA LINE-1 / BUS REACTOR 125MVAR**	03-01-2023 (16:45 to 17:00) hrs	During Tie Breaker Opening power evacuation will be through Main Breaker
23	**BR**	BAY 410	**410- CIRCUIT BREAKER 400KV BUS-1 BUS REACTOR 125MVAR**	03-01-2023 (17:00 to 17:15) hrs	During Main Breaker Opening power evacuation

					will be through Tie Breaker
24	**BARA - MEZA L-2**	BAY 411	**411- BARA MEJA LINE-2 400KV BUS-2**	03-01-2023 (17:15 to 17:30) hrs	During Main Breaker Opening power evacuation will be through Tie Breaker
25	**TIE**	BAY 412	**412- TIE BREAKER 400KV BARA-MEJA LINE-2**	03-01-2023 (17:30 to 17:45) hrs	During Tie Breaker Opening power evacuation will be through Main Breaker

CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 156/MP/2022

Subject : Petition under Sections 28(1), 28(3) and 29 of the Electricity Act, 2003 read with Regulation 1.5(i), 2.3, 5.2(m) and 5.4.2 of Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (as amended) in the matter of dealing with over drawal from grid by the regional entities leading to insecure operation of the grid and other associated matters.

Petitioner : Northern Regional Load Despatch Centre (NRLDC)

Respondents : SLDC, Haryana Vidyut Prasaran Nigam Ltd. and 14 Ors.

Petition No. 68/MP/2022

Subject : Petition under Sections 28(1), 28(3), 29 of the Electricity Act, 2003 read with Regulation 2.3 of Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (as amended) in the matter of dealing with over drawal from the grid by regional entities leading to insecure operation of the grid and other associated matters.

Petitioner : Western Regional Load Despatch Centre (WRLDC)

Respondents : Gujarat Urja Vikas Nigam Ltd. and 8 Ors.

Petition No. 132/MP/2022

Subject : Petition under Sections 28(1), 28(3) and 29 of the Electricity Act, 2003 read with Regulation 1.5(i), 2.3, 5.2(m) and 5.4.2 of Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (as amended) in the matter of dealing with over drawl from the grid by regional entities leading to insecure operation of the grid and other associated matters.

Petitioner : Southern Regional Load Despatch Centre (SRLDC)

Respondents : Andhra Pradesh State Load Despatch Centre and 3 Ors.

Date of Hearing : 29.11.2022

Coram : Shri I. S. Jha, Member
Shri Arun Goyal, Member
Shri P. K. Singh, Member

Parties Present : Shri Aditya Das, WRLDC
Shri Ashok Rajan, WRLDC
Shri Alok Mishra, WRLDC
Shri Gajendra Sinh Vasava, WRLDC
Ms. Anisha Chopra, NRLDC
Shri Sheikh Shadruddin, NRLDC

Shri Prashant Garg, NRLDC
Shri Venkateshan M, SRLDC
Shri Nadim Ahmad, SRLDC
Ms. Swapna Seshadri, Advocate, Gujarat SLDC
Shri Amal Nair, Advocate, PSTCL
Ms. Sugandh Khanna, Advocate, PSTCL
Ms. Kritika Khanna, Advocate, PSTCL
Shri Anup Jain, Advocate, MSEDCL
Shri Akshay Goel, Advocate, MSEDCL
Shri Divyanshu Bhatt, Advocate, UP SLDC
Shri Pratap, UPSLDC
Ms. Sakie Jakharia, Advocate, NTPC
Ms. Sinal Anand, Advocate, SLDC PTCUL
Shri M. G. Ramachandran, Sr. Advocate, RRVPN
Ms. Poorva Saigal, Advocate, RRVPN
Shri Shubham Arya, Advocate, RRVPN
Shri Ravi Nair, Advocate, RRVPN
Ms. Shikha Sood, Advocate, RRVPN
Ms. Reeha Singh, Advocate, RRVPN
Shri Anurag Kulharia, Advocate, HVPNL
Shri Rajesh Sheoran, Advocate, HVPNL
Shri Surender Saklani, HPSLDC
Shri Abhimanyu, HPSLDC
Shri Sidhant Kumar, Advocate, APSLDC
Ms. Manya Chandok, Advocate, APSLDC
Shri Gurpreet Singh Bagga, Advocate, APSLDC
Shri S Vallinayagam, Advocate, TANTRANSCO
Ms. Kajal Singhal, Advocate, TANTRANSCO

Record of Proceedings

During the course of the hearing, the representatives of the Petitioners pointed out the number of instances when the over-drawal status was not changed to under-drawal by the Constituents after the issuance of over-drawal messages by the Petitioners (including when the frequency was below 49.85 Hz) to Northern Region (from 1st March – 24th to April, 2022), Southern Region (from 1st February 2022 to 20th April 2022) and Western Region (from 15th August 2021 to 13th October 2021) and Western Region (from 1st March to 24th April, 2022) thereby constituting the repeated non-compliance of the instructions issued by the Petitioners. The representatives of the Petitioners further submitted that on many occasions the Petitioners also had to take emergency physical regulatory measures such as the opening of identified radial feeds to contain the over-drawal and to restore the grid frequency within the safe operating limits.

2. In response, learned senior counsel and learned counsels appearing on behalf of the various Respondents made their respective submissions, *inter-alia*, pointing out the measures/actions taken by them upon receiving the instructions from RLDCs, consequent reduction in the over-drawals, reasons for over-drawal and issuance of necessary instructions to the State constituents for reduction of demand/load, etc.

3. After hearing the learned senior counsel and learned counsel for the parties, the Commission directed the Petitioner to convene a meeting with the SLDCs of the concerned region and to prepare a State-wise report *inter-alia* including the actions measures to be taken by the concerned SLDCs at the State level in the event of over-drawals at the lower frequencies after having the detailed discussions/consultations in this regard and file a report within fifteen days thereafter. A meeting with the staff of the Commission, if required, be also convened subsequently.

4. Considering the request of the learned senior counsel, learned counsels and representative of the Respondents, the Commission permitted the Respondents to file their reply/response to the Petitions, if any, within three weeks with copy to the Petitioners, who may file their rejoinder thereof, if any, within two weeks thereafter.

5. Subject to the above, the orders were reserved in the matters.

By order of the Commission

Sd/-
(T.D. Pant)
Joint Chief (Law)

National Load Despatch Centre
Import Capability of Uttar Pradesh for January 2023

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st January 2023 to 31st January 2023	00-24	15100	600	14500	8420	6080		https://www.upsldc.org/documents/20182/0/ttc_atc_24-11-16/4c79978e-35f2-4aef-8c0f-7f30d878dbde
Limiting Constraints		N-1 contingency of 400/220kV Azamgarh, Obra, Mau, Sohawal (PG), Gorakhpur (UP), Sarnath, Lucknow (PG) ICTs						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of Rajasthan for January 2023

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st January 2023 to 31st January 2023	00-24	7600	600	7000	3400	3600		https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
Limiting Constraints		N-1 contingency of 400/220kV Chittorgarh, Jodhpur, Bikaner, Ajmer, Merta and Bhinmal ICTs						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of Haryana for January 2023

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st January 2023 to 31st January 2023	00-24	9100	600	8500	3000	5500		https://hvpn.org.in/#/atcttc
Limiting Constraints	N-1 contingency of 400/220kV ICTs at Deepalpur, Panipat(BBMB) and Kurukshetra(PG)							

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of Delhi for January 2023

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st January 2023 to 31st January 2023	00-24	7100	300	6800	4150	2650		https://www.delhisldc.org/resources/atcttcreport.pdf
Limiting Constraints	N-1 contingency of 400/220kV Mundka, HarshVihar and Mandola ICTs.							

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of HP for January 2023

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st January 2023 to 31st January 2023	00-24	1400	100	1300	1400	-100		https://hpsldc.com/mrm_category/ttc-atc-report/
Limiting Constraints		N-1 contingency of 400/220kV Nallagarh ICTs. High loading of 220kV Nallagarh-Upernangal D/C and 220kV Hamirpur-Hamirpur D/C						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

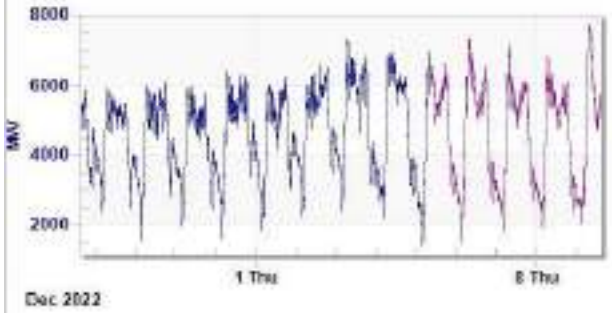
National Load Despatch Centre
Import Capability of Uttarakhand for January 2023

Issue Date: - Issue Time: 1600 Revision No. 0

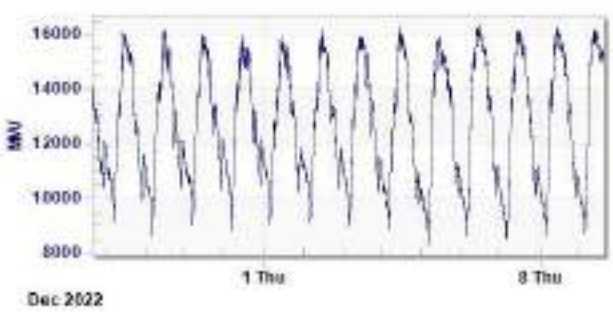
Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st January 2023 to 31st January 2023	00-24	1700	100	1600	1020	580		- http://uksldc.in/transfer-capability
Limiting Constraints		N-1 contingency of 400/220kV Kashipur ICTs. High loading of 220kV Roorkee-Roorkee and 220kV CBGanj-Pantnagar lines						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

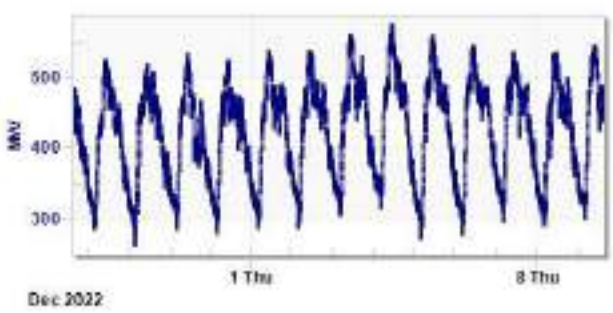
Rajasthan import



Rajasthan Load



Ajmer ICT loading



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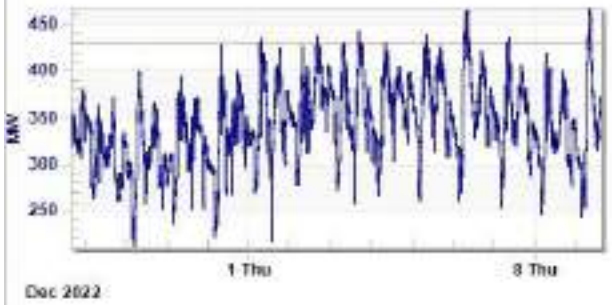
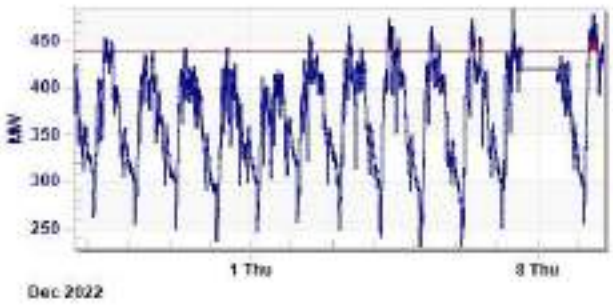


Merta ICT loading



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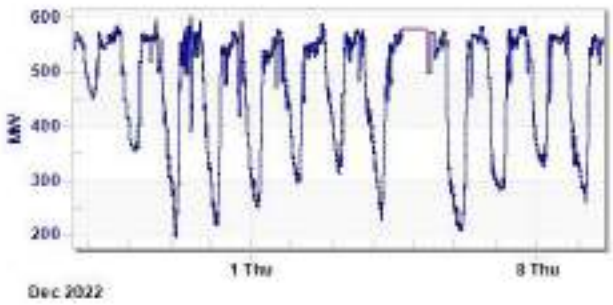

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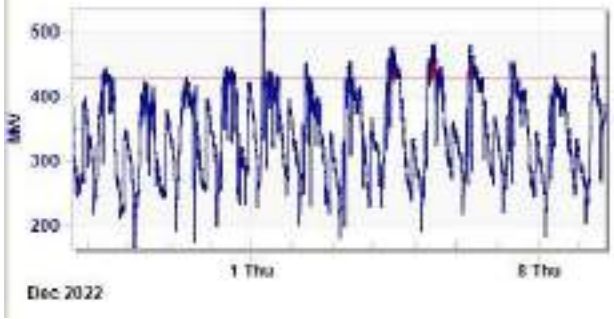

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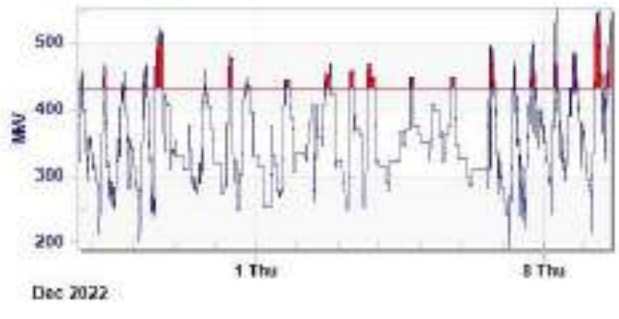
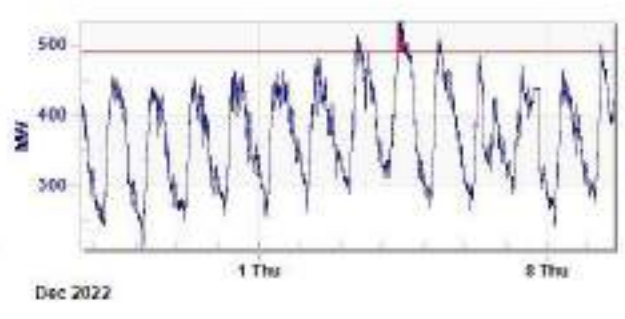
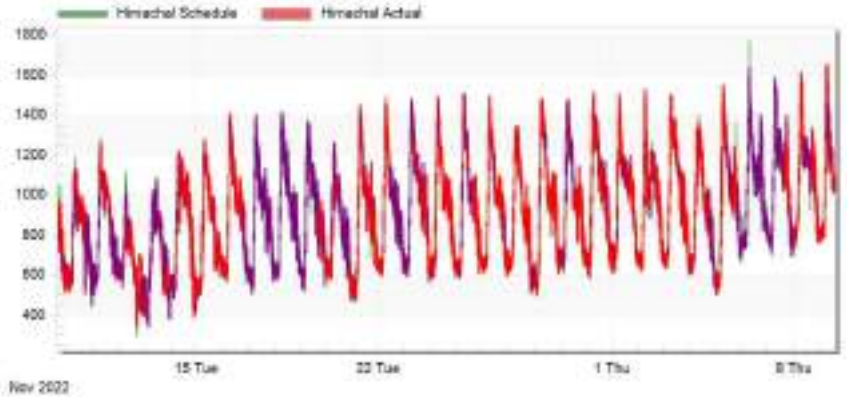
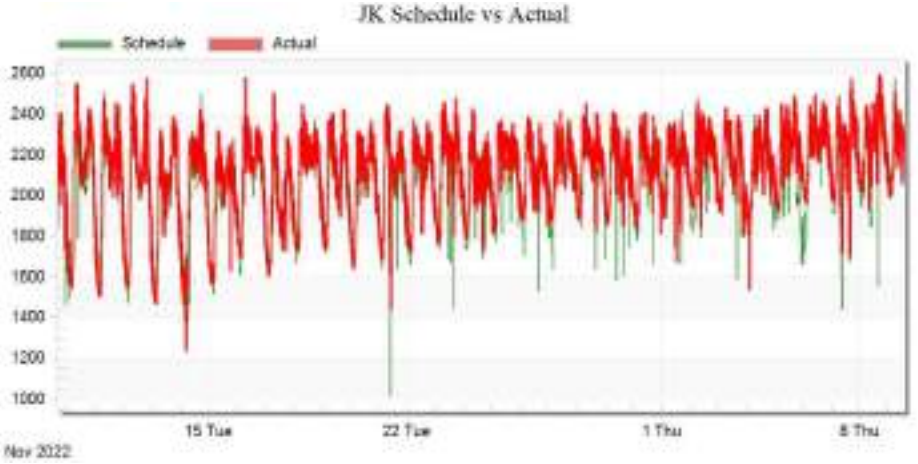


Bhilwara ICT loading




Himachal Schedule
Himachal Actual
1800
1600
1400
1200
1000
800
600
400
15 Tue
22 Tue
1 Thu
8 Thu
Nov 2022


JK Schedule vs Actual
Schedule
Actual
2600
2400
2200
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1600
1400
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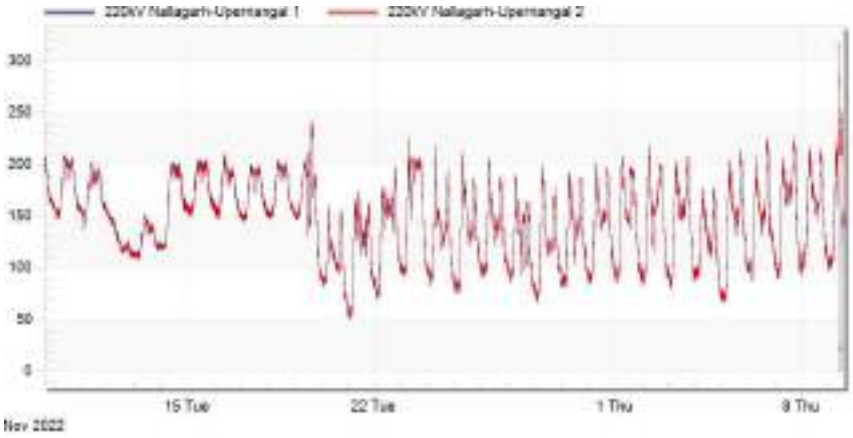
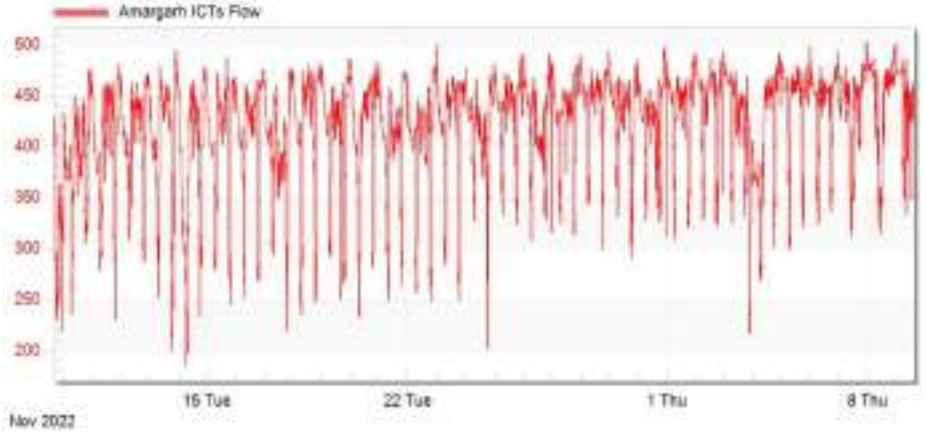
15 Tue
22 Tue
1 Thu
8 Thu
Nov 2022


220KV Nallagarh-Upernangal 1
220KV Nallagarh-Upernangal 2
300
250
200
150
100
50
0
15 Tue
22 Tue
1 Thu
8 Thu
Nov 2022


Amargarh ICTs Flow
500
450
400
350
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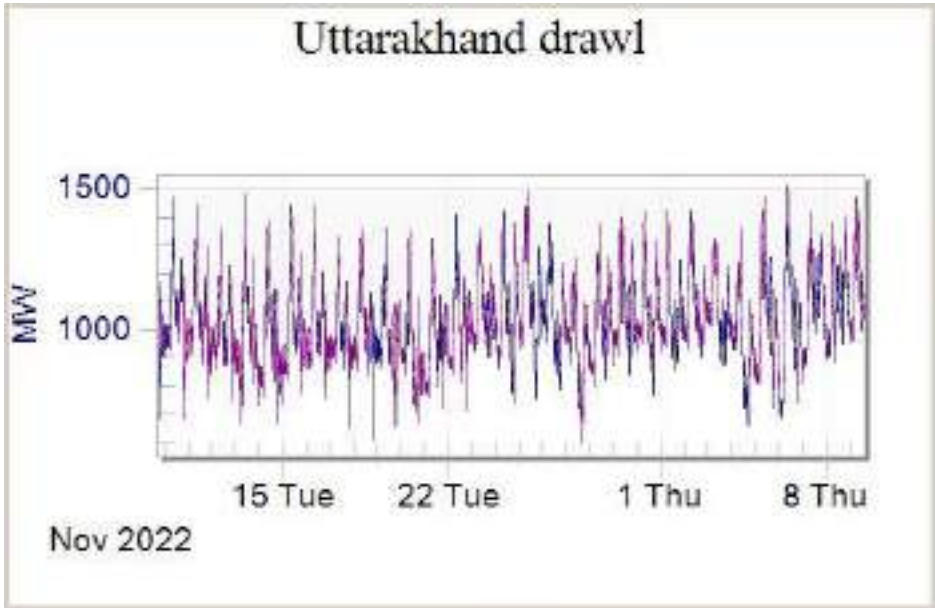
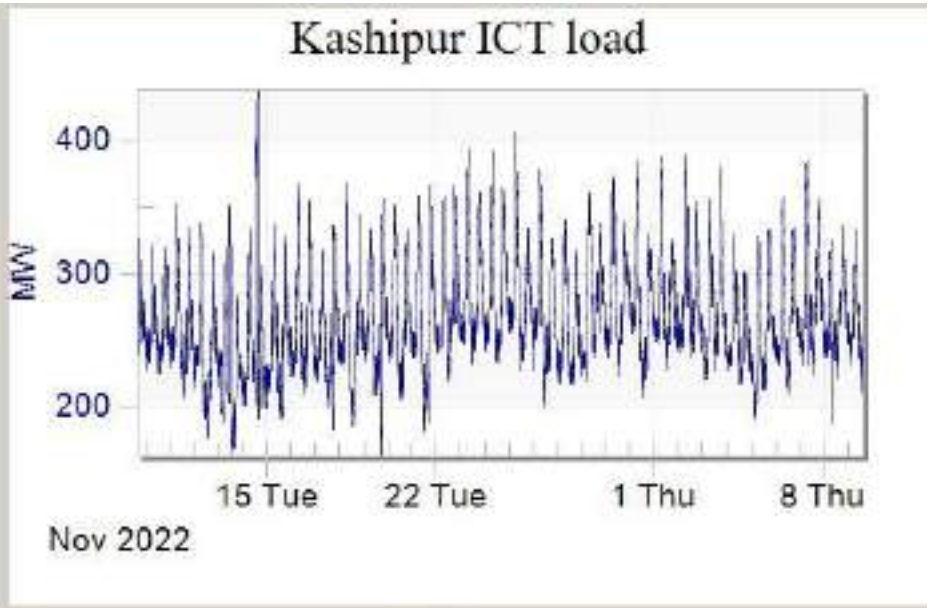
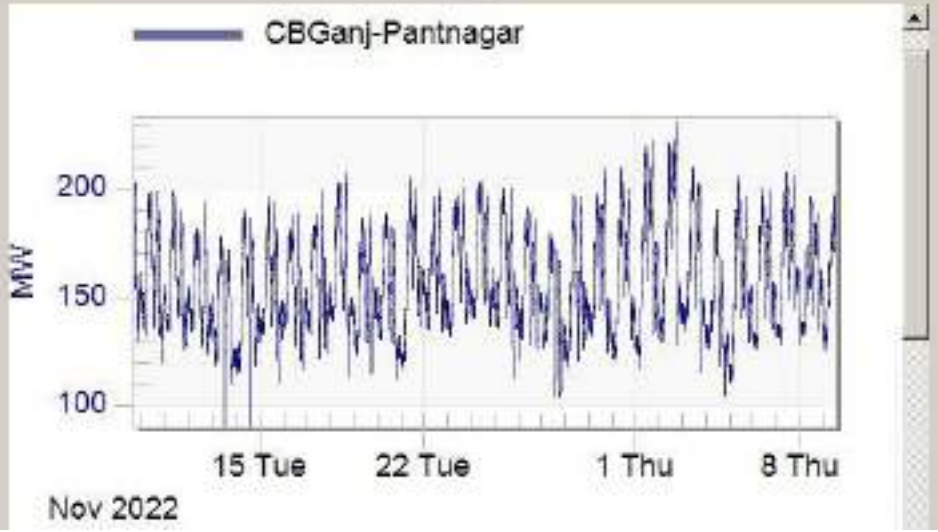
250
200
15 Tue
22 Tue
1 Thu
8 Thu
Nov 2022


Uttarakhand drawl
1500
1000
MW
15 Tue
22 Tue
1 Thu
8 Thu
Nov 2022


Kashipur ICT load
400
300
200
MW
15 Tue
22 Tue
1 Thu
8 Thu
Nov 2022


CBGanj-Pantnagar
200
150
100
MW
15 Tue
22 Tue
1 Thu
8 Thu
Nov 2022

Sr No	Element Name	Outage Date	Outage Time	Reason
1	400 KV Bareilly-Unnao (UP) Ckt-1	07-Nov-22	03:55	B-N fault, Zone-1, Dist. 34.5km, Fault current 9.35kA from Unnao(UP) & Zone-2, Dist. 225.76km, Fault current 1.65kA from Bareilly. As per PMU, B-N fault occurred and delayed clearance of 560ms with no auto-reclosing observed.
		17-Nov-22	00:12	Y-N Fault, Zone-2, Dist. 246.1km, Fault current 2.01kA from Unnao. Line tripped from Unnao end and remain charged from Bareilly end. As per PMU, Y-N fault occurred and delayed clearance of 400ms with no auto-reclosing observed.
		22-Nov-22	21:37	Y-N Fault, Zone-1, Dist. 219.4km, Fault current 2.25kA from Unnao(UP). As per PMU, Y-N fault occurred and delayed clearance of 160ms with no auto-reclosing observed.
		28-Nov-22	19:49	B-N fault, Dist. 203.3km, Fault current 2.47kA from Bareilly & Dist. 63.6km, Fault current 6.08kA from Unnao. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
2	400 KV Gr.Noida_2(UPC)-Gr.Noida(UPC) (UP) Ckt-2	03-Nov-22	20:38	R-N Fault, Fault current 12.05kA, Dist. 19.51km, Zone-1 from Gr. Noida(UP). As per PMU, R-N fault occured, no auto-reclosing observed.
		27-Nov-22	06:26	B-N Fault, Dist. 36km, Fault current 3.21kA from Gr. Noida end. As per PMU, B-N fault occured, no auto-reclosing observed.
		28-Nov-22	05:25	B-N fault, Dist. 6.503km, Fault current 21.19kA from Gr. Noida. As per PMU, B-N fault occured, no auto-reclosing observed.
3	400/220 kV 315 MVA ICT 2 at Hindaun(RS)	17-Nov-22	13:06	Tripped on OVER LOADING protection due to tripping of 220 KV Dausa-Sikrai line (Distance Relay maloperation)
		17-Nov-22	14:43	Tripped on OVER LOADING protection due to tripping of 220 KV Dausa-Sikrai line (Distance Relay maloperation)
		29-Nov-22	02:10	Tripped due to mal-operation of master trip relay 86B. As per PMU, No fault observed.

Annexure-B.V

Grid Event summary for November 2022

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Outage Duration (hh:mm)	Event (As reported)	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)	Preliminary Report receipt status			DR/EL receipt status			Detailed Report receipt status	
					Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		within 24hrs	after 24hrs	Not Received	within 24hrs	after 24hrs	Not Received	Received	Not Received
1	GD-1	1) 220KV Amargarh(INDIGRID) – Zainkote(JK)(PDD JK) ckt 1 2) 220KV Amargarh(INDIGRID) – Zainkote(JK)(PDD JK) ckt 2	J&K	JKPTCL	3-Nov-22	13:02	3-Nov-22	14:07	01:05	1. During antecedent condition, 220KV Amargarh(INDIGRID) – Zainkote(JK)(PDD JK) ckt-1 & ckt-2 were carrying ~185MW each. 2. As reported at 13:02 hrs, 220KV Amargarh(INDIGRID) – Zainkote(JK)(PDD JK) ckt 2 tripped on B-N phase to earth fault, fault distance was ~13.39km from Zainkote end. At the same time, 220KV Amargarh(INDIGRID) – Zainkote(JK)(PDD JK) ckt 1 also tripped from Amargarh end only. 3. As per PMU, B-N phase to earth fault which cleared within 120ms is observed. 4. As per SCADA, change in load of approx. 315MW occurred in J&K control area.	0	0.341	0	315	0.000	0.676	42903	46574	120		Y(INDIGRID) Y(J&K)			Y(INDIGRID) Y(J&K)		Y(INDIGRID)	Y(J&K)
2	GI-2	1) 800 KV HVDC Kurukshetra(PG) Pole-03 2) 800 KV HVDC Kurukshetra(PG) Pole-04	Haryana	POWERGRID	4-Nov-22	13:38	4-Nov-22	14:25	00:47	1. During antecedent condition, 800 KV HVDC Kurukshetra(PG) bipole-1 was not in operation and Bipole-2 was carrying total 300MW. 2. As reported at 13:38hrs, 800 KV HVDC Kurukshetra(PG) bipole-2(pole 3 & 4) blocked from Champa end due to filter unbalance at Champa. 3. As per PMU, fluctuation in voltage was observed.	0	0	0	0	0.000	0.000	44202	47536	NA			Y(PG)			Y(PG)		Y(PG)
3	GI-2	1) 400/220kV 315MVA ICT-1 at Samba(PG) 2) 400/220kV 315MVA ICT-2 at Samba(PG) 3) 400/220kV 315MVA ICT-3 at Samba(PG)	J&K	POWERGRID	6-Nov-22	03:54	6-Nov-22	05:38	01:44	1. On 06th Nov 2022 from 00:00 hrs to 03:00 hrs, load crash of approx. 1200MW(as per SCADA) occurred in J&K & Ladakh control area due to inclement weather condition (heavy rain & windstorm). 2. At 23:52hrs on 05th Nov, 220KV Samba – Bishnah ckt tripped on B-N phase to earth fault during heavy rain and windstorm, fault distance was 35km & fault current was 2.8kA from Bishnah end. 3. Further at 00:07hrs, 220KV Samba(PG) –Samba(JK) ckt-1 tripped on over voltage followed by tripping of , 220KV Samba(PG) –Samba(JK) ckt-2 on over voltage at 00:47 hrs. 4. Further at 03:54 hrs, 400/220kV 315MVA ICT-1,2&3 at Samba(PG) all tripped on over flux protection operation. 5. During antecedent condition, voltage at 400kV side was ~427kV & at 220kV side was ~247kV. 6. As per PMU, no fault in system was observed and voltage at 400kV side was ~427kV.	0	0	0	0	0.000	0.000	28459	35270	NA		Y(PG)			Y(PG)			Y(PG)
4	GD-1	1) 220KV Bus 2 at Baddi(HP) 2) 220 KV Baddi(HP)-Pinjore (HV) (HPPTCL) Ckt-2 3) 220 KV Baddi(HP)-Pinjore (HV) (HPPTCL) Ckt-1 4) 220 KV Baddi-Kunihar Ckt-1 5) 220 KV Baddi-Kunihar Ckt-2 6) 220 KV Baddi-Wardhman Ckt	Himachal Pradesh	HPPTCL	6-Nov-22	13:53	6-Nov-22	14:25	00:32	1. During antecedent condition, bus coupler at 220kV Baddi(HP) was in open condition and 220kV circuit to Upper Nangal & Mandhala, 220/66kV 100MVA transformer-1&3 were connected at 220kV Bus-1 and 220kV circuit to Kunihar, Pinjore & Wardhman, 220/66kV 100 MVA transformer-2&4 were connected at 220kV Bus-2 at Baddi(HP). 2. As reported at 13:53 hrs, R-phase insulator string of 220kV Bus-2 burst which created bus fault on 220kV Bus-2. All the elements connected at 220kV Bus-2 tripped on this fault. 3. As per PMU, R-N phase to earth fault with delayed clearance of approx. 400ms is observed. 4. As per SCADA, change in load of approx. 75MW occurred in HP control area.	0	0.041	0	75	0.000	0.166	39288	45168	400		Y(HP) Y(Har)			Y(HP) Y(Har)		Y(HP) Y(Har)	
5	GD-1	1) 400/220 kV 315 MVA ICT 1 at Muzaffarnagar(UP) 2) 400/220 kV 315 MVA ICT 2 at Muzaffarnagar(UP) 3) 400/220 kV 315 MVA ICT at Muzaffarnagar(UP) 4) 400/220 kV 500 MVA ICT 4 at Muzaffarnagar(UP) 5) 220 KV Muzaffarnagar-Shamli(UP) ckt 6) 220 KV Muzaffarnagar-Nara(UP) ckt 7) 220 KV Muzaffarnagar-Charla(UP) ckt 8) 220 KV Muzaffarnagar-Modipuram(UP) ckt	UP	UPPTCL	8-Nov-22	07:04	8-Nov-22	08:00	00:56	1. At 06:18hrs, 220kV Muzaffarnagar-Jansath ckt tripped on Y-N phase to earth fault. 2. As reported at 07:04 hrs, while charging of 220kV Muzaffarnagar-Jansath ckt, Y-N phase to earth fault occurred. However line didn't not trip. 3. As fault was still persisting, all four ICTs tripped on over current earth fault protection operation. At the same time, 220kV feeders to Nara tripped on distance protection operation in Z-1, 220kV feeder to Shamli in Z-4 and 220kV feeders to Modipuram & Charla tripped in Z-3. 4. As per PMU at Muzaffarnagar(UP), Y-N phase to earth fault with delayed clearance in 1000ms is observed. 5. As per SCADA, change in load of approx. 115MW is observed in UP control area. 6. As reported, after inspection and patrolling, earth wire of double ckt. tower of 220kV Muzaffarnagar-Nara line & 220kV Muzaffarnagar-Jansath line found broken between tower 32-33 which led to the persisted Y-N fault and status of breaker contact of 220kV Jansath line was not available to relay panel due to which protection of line did not operate.	0	0.107	0	115	0.000	0.265	40230	43413	1000		Y(UP)		Y(UP)			Y(UP)	
6	GD-1	1) 220 KV Bhadla(PG)-ESUCRL SL_BHD_PG (ESUCRL) (ESUCRL) Ckt-1	Rajasthan	ESUCRL	9-Nov-22	13:43	9-Nov-22	18:02	04:19	1. During antecedent condition, SBE6PL RE station was generating approx. 275MW. 2. As reported at 13:43 hrs, R-N phase to phase fault occurred on 220 KV Bhadla(PG)-ESUCRL SL_BHD_PG (ESUCRL) (ESUCRL) Ckt. Fault distance was approx. 25km from SBE6PL RE station. On this fault, line tripped on line differential protection operation. 3. As per PMU, R-B phase to phase fault which cleared within 100ms is observed and generation loss of ~275MW occurred at SBE6PL RE station due to tripping of 220 KV Bhadla(PG)-ESUCRL SL_BHD_PG (ESUCRL) (ESUCRL) Ckt. 4. As per PMU available at RE stations, phase voltage of 220kV lines at RE stations connected at different ISTS pooling station dipped to 0.9pu at Bhadla(PG), 0.94pu at Fatehgarh2(PG), 0.947pu at Adani Solar Park, 0.95pu at Bhadla2(PG) & 0.98pu at Bikaner(PG). 5. As per SCADA data, drop of approx. 280MW in NR total solar generation is observed.	0.916	0	275	0	0.675	0.000	40725	46694	80	Y(ESUCRL)	Y(PG)		Y(ESUCRL)	Y(PG)		Y(ESUCRL) Y(PG)	
7	GD-1	1) 220kV Ghatti – Hiranagar ckt 2) 220 KV Samba(PG)-Hiranagar(PDD) (PG) Ckt-1 3) 220 KV Samba(PG)-Hiranagar(PDD) (PDD JK) Ckt-2 4) 220kV BUS 1 Hiranagar(JK PDD)	J&K	JKPTCL	11-Nov-22	19:12	11-Nov-22	20:34	01:22	1. As reported, at 19:12 hrs, R-N phase to earth fault occurred on 220kV Hiranagar-Ghatti ckt, fault current was ~6.94km from Hiranagar end. As reported by NR-2 POWERGRID, fault distance was ~26.8km (Z-3) from Sambha(PG) end. 2. On this fault, 220kV Hiranagar-Ghatti ckt along with 220kV BUS 1 Hiranagar(JK PDD) and 220 KV Samba(PG)-Hiranagar(PDD) (PG) Ckt-1&2 tripped from Hiranagar end only. 3. Due to tripping of above elements, generation of Sewa-II HEP also got affected due to loss of evacuation path. 4. As per PMU at Sambha(PG), R-N phase to earth fault with delayed clearance in 320ms is observed. 5. As per SCADA, load loss of approx. 230MW observed in J&K(UT) & Ladakh(UT) control area and change in generation of approx. 115MW is observed at Sewa-II HEP.	0	0.314	115	230	1.846	0.467	6229	49271	320		Y(PG) Y(JK)			Y(PG)	Y(JK)	Y(PG)	Y(JK)
8	GI-2	1) 400/220 kV 315 MVA ICT 1 at Bareilly(UP) 2) 400/220 kV 315 MVA ICT 2 at Bareilly(UP) 3) 400/220 kV 315 MVA ICT 3 at Bareilly(UP) 4) 220 KV Pithoragarh(PG)-Bareilly(UP) (PG) Ckt 5) 220 KV Bareilly-CB Ganj2(UP) ckt-1&2 6) 220 KV Bareilly-Pilibhit(UP) ckt-1&2 7) 220 KV Bareilly-Shahjhanpur(UP) ckt 8) 220 KV Pantnagar(UK)-Bareilly(UP) (UP) Ckt-1 9) 220 KV Bareilly-Dohna(UP) ckt-1	UP	UPPTCL	14-Nov-22	13:21	14-Nov-22	14:00	00:39	1. As reported at 13:21 hrs, telemetry data verification of 220 KV Amariya ckt-1 was being done. Bus-2 isolator of the Amariya line was closed for the same purpose, at the same time, a Monkey jumped on B-ph Bus-1 isolator (Bus-1 isolator jumpers were not connected to bus-1 and were grounded) which created B-N phase to earth bus fault on 220kV Bus-2 at 400/220kV Bareilly. 2. As 220 KV Bus Bar protection is out of service due to its exhausted capacity at 400 KV Bareilly, fault cleared after the tripping of 220kV feeders CB to Ganj2-1&2, Shahjhanpur, Pilibhit-2, Dohna-1, Pantnagar and Pithoragarh on distance protection operation at Bareilly end in Z-4, tripping of 220kV feeder to Dohna-2 & Pilibhit-1 from remote end and tripping of 400/220kV 315MVA ICT-1, 2 & 3 on directional earth fault overcurrent protection operation. 3. As per PMU, B-N phase to earth fault with delayed clearance in 840ms is observed. 4. As per SCADA, no change in load is observed in UP & Uttarakhand control area.	0	0	0	0	0.000	0.000	45148	46060	840		Y(UP)			Y(UP)		Y(UP)	
9	GD-1	1) 220kV Hindaun220-Sikrai(Dausa)(Raj) ckt 2) 220kV Hindaun400-Hindaun220(Raj) ckt 3) 400/220 kV 315 MVA ICT -1 at Hindaun(Raj) 4) 400/220 kV 315 MVA ICT -2 at Hindaun(Raj)	Rajasthan	RVPNL	17-Nov-22	13:06	17-Nov-22	13:30	00:24	1. At 13:06hrs, 220kV Hindaun220-Sikrai(Dausa)(Raj) ckt (carrying ~75MW) tripped from Sikrai(Dausa) end on protection maloperation which further resulted into overloading of 220kV Hindaun400-Hindaun220(Raj) ckt and 400/220kV 315MVA ICTs at Hinduan. Subsequently, 220kV Hindaun400-Hindaun220(Raj) ckt tripped followed by tripping of 400/220kV 315MVA ICTs at Hinduan on overcurrent protection operation. 2. As per PMU, no fault is observed in system. 3. As per SCADA, load loss of approx. 610MW is observed in Rajasthan control area	0	0.244	610	0	1.322	0.000	46150	47981	NA	Y(Raj)					Y(Raj)	Y(Raj)	
10	GD-1	1) 220kV Hindaun220-Sikrai(Dausa)(Raj) ckt 2) 220kV Hindaun400-Hindaun220(Raj) ckt 3) 400/220 kV 315 MVA ICT -1 at Hindaun(Raj) 4) 400/220 kV 315 MVA ICT -2 at Hindaun(Raj)	Rajasthan	RVPNL	17-Nov-22	14:43	17-Nov-22	15:09	00:26	1. At 13:06hrs, 220kV Hindaun220-Sikrai(Dausa)(Raj) ckt (carrying ~75MW) tripped from Sikrai(Dausa) end on protection maloperation which further resulted into overloading of 220kV Hindaun400-Hindaun220(Raj) ckt and 400/220kV 315MVA ICTs at Hinduan. Subsequently, 220kV Hindaun400-Hindaun220(Raj) ckt tripped followed by tripping of 400/220kV 315MVA ICTs at Hinduan on overcurrent protection operation. 2. As per PMU, no fault is observed in system. 3. As per SCADA, load loss of approx. 610MW is observed in Rajasthan control area	0	0.264	610	0	1.369	0.000	44556	46583	NA	Y(Raj)					Y(Raj)	Y(Raj)	

S.No.	Category of Grid Disturbance	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Outage Duration (hh:mm)	Event (As reported)	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)	Preliminary Report receipt status			DR/EL receipt status			Detailed Report receipt status	
	(GD-I to GD-V)				Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		within 24hrs	after 24hrs	Not Received	within 24hrs	after 24hrs	Not Received	Received	Not Received
11	GI-2	1) 400/220 kV 500 MVA ICT 2 at Dadri(NT) 2) 400 KV Dadri(NT)-Panipat(BB) (PG) Ckt-1 3) 400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-1	UP	NTPC, POWERGRID	22-Nov-22	13:46	22-Nov-22	15:31	01:45	1. As reported at 13:46 hrs, 400/220 kV 500 MVA ICT 2 at Dadri(NT) tripped on differential protection operation. 2. As per PMU at Dadri(NTPC), R-N phase to earth fault which cleared within 100ms is observed. 3. At the same time, 400 KV Dadri(NT)-Panipat(BB) (PG) Ckt-1 tripped from Panipat end only on distance protection operation in Z-2 and 400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-1 tripped from Dadri(NTPC) end only on distance protection operation in Z-4. 4. As per SCADA, no change in load is observed in Delhi & Haryana control area.	0	0	0	0	0.000	0.000	45607	48595	80		Y(BBMB)	Y(NTPC) Y(Del)			Y(NTPC) Y(Del) Y(BBMB)		Y(NTPC) Y(BBMB)
12	GD-1	1) 210 MW Guru Gobind Singh TPS (Ropar) - UNIT 4 2) 210 MW Guru Gobind Singh TPS (Ropar) - UNIT 6 3) 220kV Ropar-Mohali ckt 4) 220kV Ropar-GOBIO ckt-2 5) 220kV Ropar-Khara ckt	Punjab	PSTCL	24-Nov-22	05:51	24-Nov-22	13:55	08:04	1. During antecedent condition, 210MW Unit-4&6 were running and generating ~175MW & 192MW respectively. Unit-6 along with Gobindgarh-3 & Bassipathana feeders were on reserve bus. 2. As reported at 05:51 hrs, when GT breaker of 210MW Unit-5 at Ropar(GGSSTP) was closed during synchronizing Unit-5, there was unbalance current in R,Y,B phases. It led to the operation of GT standby earth fault protection resulting into tripping command initiation to Unit-5 CB. However, Y-ph pole of Unit-5 CB didn't open which further led to the operation of its LBB protection. 3. On LBB protection operation, all the elements connected at Main Bus section-3 i.e., 210 MW Guru Gobind Singh TPS (Ropar) - UNIT 4, ST-3 (supplies auxiliaries of Unit-3&4), ST-4 (supplies auxiliaries of Unit-5&6), 220kV feeders to Mohali, GOBIO-2 & Khara tripped. Bus sectionalizer between sections-2 & section-3 of main bus, bus coupler between main and reserved bus also opened. With this, 210MW Unit-6 along with 220kV feeders to Gobindgarh-3 & Bassipathana got separated as they were connected at reserve bus. 4. However, as ST-4 (connected at Main bus section-3) already tripped, Unit-6 also tripped at 05:55 hrs due to tripping of its auxiliaries.	0	0	367	0	1.066	0.000	34431	42373	NA		Y(Pun)			Y(Pun)			Y(Pun)
13	GI-2	1) 800 KV HVDC Kurukshetra(PG) Pole-03 2) 800 KV HVDC Kurukshetra(PG) Pole-04	Haryana	POWERGRID	26-Nov-22	20:41	26-Nov-22	21:39	00:58	1. During antecedent condition, 800 KV HVDC Kurukshetra(PG) bipole-1 was in blocked condition on voltage regulation and Bipole-2 was in service carrying total 1500MW from Champa to Kurukshetra in balanced mode. 2. As reported at 20:40hrs, as per NLDC instruction, Bipole-2 power ramp down from power order 1500MW to 100MW was initiated from Champa end. However, during power ramp down process, ACVS control (this control feature is incorporated in latest version 6 software) at Kurukshetra end maloperated and it switched out two (02) number of B type filters (HACQ42 & HACQ52). It violated minimum filter requirement (minimum filter require for Bipole operation is two (02) A type and one (01) B type) for Bipole operation which resulted into tripping of Block-2 on filter limit protection operation. 3. As per PMU, fluctuation in voltage was observed. 4. Later at approx. 21:40hrs, Bipole-2 was deblocked after disabling ACVC control at Kurukshetra end.	0	0	0	0	0.000	0.000	36240	44354	NA		Y(PG)			Y(PG)			Y(PG)	
14	GI-2	1) 800 KV HVDC Kurukshetra(PG) Pole-01 2) 800 KV HVDC Kurukshetra(PG) Pole-03	Haryana	POWERGRID	28-Nov-22	16:12	28-Nov-22	16:12	00:00	1. During antecedent condition, 800 KV HVDC Kurukshetra(PG) pole-2 was in blocked condition on voltage regulation and pole-1,3&4 were carrying 500MW, 500MW & 1000MW respectively. 2. As reported at 16:12hrs, Pole-1 & Pole-3 blocked on CAT B protection operation at Champa end, protection operated due to unavailability of both communication lane of Bipole-1 at Champa end. 3. As per PMU, fluctuation in voltage was observed.	0	0	0	0	0.000	0.000	42087	44759	NA		Y(PG)			Y(PG)			Y(PG)	
15	GD-1	1) 220kV Bus-1 at Khurja(UP) 2) 220kV Bus-2 at Khurja(UP) 3) 220kV NAPP(NP)-Khurja(UP) (UP) Ckt 4) 220kV Khurja-Sikandrabad(UP) Ckt 5) 220kV Khurja-Harduaganj(UP) Ckt-1 6) 220kV Khurja-Harduaganj(UP) Ckt-2 7) 220kV Khurja-Jhangirabad(UP) Ckt 8) 220kV Khurja-Debai(UP) Ckt 9) 220kV Khurja-Dadri(UP) Ckt 10) 220/132kV 200MVA Transformer-1 at Khurja(UP) 11) 220/132kV 200MVA Transformer-2 at Khurja(UP)	Haryana	POWERGRID	30-Nov-22	15:15	30-Nov-22	15:40	00:25	1. During antecedent condition, 220kV Bus-1&2 were operating in tied condition as bus coupler was not in service and 220/132kV 200MVA Transformer-1&2 at Khurja(UP) were carrying approx. 30MW(as per SCADA data) 2. As reported at 15:15 Hrs, bus side R-Phase jumper of CT of 220kV NAPP(NP)-Khurja(UP) (UP) Ckt broken at Khurja end which created bus fault. On this fault, bus bar protection at 220kV side operated. 3. Since both 220kV bus were operating in tied condition, all the elements connected at both 220kV Bus (Bus-1&2) tripped on bus bar protection operation. 4. As per PMU at Aligarh(PG), R-N fault which cleared within 120ms is observed. 5. As per SCADA, load loss of approx. 60MW occurred in UP control area.	0	0.025	0	60	0.000	0.127	44467	47361	80	Y(UP)	Y(NAPP)		Y(UP) Y(NAPP)		Y(UP) Y(NAPP)		

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	# Fault Clearance Time (>100 ms for 400 kV and 160 ms for 220 kV)	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs (YES/NO)	Other Protection Issues and Non Compliance (inference from PMU, utility details)	Suggestive Remedial Measures	Remarks
			Date	Time									
1	800 KV HVDC Kurukshetra(PG) Pole-4	POWERGRID	4-Nov-22	13:38	Nil	Blocked from HVDC Champa end due to filter unbalance at Champa.	NA	NA	No	No			
2	800 KV HVDC Kurukshetra(PG) Pole-03	POWERGRID	4-Nov-22	13:38	Nil	Blocked from HVDC Champa end due to filter unbalance at Champa.	NA	NA	No	No			
3	765 KV Chittorgarh-Banaskantha (PG) Ckt-1	POWERGRID	5-Nov-22	15:32	Nil	Line tripped on overvoltage protection at Chittorgarh (817kV). DT received at Banaskantha end. CVT secondary core from CVT MB to Kiosk panel at Chittorgarh found damaged.	NA	NA	yes	yes			As reported by POWERGRID, overvoltage suspected reason attributable to faulty CVT. 765 kV R-phase CVT of Siemens make has been replaced
4	400 KV Kankroli-Zerda (PG) Ckt-1	POWERGRID	9-Nov-22	08:50	Nil	R-N fault, Fault current 5.2kA, Dist. 49.5km from Kankroli. R-phase insulator broken at Tower Loc. no. 546.	NA	NA	yes (After 24 hrs)	yes (After 24 hrs)			As per DR, R-N fault with unsuccessful A/R operation is observed due to persistent fault.
5	220 KV Auraiya(NT)-Malanpur(MP) (PG) Ckt-1	MPPTCL	21-Nov-22	04:27	Nil	Phase to earth fault Y-N	NA	NA	yes (After 24 hrs)	yes (After 24 hrs)			As per DR submitted, B-N fault observed, A/R started but A/R operation didn't complete and three phase trip occurred.
6	220 KV Auraiya(NT)-Malanpur(MP) (PG) Ckt-1	MPPTCL	28-Nov-22	03:49	Nil	Phase to earth fault R-N	NA	NA	yes	yes			As per DR submitted, R-N fault observed, A/R started but A/R operation didn't complete and three phase trip occurred.
7	765 KV Agra-Gwalior (PG) Ckt-1	POWERGRID	28-Nov-22	09:44	Nil	Phase to earth fault Y-N	NA	NA	yes (After 24 hrs)	yes			As per DR, Y-N fault with unsuccessful A/R operation is observed due to persistent fault.
8	800 KV HVDC Kurukshetra(PG) Pole-1	POWERGRID	26-Nov-22	20:41	Nil	Due to filter power limit protection operated at Kurukshetra end during power ramp down.	NA	NA	yes (After 24 hrs)	yes (After 24 hrs)			ACVS control (this control feature is incorporated in latest version 6 software) at Kurukshetra end maloperated
9	800 KV HVDC Kurukshetra(PG) Pole-03	POWERGRID	26-Nov-22	20:41	Nil	Due to filter power limit protection operated at Kurukshetra end during power ramp down.	NA	NA	yes (After 24 hrs)	yes (After 24 hrs)			ACVS control (this control feature is incorporated in latest version 6 software) at Kurukshetra end maloperated
10	800 KV HVDC Kurukshetra(PG) Pole-1	POWERGRID	28-Nov-22	16:12	Nil	Tripped due to Bipole-1 both communication lanes got faulty at Champa end leading to Blocking of Pole-1 and Pole-3.	NA	NA	yes (After 24 hrs)	yes (After 24 hrs)			Pole-1 & Pole-3 blocked on CAT B protection operation at Champa end, protection operated due to unavailability of both communication lane of Bipole-1 at Champa end
11	800 KV HVDC Kurukshetra(PG) Pole-03	POWERGRID	28-Nov-22	16:12	Nil	Tripped due to Bipole-1 both communication lanes got faulty at Champa end leading to Blocking of Pole-1 and Pole-3.	NA	NA	yes (After 24 hrs)	yes (After 24 hrs)			Pole-1 & Pole-3 blocked on CAT B protection operation at Champa end, protection operated due to unavailability of both communication lane of Bipole-1 at Champa end

12	765 KV Orai-Jabalpur (PG) Ckt-1	POWERGRID	29-Nov-22	14:34	Nil	R-N fault, Dist. 221.4km, Fault current 2.6kA from Jabalpur & Dist. 148.7km, Fault current 4.19kA from Orai. OPGW works was going on this line near Loc. 552 and tripping was due to OPGW pilot rope loosened in that section. Fault in WR jurisdiction.	NA	NA	yes	yes			A/R was in non auto mode due to ongoing OPGW work

 # Fault Clearance time has been computed using PMU Data from nearest node available and/or DR provided by respective utilities (*Annexure-* ***II)***

****Yes, if written Preliminary report furnished by constituent(s)***

R-Y-B phase sequencing (Red, Yellow, Blue) is used in the list content.All information is as per Northern Region unless specified.

^^ tripping seems to be in order as per PMU data, reported information. However, further details may be awaited.

Reporting of Violation of Regulation for various issues for above tripping

1	Fault Clearance time(>100ms for 400kV and >160ms for 220kV)	1. CEA Grid Standard-3.e 2. CEA Transmission Planning Criteria
2	DR/EL Not provided in 24hrs	1. IEGC 5.2(r) 2. CEA Grid Standard 15.3
3	FIR Not Furnished	1. IEGC 5.9.6.a 2. CEA Grid Standard 12.2 (Applicable for SLDC, ALDC only)
4	Protection System Mal/Non Operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.A 2. CEA (Technical Standards for connectivity to the Grid) Regulation, 2007: Schedule Part 1. (6.1, 6.2, 6.3)
5	A/R non operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.C 2. CEA Technical Planning Criteria

Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st November 2022 - 30th November 2022

S. No.	Utility	Total No. of elements tripped	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)	Remark
			Value	%	Value		%	Value		%	Value		%	
1	AD HYDRO	1	0	0	0	0	0	0	0	0	0	0	0	Details Received
2	ANTA-NT	2	0	0	0	0	0	0	0	0	0	0	0	
3	AURAIYA-NT	5	3	60	3	0	60	3	0	60	3	0	60	DR/EL & Tripping report needs to be submitted
4	AVAADA RJHN	1	0	0	0	0	0	0	0	0	0	0	0	Details Received
5	BAIRASUIL-NH	4	4	100	4	0	100	4	0	100	4	0	100	DR/EL & Tripping report needs to be submitted
6	BBMB	13	4	31	6	4	67	5	6	71	4	3	40	
7	BUDHIL	1	0	0	0	0	0	0	0	0	0	0	0	Details Received
8	CHAMERA-III-NH	1	0	0	0	0	0	0	0	0	0	0	0	
9	CHAMERA-II-NH	2	0	0	0	0	0	0	0	0	0	0	0	
10	CHAMERA-I-NH	1	0	0	0	1	0	0	1	0	0	0	0	
11	CPCC1	32	4	13	4	1	13	8	1	26	7	1	23	DR/EL & Tripping report needs to be submitted
12	CPCC2	22	1	5	1	2	5	1	4	6	1	0	5	
13	CPCC3	15	1	7	2	3	17	2	3	17	2	0	13	
14	DADRI-NT	6	4	67	4	0	67	4	0	67	4	0	67	
15	ESUCRL	1	0	0	0	0	0	1	0	100	1	0	100	
16	KOLDAM-NT	1	1	100	1	0	100	1	0	100	1	0	100	
17	NAPP	2	0	0	0	0	0	0	0	0	0	0	0	Details Received
18	NTPC_SL_DEVIKOT	1	1	100	1	0	100	1	0	100	1	0	100	DR/EL & Tripping report needs to be submitted
19	PARBATI-II-NH	1	1	100	1	0	100	1	0	100	1	0	100	
20	RAPPA	9	0	0	9	0	100	9	0	100	9	0	100	
21	RAPPB	1	0	0	0	0	0	0	0	0	0	0	0	Details Received
22	RIHAND-NT	1	1	100	1	0	100	1	0	100	1	0	100	DR/EL & Tripping report needs to be submitted
23	SEWA-2-NH	1	0	0	0	0	0	0	0	0	0	0	0	Details Received

Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st November 2022 - 30th November 2022

S. No.	Utility	Total No. of elements tripped	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)	Remark
			Value	%	Value		%	Value		%	Value		%	
24	SLDC-DV	4	1	**25**	3	0	**75**	3	0	**75**	3	0	**75**	**DR/EL & Tripping report needs to be submitted**
25	SLDC-HP	16	3	**19**	3	7	**33**	3	8	**38**	3	0	**19**	
26	SLDC-HR	8	3	**38**	3	0	**38**	3	0	**38**	3	0	**38**	
27	SLDC-JK	10	0	**0**	10	0	**100**	10	0	**100**	10	0	**100**	
28	SLDC-PS	8	0	**0**	7	0	**88**	7	0	**88**	7	0	**88**	
29	SLDC-RS	45	1	**2**	12	0	**27**	12	0	**27**	12	0	**27**	
30	SLDC-UK	9	0	**0**	0	7	**0**	1	5	**25**	3	2	**43**	
31	SLDC-UP	294	64	**22**	75	38	**29**	79	35	**31**	78	13	**28**	
32	SORANG	2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details Received
33	STERLITE	5	1	**20**	1	0	**20**	1	0	**20**	1	1	**25**	**DR/EL & Tripping report needs to be submitted**
34	UNCHAHAR-NT	12	7	**58**	7	1	**64**	6	0	**50**	7	0	**58**	
35	TANDA-NT	3	3	**100**	3	0	**100**	3	0	**100**	3	0	**100**	
36	TEHRI	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
37	TANAKPUR-NH	2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details Received
38	TATAPOWER	1	0	**0**	0	0	**0**	0	0	**0**	1	0	**100**	**DR/EL & Tripping report needs to be submitted**
Total in NR Region		**544**	**109**	**20**	**162**	**64**	**34**	**170**	**63**	**35**	**171**	**20**	**33**	

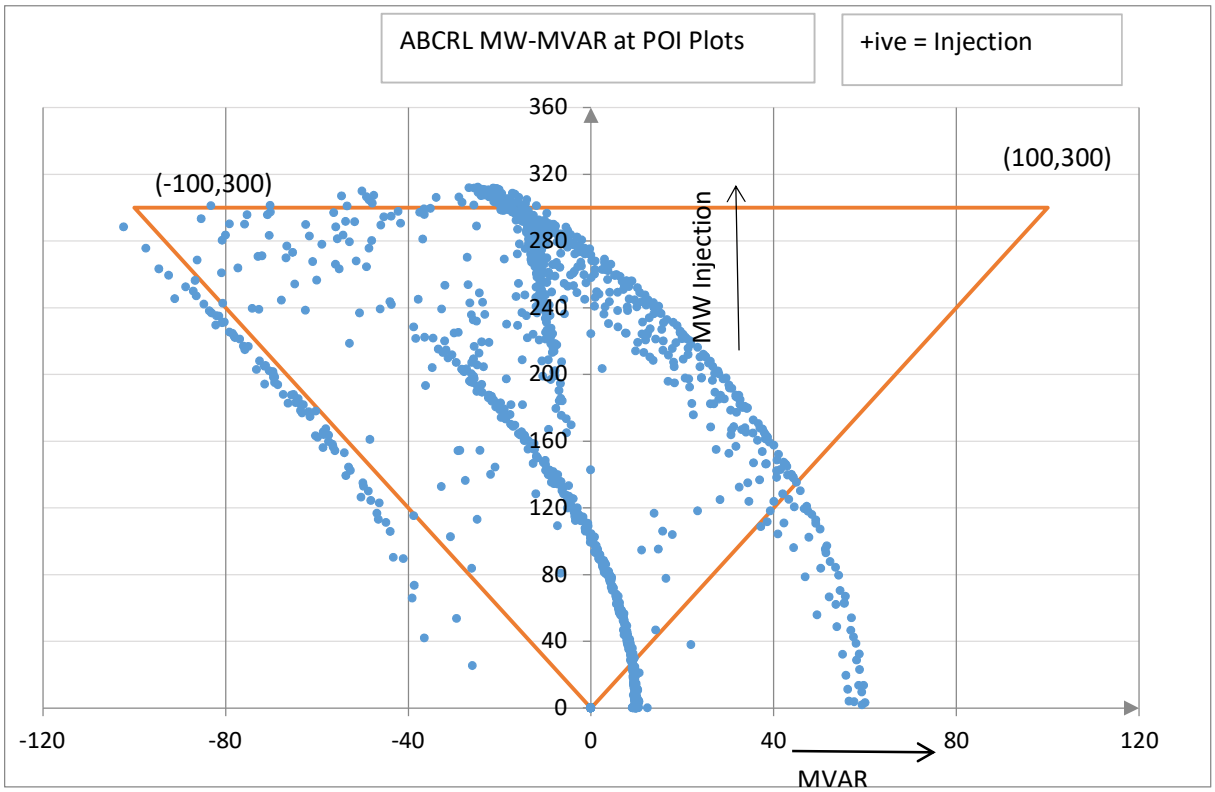
As per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event

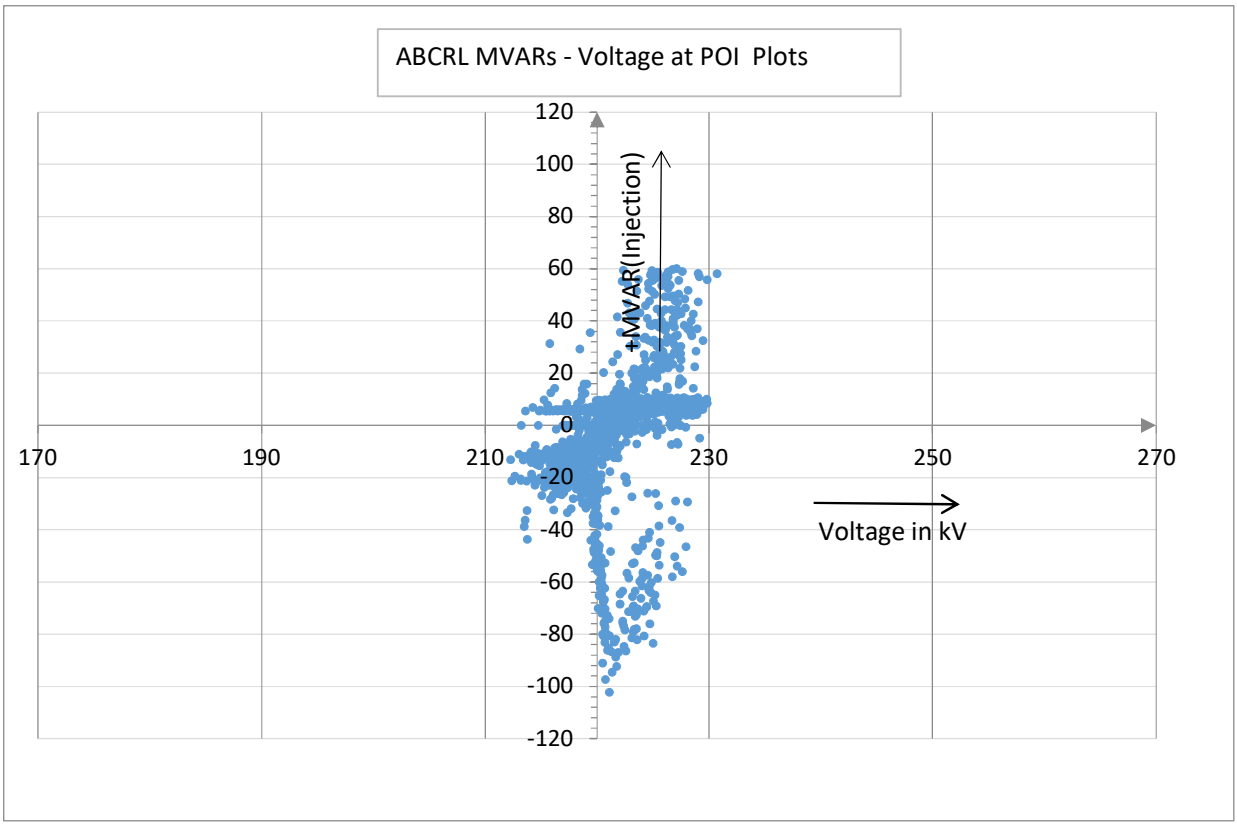
S. No.	Name of the Generatng Station (Capacity in MW)	Date of last PSS tuning / re-tuning performed (in DD/MM/YYYY format)	Date of last Step Response Test performed (in DD/MM/YYYY format)	Report submitted to NRLDC/NRPC (Yes/ No)	Remarks (if any)	Tentative schedule for PSS tuning / re-tuning in FY 2021-22
1	**THDC**					
	TEHRI HPS(4 * 250)	15.12.2021 to 20.12.2021	15.12.2021 to 20.12.2021	Yes	(Report shared vide email dt.19.01.2019)	
	KOTESHWAR HPS(4 * 100)	17/03/2019 to 19/03/2019	17/03/2019 to 19/03/2019	Yes	(Report shared vide email dt.11.02.2021)	
2	**SJVNL**					
	NATHPA-JHAKRI HPS(Unit1 #250)	10.03.2020	-	No	Excitation system upgraded in 2020	
	NATHPA-JHAKRI HPS(Unit2 #250)	14.03.2013	-	No	The existing excitation system is very old and obsoleted forwhich support for PSS tuning is not available from OEM (Mls Voith Hydro), although NJHPS, SJVN has placed work order on 08/12/201 5. Further being the critical component, it is not possible"io get the PSS tuning done from any other vender except OEM (Mls Voith Hydro) being the system and software specific job. Therefore, prpposal for upgradation of the excitation system of this unit is under process and PSS tuning shall be carried out during upgradation of excitation system.	3rd Quarter
	NATHPA-JHAKRI HPS(Unit3 #250)	03.03.2020	-	No	Excitation system upgraded in 2020	
	NATHPA-JHAKRI HPS(Unit4 #250)	14.03.2013	-	NO	The existing excitation system is very old and obsoleted forwhich support for PSS tuning is not available from OEM (Mls Voith Hydro), although NJHPS, SJVN has placed work order on 08/12/201 5. Further being the critical component, it is not possible"io get the PSS tuning done from any other vender except OEM (Mls Voith Hydro) being the system and software specific job. Therefore, prpposal for upgradation of the excitation system of this unit is under process and PSS tuning shall be carried out during upgradation of excitation system.	3rd Quarter
	NATHPA-JHAKRI HPS(Unit5 #250)	14.05.2016	14.05.2016	NO	Excitation system upgraded in 2013	3rd Quarter
	NATHPA-JHAKRI HPS(Unit6 #250)	14.05.2017	14.05.2017	NO	Excitation system upgraded in 2013	3rd Quarter
	RAMPUR HEP(6 * 68.67)	29.11.2014	27.10.2020,10.02.2021	YES	PSS tuning was done at the time of commissioning of Excitation System by OEM (M/s BHEL). Since then response of PSS is checked regularly and found satisfactory.	
3	**HVPNL**					
	PANIPAT TPS(unit1# 250)	29.03.2016	29.03.2016	YES	--	3rd Quarter
	PANIPAT TPS(unit2# 250)	15.01.2018	15.01.2018	YES	--	3rd Quarter
	DCRTPP (YAMUNA NAGAR)(unit1#300)	19-12-2018	19-12-2018	YES	(Report attached)	3rd Quarter
	DCRTPP (YAMUNA NAGAR)(unit1#300)	Will be carried out shortly				
	RGTPP(KHEDAR) (2*600)	5th to 6th July 2013	5th to 6th July 2013	Report attached. Previous record being looked into	No MW capacity addition after 2013 at RGTPP Khedar. No new line addition in vicinity of station	
	JHAJJAR(CLP) (2*660)	20-05-2017	20-05-2017	YES	--	3rd Quarter
4	**NTPC**					
	Rihand (Unit1#500)	03-03-2017	03-03-2017	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit2#500)	02-07-2016	02-07-2016	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit3#500)	15-08-2015	15-08-2015	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit4#500)	25-05-2017	25-05-2017	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit4#500)	11-12-2014	11-12-2014	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit5#500)	11-12-2014	11-12-2014	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	SINGRAULI STPS(Unit1#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit2#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit3#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit4#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit5#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit6#500)	02.05.2018	02.05.2018	NO	--	3rd Quarter
	SINGRAULI STPS(Unit7#500)	15.07.2018	15.07.2018	NO	--	3rd Quarter

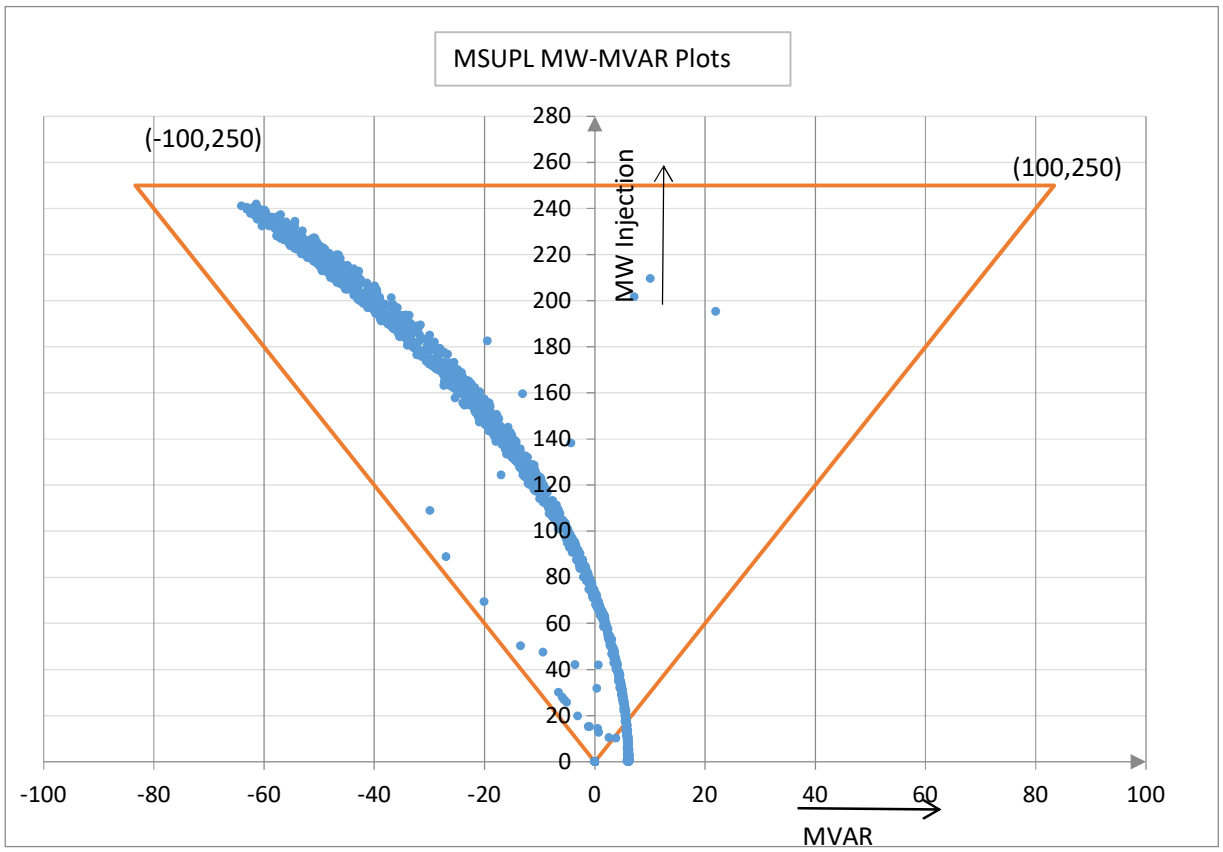
	UNCHAHAR I(2 * 210)	29-03-2016	29-03-2016	YES	--	3rd Quarter
	UNCHAHAR II TPS(unit1# 210)	13-07-2019	13-07-2019	YES	--	
	UNCHAHAR II TPS(unit2# 210)	10-08-2018	10-08-2018	YES	--	3rd Quarter
	UNCHAHAR UNIT6#500	-	31.03.2017	YES	--	3rd Quarter
	KOLDAM HPS(4 * 200)	01-07-2015	01-07-2015	YES	--	3rd Quarter
	DADRI GPS(2 * 154.51) (ST- Steam Turbine)	-	18-11-2015	YES	--	3rd Quarter
	ANTA GPS(3 * 88.71)(GT- Gas Turbine)	08-08-2014	08-08-2014	YES	--	3rd Quarter
	ANTA GPS(1 * 153.2)(ST- Steam Turbine)	08-08-2014	08-08-2014	YES	--	3rd Quarter
5	**Aravali Power Company Private Ltd**					
	ISTPP (JHAJJAR)(3 * 500)	-	25-08-2015	YES	--	3rd Quarter
6	**NHPC**					
	CHAMERA HPS (3*180)	06-08-2020	27-12-2019	YES	--	
	CHAMERA II HPS(3 * 100)	11-10-2015	11-10-2015	NO	Replacement of Excitation system in two units	3rd Quarter
	CHAMERA III HPS(Unit1#77)	29-10-2015	07-01-2012	YES	--	3rd Quarter
	CHAMERA III HPS(Unit2,3#77)	29-10-2015	19-06-2012	YES	--	3rd Quarter
	PARBATI III HEP (Unit1# 130)	21-01-2016	21-01-2016	YES	Have been done recetly. The report on PSS turning shall be submitted seperately.	3rd Quarter
	DULHASTI HPS(Unit2#130)	21-01-2020	21-01-2020	YES	--	
	DULHASTI HPS(Unit1#130)	29-12-2019	29-12-2019	YES	--	
	URI HPS(Unit3# 120)	10-01-2021	10-01-2021	YES	--	
	URI HPS(Unit4# 120)	15-02-2021	15-02-2021	YES	--	
	URI HPS(Unit2# 120)	07-03-2016	07-03-2016	YES	--	3rd Quarter
	URI-II HPS(4 * 60)	Mar-14	Mar-14		Re-tunning& Step response test shall be carriedout in 2021-22	
	SALAL HPS (Unit-3,4,5,6 # 115)	16-12-2014	16-12-2014	YES	--	3rd Quarter
	KISHANGANGA(3 * 110)	18-05-20 18	18-05-20 18	YES	--	3rd Quarter
	BAIRASIUL HPS(3 * 60)	30-07-2015	30-07-2016	YES	--	3rd Quarter
	SEWA-II HPS(3 * 40)	09-07-2016	09-07-2016	YES	--	3rd Quarter
	PARBATI III HEP(4 * 130)	16-12-2016	16-12-2016	YES	--	3rd Quarter
	TANAKPUR HPS(Unit1# 31.42)	09-01-2015	09-01-2015	YES	--	3rd Quarter
	TANAKPUR HPS(Unit2,3#31.4)	24-05-2014	24-05-2014	YES	--	3rd Quarter
	DHAULIGANGA HPS(Unit1 ,2# 70)	04-05-2014	17-04-2018	YES	--	3rd Quarter
	DHAULIGANGA HPS(Unit3,4# 70)	26-06-2014	17-04-2018	YES	--	3rd Quarter
7	**PUNJAB**					
	RAJPURA(NPL) TPS(2 * 700)	22-04-2014	22-04-2014	YES	--	3rd Quarter
8	**Rajasthan**					
	KAWAI TPS(Unt1# 660)	08-08-2014	08-08-2014	YES	--	3rd Quarter
	KAWAI TPS(Unt2# 660)	09-10-2014	09-10-2014	YES	--	3rd Quarter
	CHHABRA TPS(Unit 1#250)	22-05-2018	22-05-2018	NO	--	3rd Quarter
	CHHABRA TPS(Unit 2,3,4#250)	04-10-2015	04-10-2015	NO	--	3rd Quarter
	CHHABRA TPS(Unit5# 660)	10-02-2016	10-02-2016	YES	--	3rd Quarter
	CHHABRA TPS(Unit6# 660)	7/28/2018	7/28/2018	YES	--	3rd Quarter
	KALISINDH TPS(Unit1# 600)	10-02-2016	10-02-2016	YES	--	3rd Quarter
	KALISINDH TPS(Unit2# 600)	08-02-2016	08-02-2016	YES	--	3rd Quarter
	KOTA TPS(Unit1#110)	PSS tuning and step response test of Unit#1,2,3,4,6&7 were sucessfully done on 02.03.22 to 04.03.22		YES		3rd Quarter
	KOTA TPS(Unit2#110)				--	3rd Quarter
	KOTA TPS(Unit3#195)				--	
	KOTA TPS(Unit4#195)				--	
	KOTA TPS(Unit6#110)				--	3rd Quarter
	KOTA TPS(Unit7#110)				--	3rd Quarter
	SURATGARH TPS (Unit5#250)	14-03-2022	14-03-2022	Yes	--	3rd Quarter
	SURATGARH TPS (Unit2,4#250)	06-06-2022		Yes	--	
	SURATGARH TPS (Unit1,3,,6#250)	05.02.22 & 06.02.22		Yes	--	
	SURATGARH SSCTPS (Unit 7&8)	PSS tuning and step response test of Unit#7&8 were carried out on 28.11.20 & 30.03.21.				
	RAJWEST (IPP) LTPS(Unit1# 135)	26-04-2016	26-04-2016	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit2# 135)	14-07-2016	14-07-2016	No	--	3rd Quarter

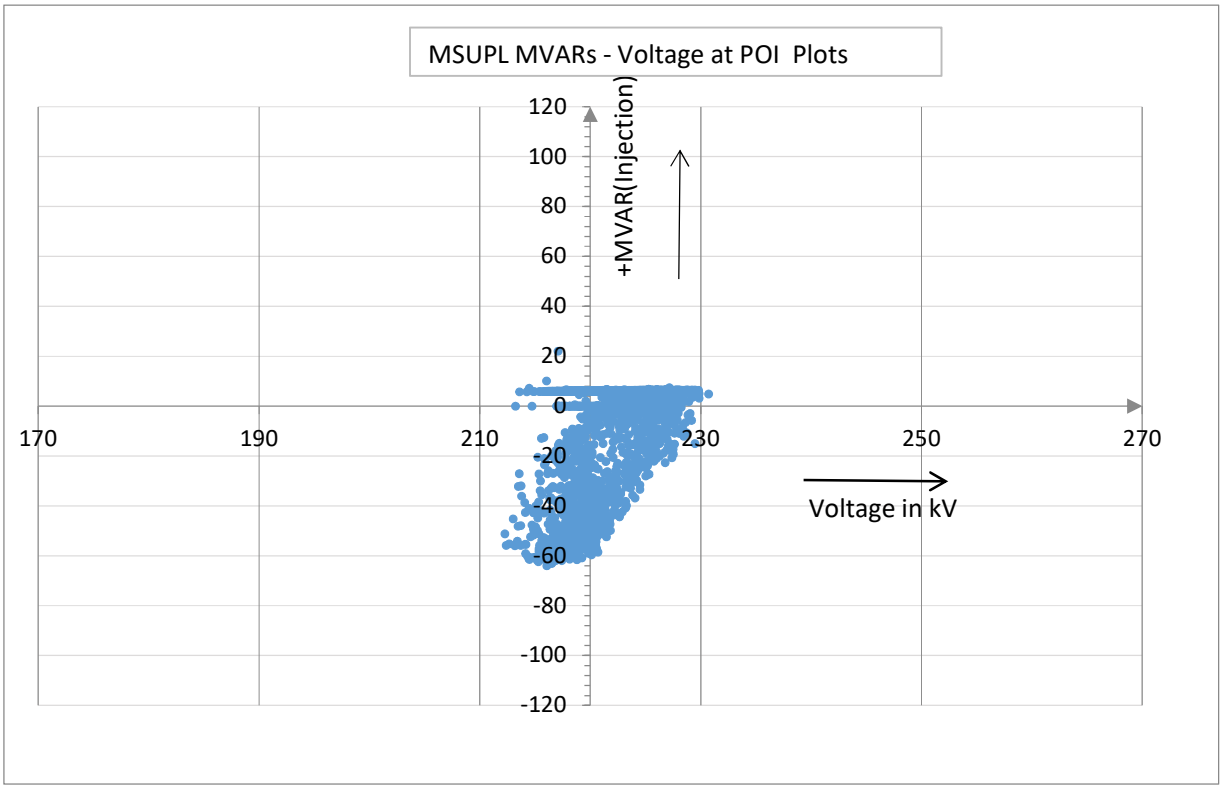
	RAJWEST (IPP) LTPS(Unit3# 135)	03-01-2014	03-01-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit4# 135)	03-11-2015	03-11-2015	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit5# 135)	21-09-2014	21-09-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit6# 135)	14-08-2014	14-08-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit7# 135)	20-02-2016	20-02-2016	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit8# 135)	11-06-2014	11-06-2014	No		3rd Quarter
9	**UTTAR PRADESH**					
	ANPARA-C TPS(Unit1# 600)	22-08-2015	22-08-2015	Yes	--	3rd Quarter
	ANPARA-C TPS(Unit2# 600)	08-03-2016	08-03-2016	Yes	--	3rd Quarter
	ROSA TPS(Unit1 #300)	05-10-2021	05-10-2021	Yes	--	
	ROSA TPS(Unit2# 300)	18/2/2018	18/2/2018	Yes	--	4th Quarter
	ROSA TPS(Unit3 # 300)	03-02-2017	03-02-2017	Yes	--	4th Quarter
	ROSA TPS(Unit4# 300)	05-10-2021	05-10-2021	Yes	--	
	Anpara-A (Unit1#210)	27.09.2021	27.09.2021	Yes	--	
	Anpara-A(Unit2#210)	27.09.2021	27.09.2021	Yes	--	
	Anpara-A(Unit3#210)	25.09.2020	25.09.2020	Yes	--	
	Anpara-B(Unit4#500)	07.12.2014	07.12.2014	Yes		3rd Quarter
	Anpara-B (Unit5#500)	17.08.2014	Dec., 2019	Yes	--	
	Anpara-D(Unit6#500)	15.11.2016	15.11.2016	No	--	3rd Quarter
	Anpara-D (Unit7#500)	15.04.2017	15.04.2017	No	--	3rd Quarter
	Obra-B(Unit9#200)	22.03.2016	22.03.2016	Yes	Report enclosed.	3rd Quarter
	Obra-B(Unit10#200)	28.06.2016	20.06.2016	Yes	Report enclosed.	3rd Quarter
	Obra-B (Unit11#200)	21.01.2017	21.01.2017	Yes	Report enclosed.	3rd Quarter
	Obra-B (Unit12#200)	Unit taken on load after R&M on 22		-	PSS tuning and SRT scheduled in April, 2021.	
	Obra-B(Unit13#200)	Unit closed under R&M.		-	PSS tuning and SRT scheduled in April, 2021.	
	Parichha-B(Unit3#210)	08.01.2016	08.01.2016	Yes	--	3rd Quarter
	Parichha-B (Unit4#210)	08.01.2016	08.01.2016	Yes	--	3rd Quarter
	Parichha-C (Unit5#250)	08.02.2020	08.02.2020	No	--	
	Parichha-C(Unit3#250)	09.01.2016	09.01.2016	No	--	3rd Quarter
	Harduaganj (Unit8#250)	20.08.2015	20.08.2015	No	--	3rd Quarter
	Harduaganj (Unit3#250)	13.04.2016	13.04.2016	No	--	3rd Quarter
	Harduaganj(Unit7#105)	16.07.2021	16.07.2021	yes	--	
	Harduaganj(Unit9#250)	16.07.2021	16.07.2021	yes	--	
	LALITPUR TPS(Unit1# 660)	23.02.2022	23.02.2022	yes	--	
	LALITPUR TPS(Unit2# 660)	30.03.2021	30.03.2021	yes	--	
	LALITPUR TPS(Unit3# 660)	15.01.2022	15.01.2022	yes	--	
	ALAKNANDA HEP(Unit1# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	ALAKNANDA HEP(Unit2# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	ALAKNANDA HEP(Unit3# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	ALAKNANDA HEP(Unit4# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	MEJA TPS(Unit1#660)	16.10.2018	05.09.2017	yes	--	3rd Quarter
	MEJA TPS(Unit2#660)	16.01.2021	18.05.2020	yes	--	
	Bara Unit#1				Step test for PSS checking was not performed since commissioning by erstwhile owner as per information available. PSS tuning along with step test will be performed in next AOH (May 2022 or planned shutdown)	
	Bara Unit#2	01.02.2022	01.02.2022	Yes		
	Bara Unit#3				Step test for PSS checking was not performed since commissioning by erstwhile owner as per information available. PSS tuning along with step test will be performed in next AOH (May 2022 or planned shutdown)	
	Vishnuprayag Unit#1	06/02/2021	06/02/2021	Submitted in the prescribed format provided by NRLDC to SE (R&A)		
	Vishnuprayag Unit#2	06/04/2021	06/04/2021			
	Vishnuprayag Unit#3	06/04/2021	06/04/2021			
	Vishnuprayag Unit#4	05/02/2021	05/02/2021			
10	**BBMB**					

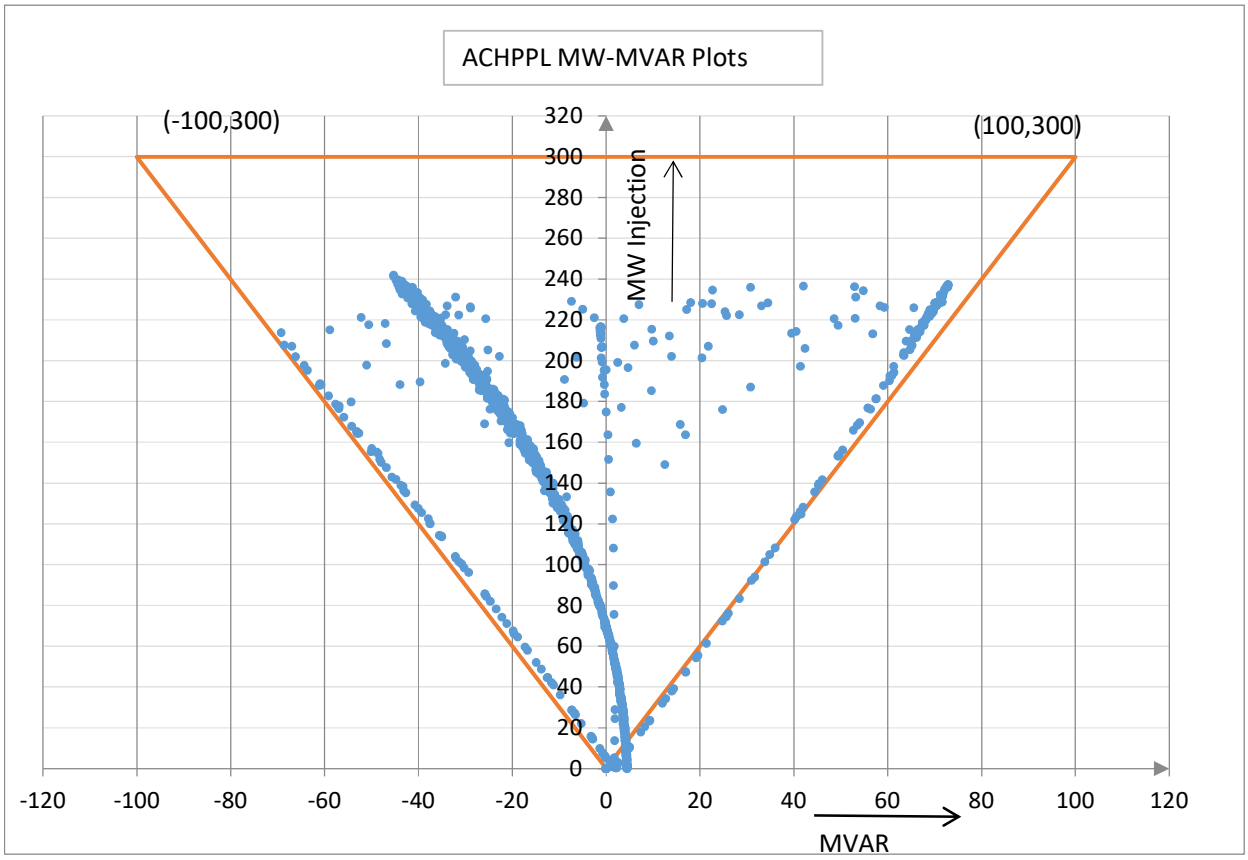
	BHAKRA HPS(Unit1#108)	--	--	No	PSS is not provided ,shall be provided in ongoing RM&U	
	BHAKRA HPS(Unit1#108)	24.07.2015	24.07.2015	No	--	3rd Quarter
	BHAKRA HPS(Unit3#126)	--	--	No	PSS is not provided ,shall be provided in ongoing RM&U	
	BHAKRA HPS(Unit4#126)	--	--	No	--	
	BHAKRA HPS(Unit5#126)	--	--	No	--	
	BHAKRA HPS(Unit6#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	18.02.2016	18.02.2016	No	--	3rd Quarter
	BHAKRA HPS(Unit7#157)	18.02.2017	18.02.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#1 165)	08.08.2017	08.08.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#2 165)	08.08.2018	08.08.2018	No	--	3rd Quarter
	DEHAR HPS(Unit#3 165)	08.08.2019	08.08.2019	No	--	
	DEHAR HPS(Unit#4 165)	02.07.2017	02.07.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#5 165)	08.08.2019	08.08.2019	No	--	
	DEHAR HPS(Unit#6 165)	02.07.2017	02.07.2017	No	--	3rd Quarter
	PONG HPS(6 * 66)	--	--	--	PSS not provided.RM&U agenda under considration.	

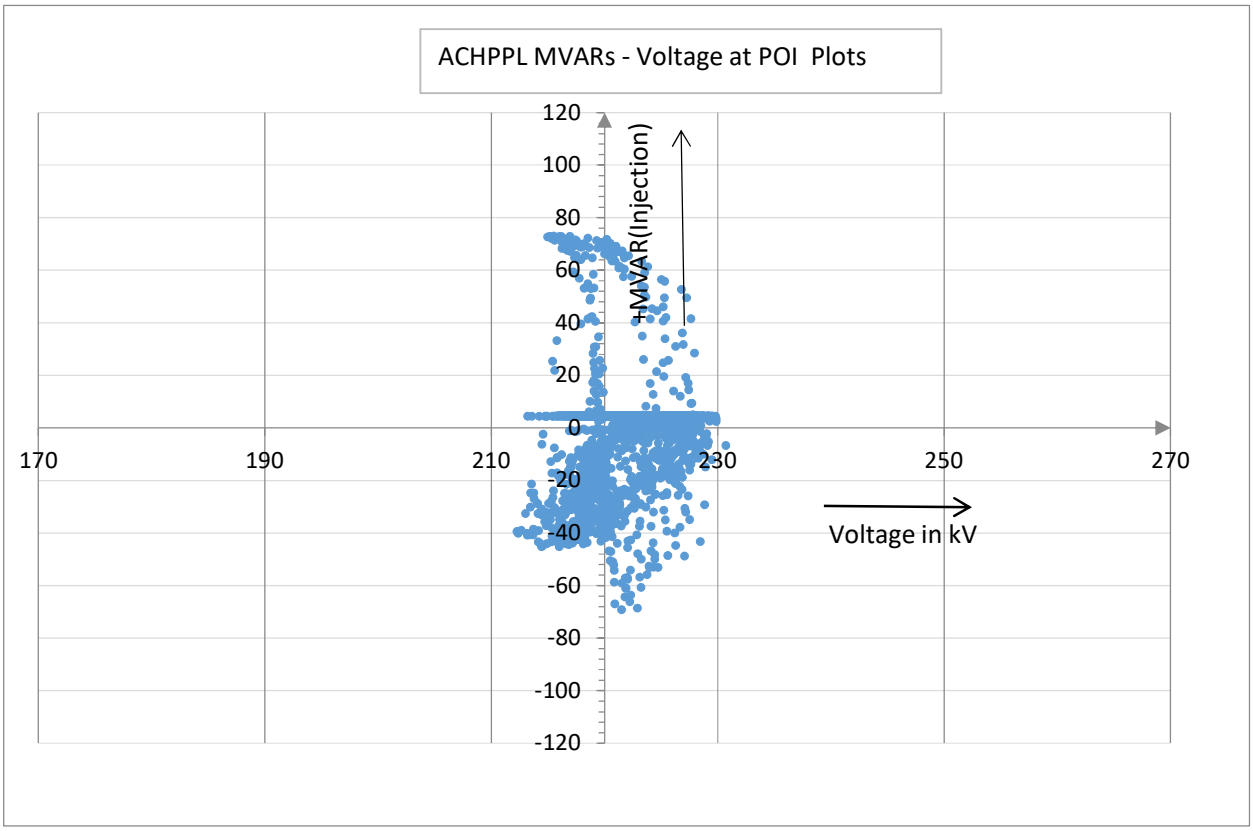

ABCRL MW-MVAR at POI Plots
+ive = Injection
(-100,300)
(100,300)
MW Injection
MVAR
360
320
280
240
200
160
120
80
40
0
-120
-80
-40
0
40
80
120

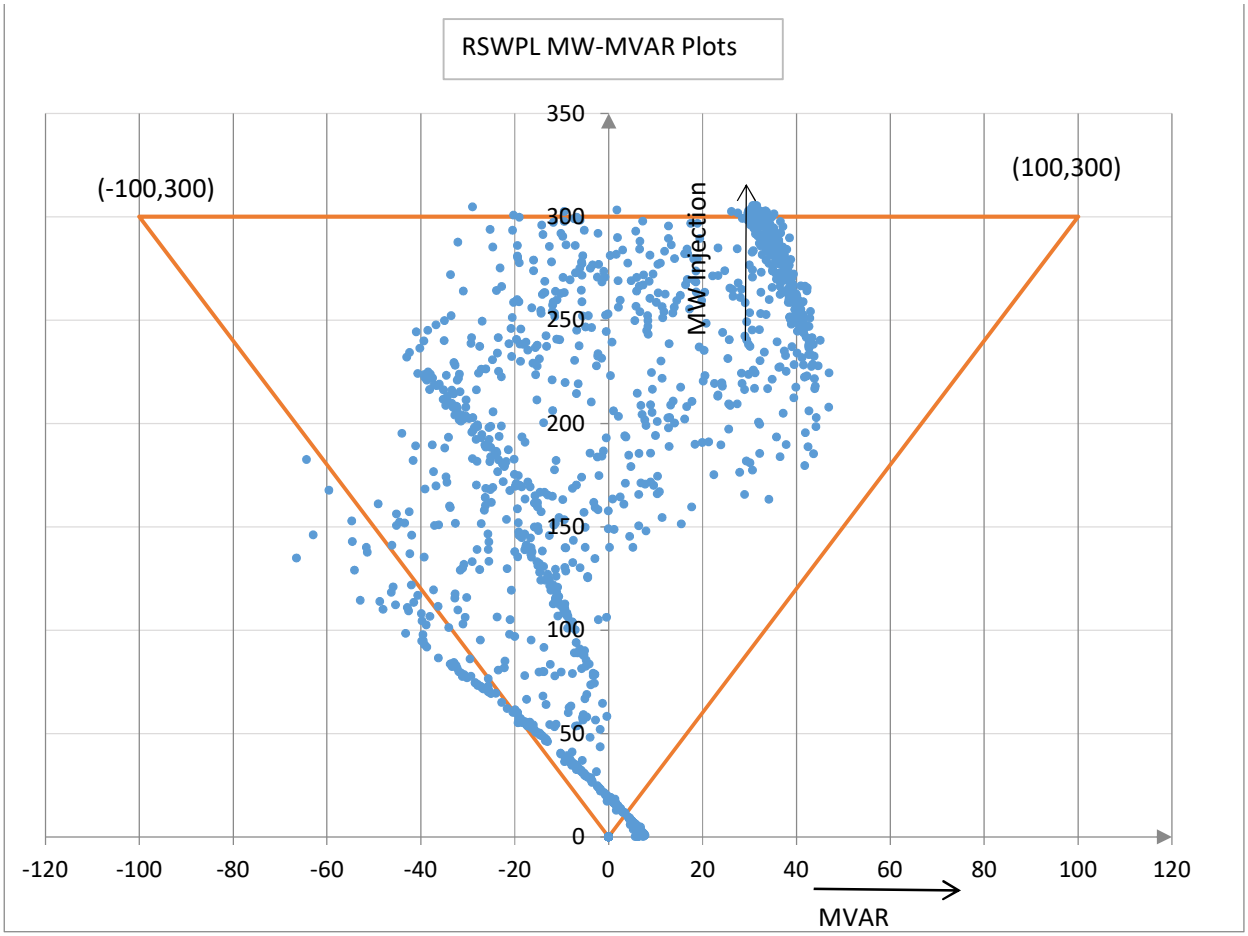

ABCRL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

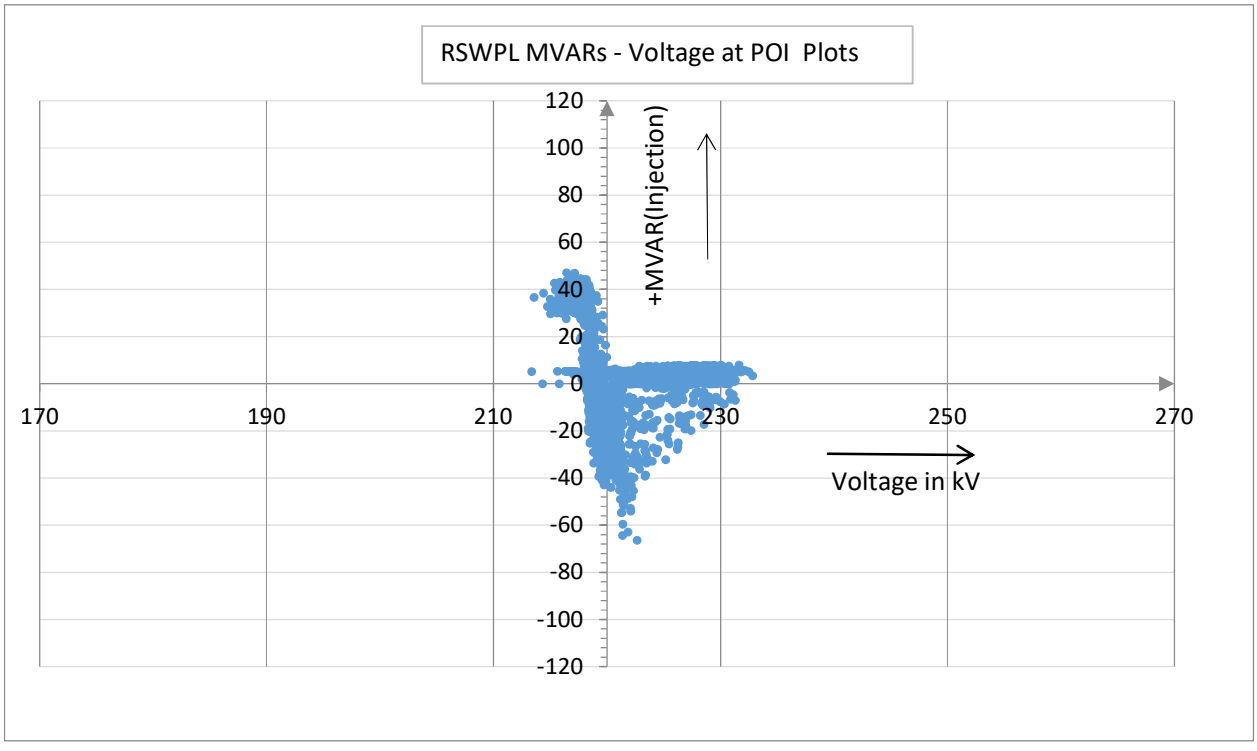

MSUPL MW-MVAR Plots
(-100,250)
(100,250)
MW Injection
MVAR
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-100
-80
-60
-40
-20
0
20
40
60
80
100

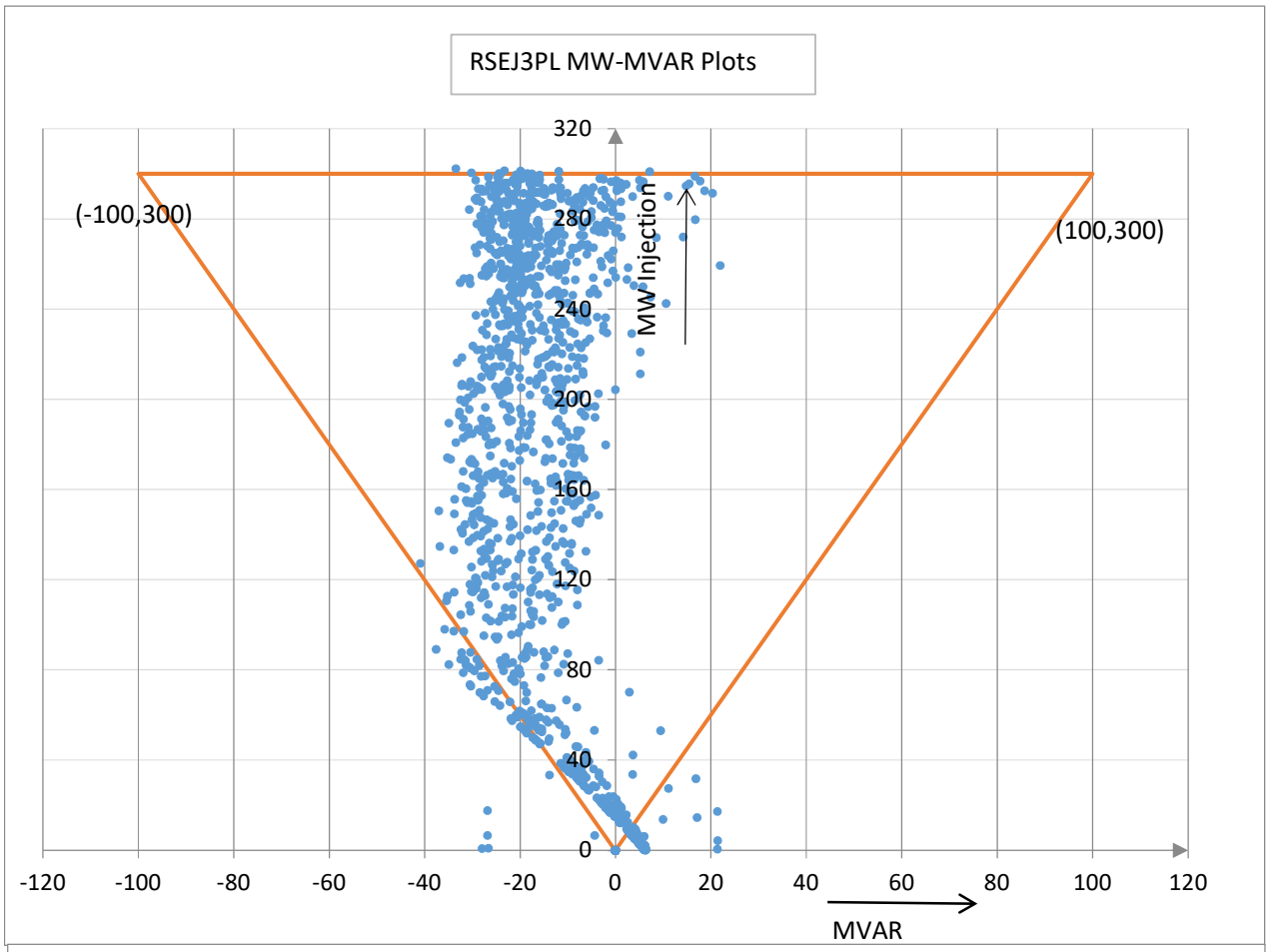

MSUPL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

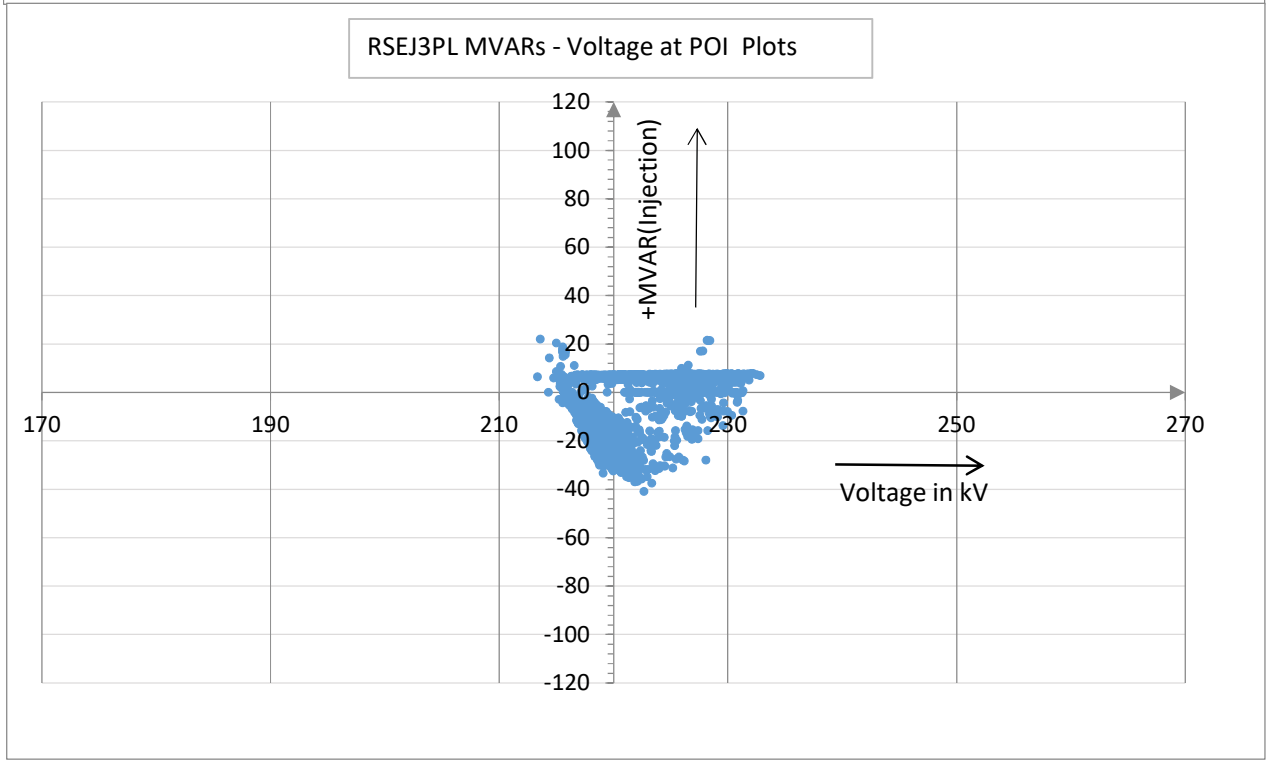

ACHPPL MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
MVAR
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

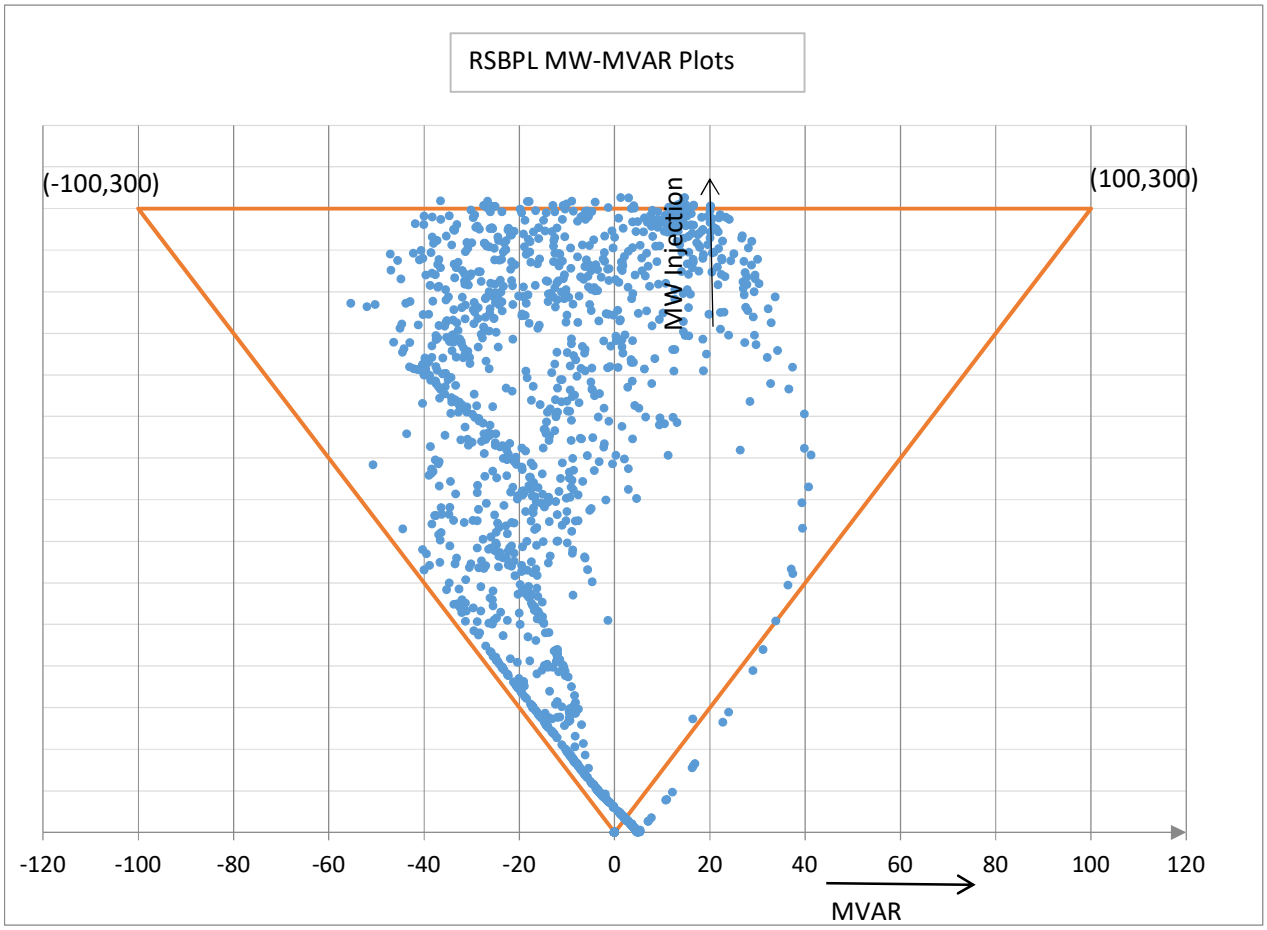

ACHPPL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

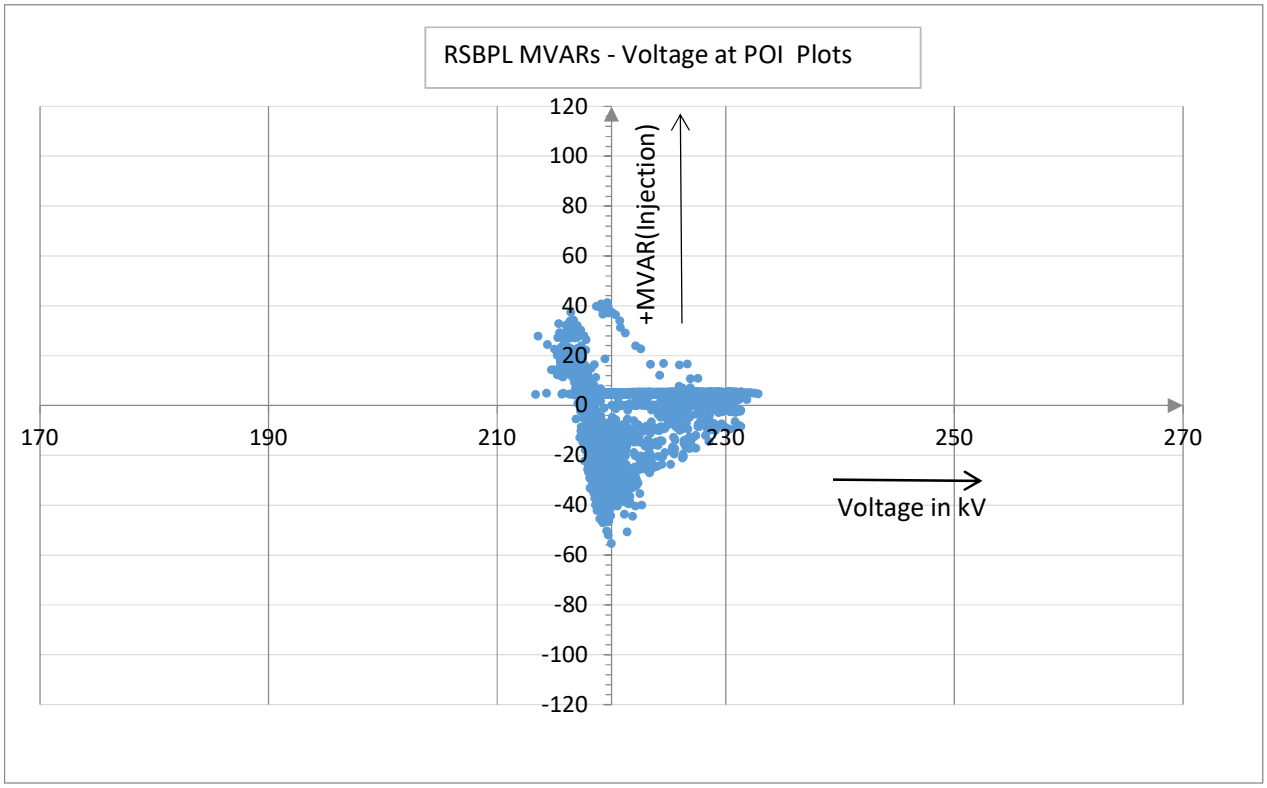

RSWPL MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
MVAR
350
300
250
200
150
100
50
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

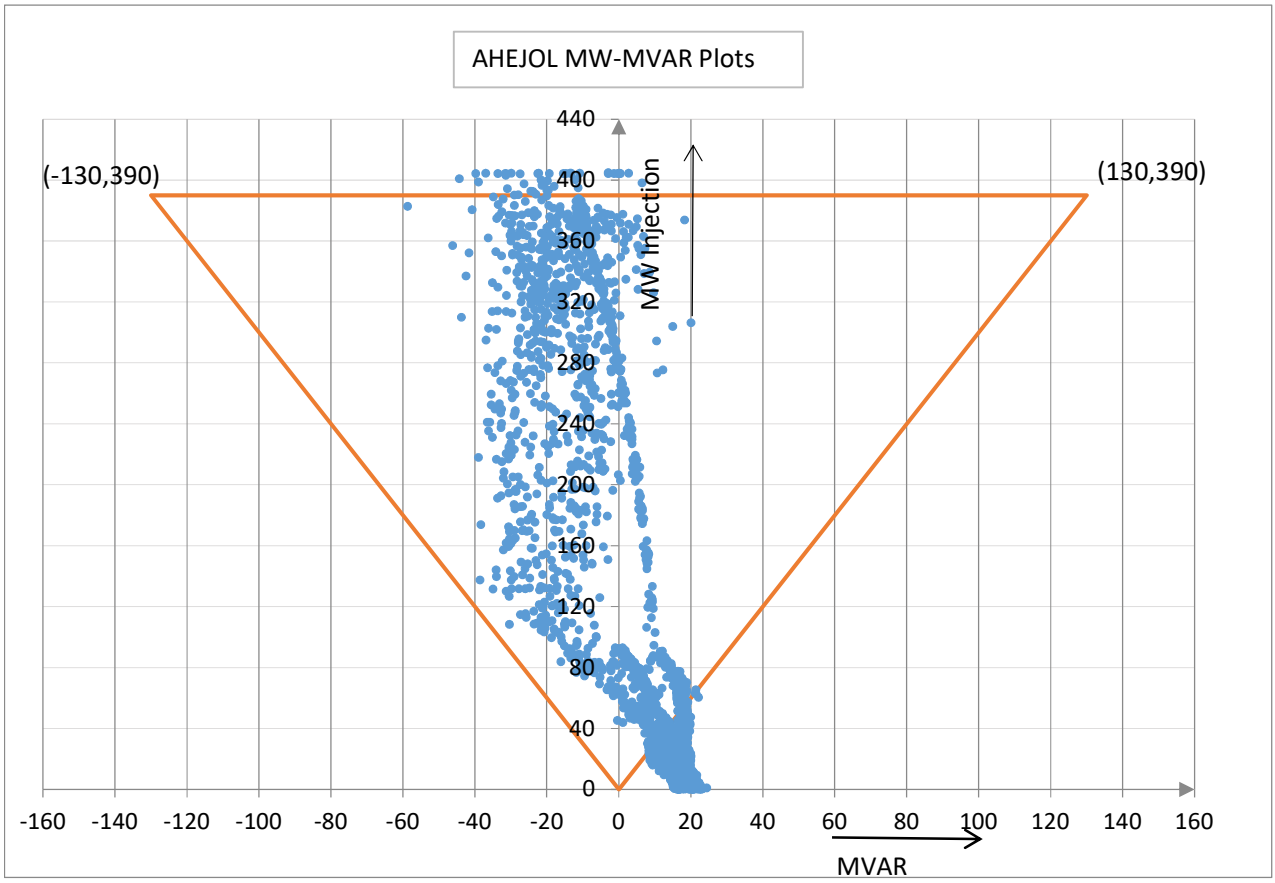

RSWPL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

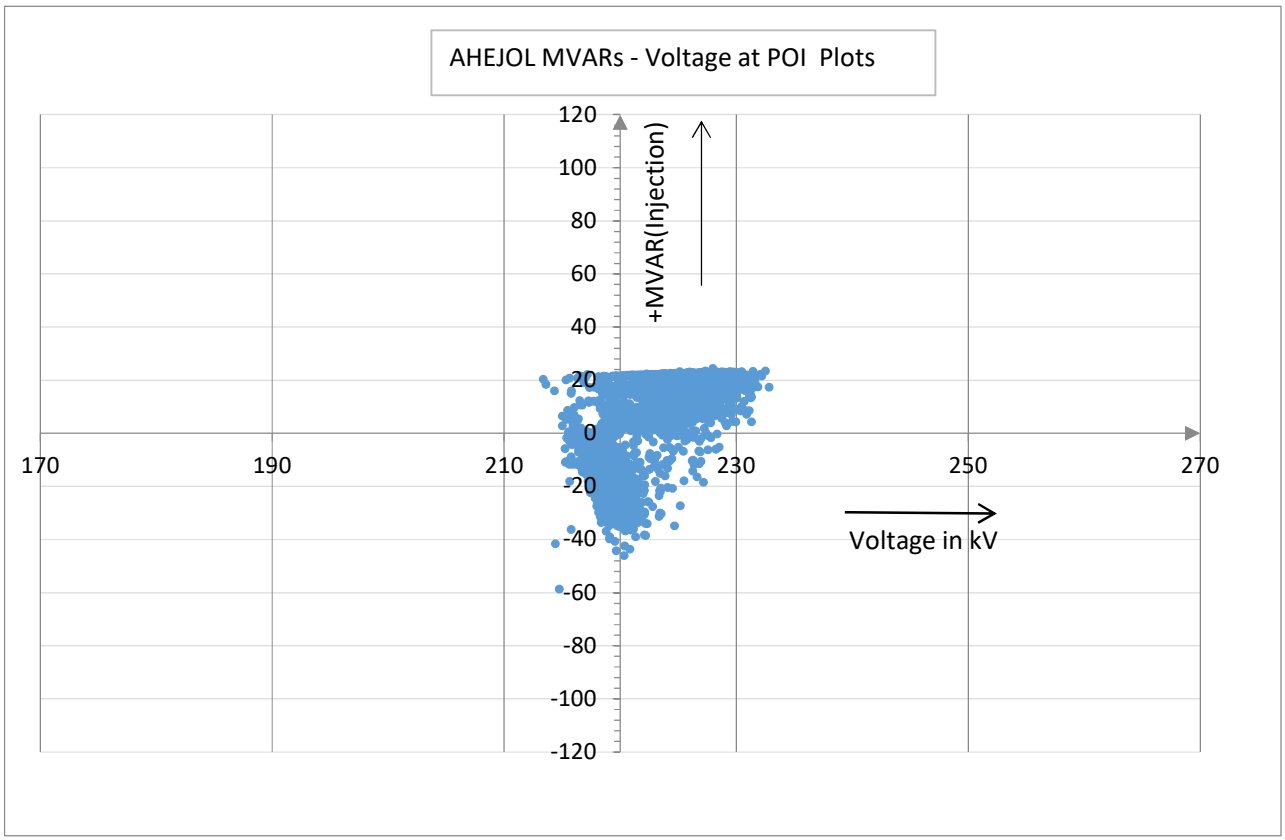

RSEJ3PL MW-MVAR Plots
320
280
240
200
160
120
80
40
0
(-100,300)
(100,300)
MW Injection
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120
MVAR

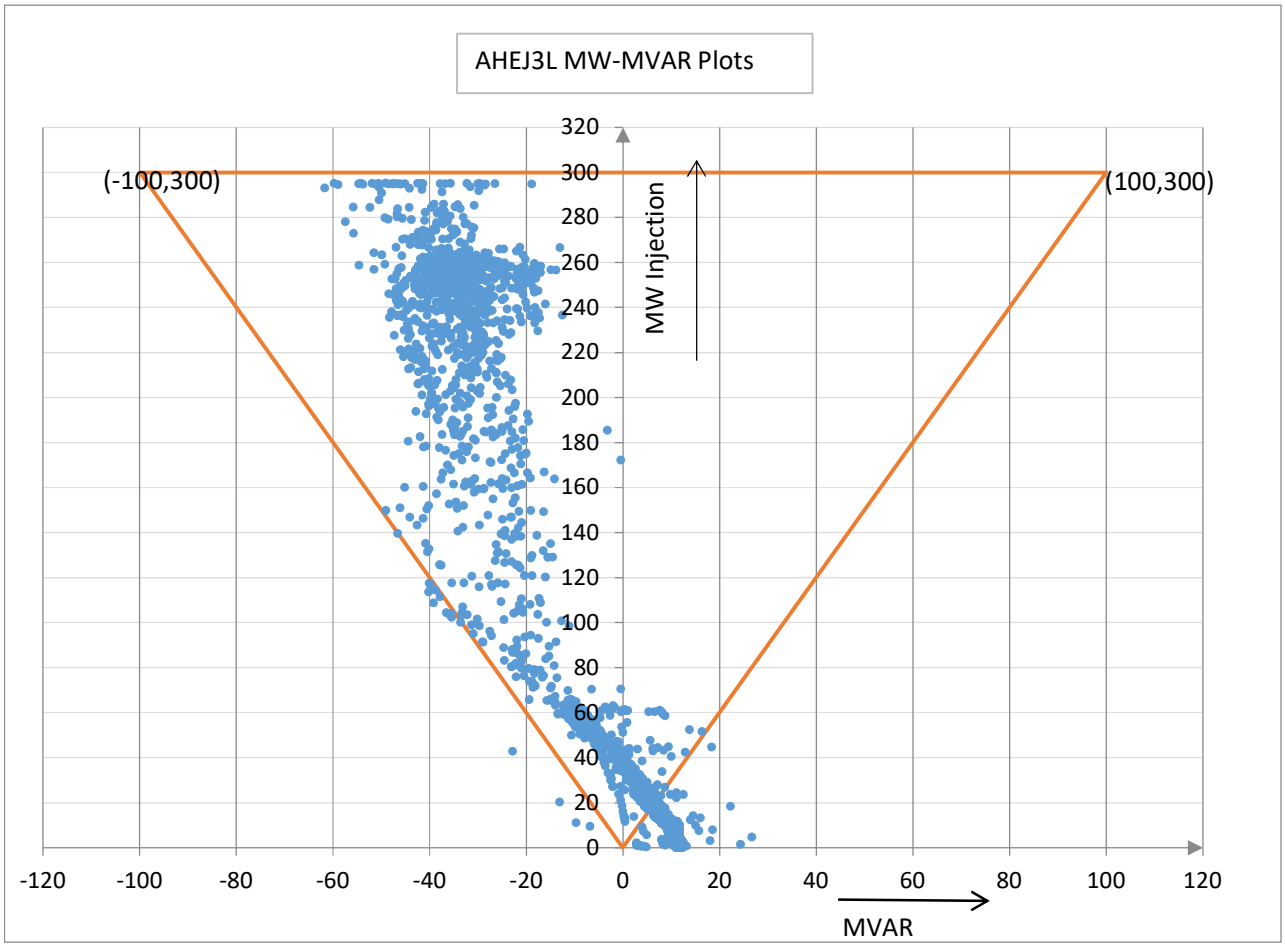

RSEJ3PL MVARs - Voltage at POI Plots
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
+MVAR(Injection)
170
190
210
230
250
270
Voltage in kV

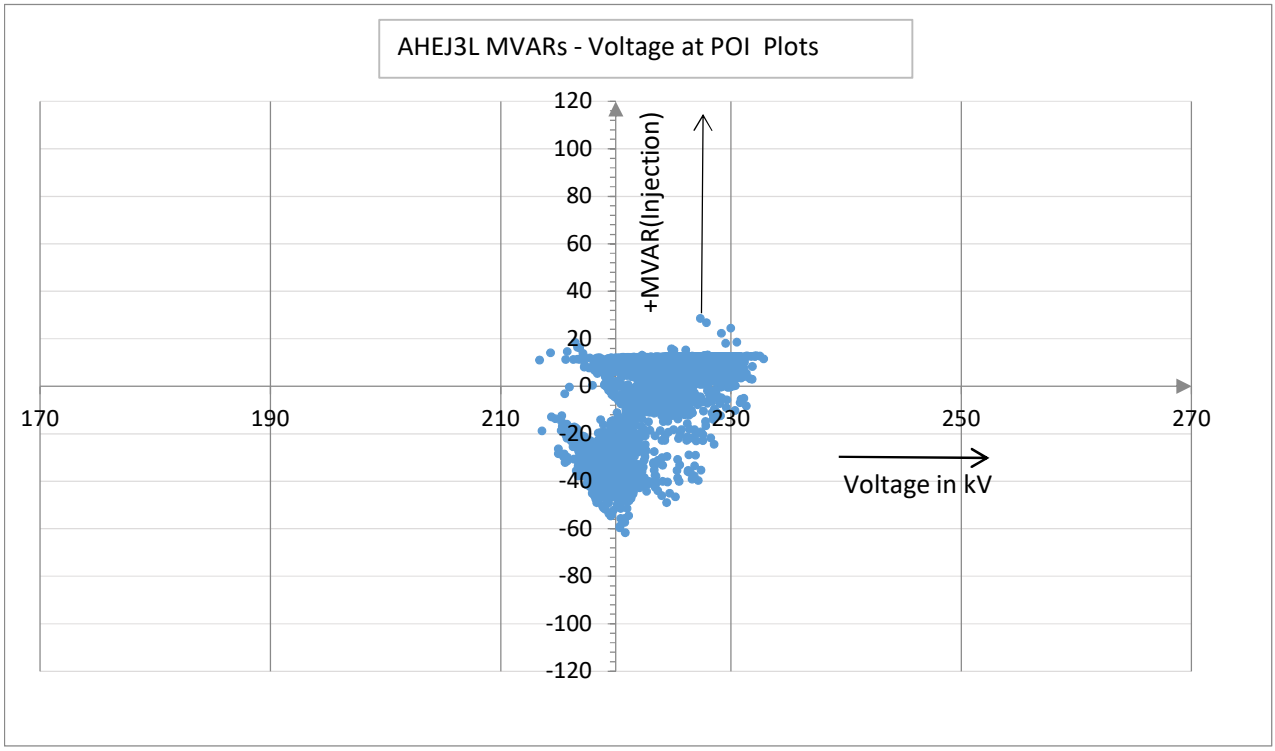

RSBPL MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120
MVAR

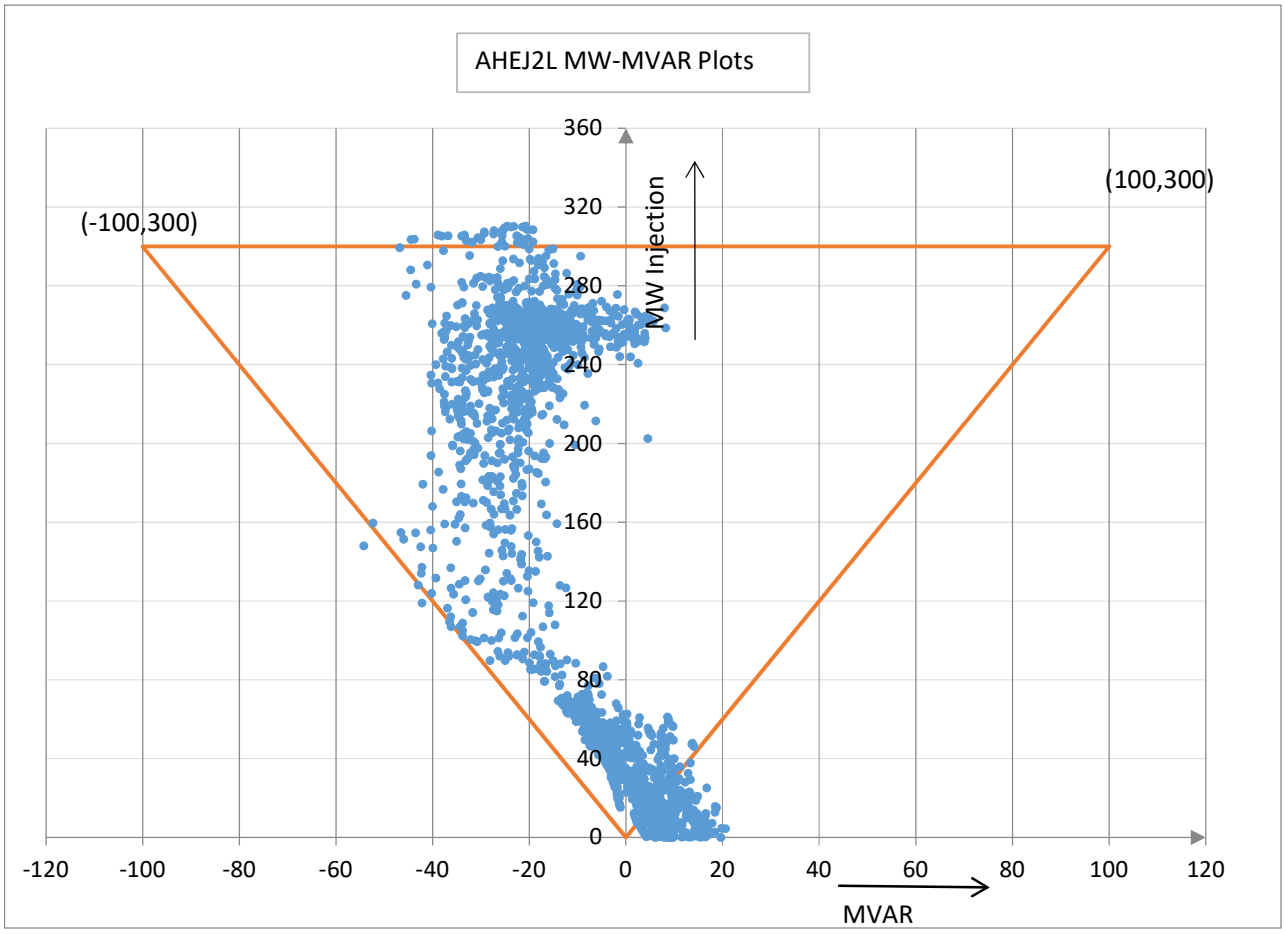

RSBPL MVARs - Voltage at POI Plots
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
+MVAR(Injection)
170
190
210
230
250
270
Voltage in kV

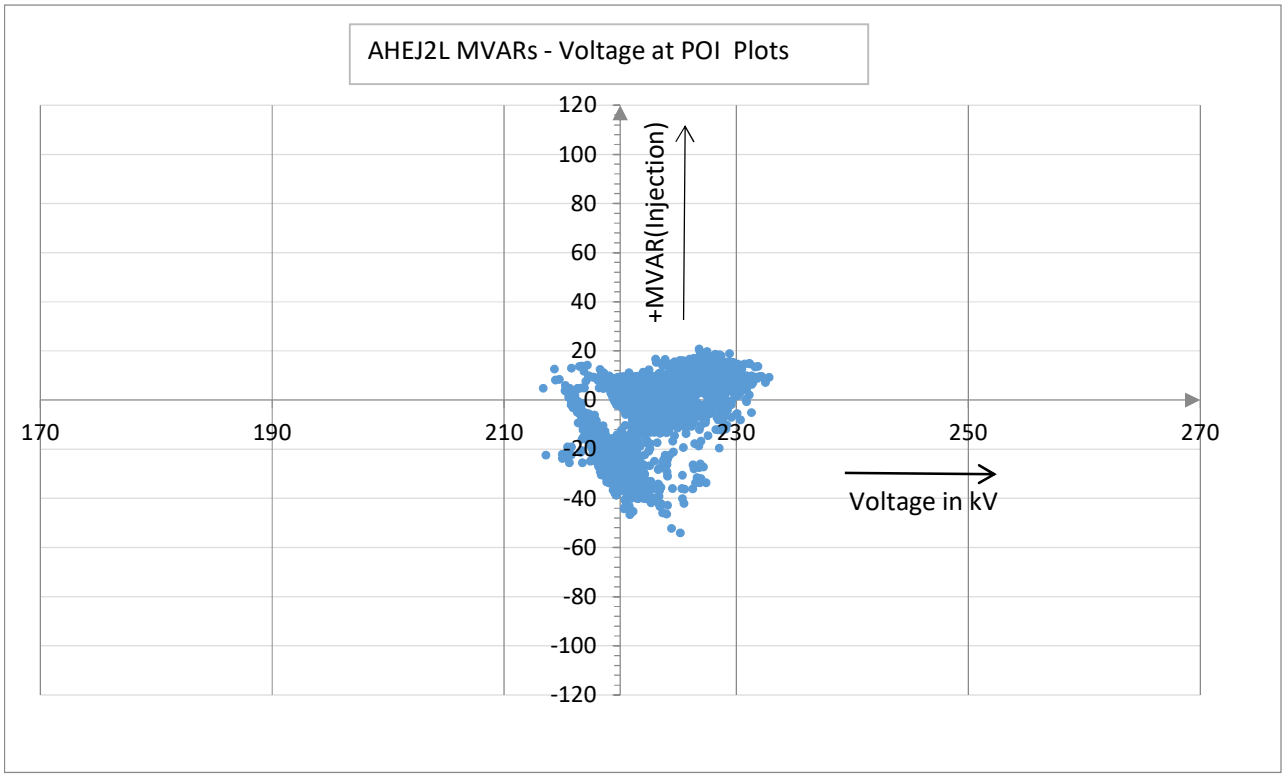

AHEJOL MW-MVAR Plots
(-130,390)
(130,390)
MW Injection
MVAR
440
400
360
320
280
240
200
160
120
80
40
0
-160
-140
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120
140
160

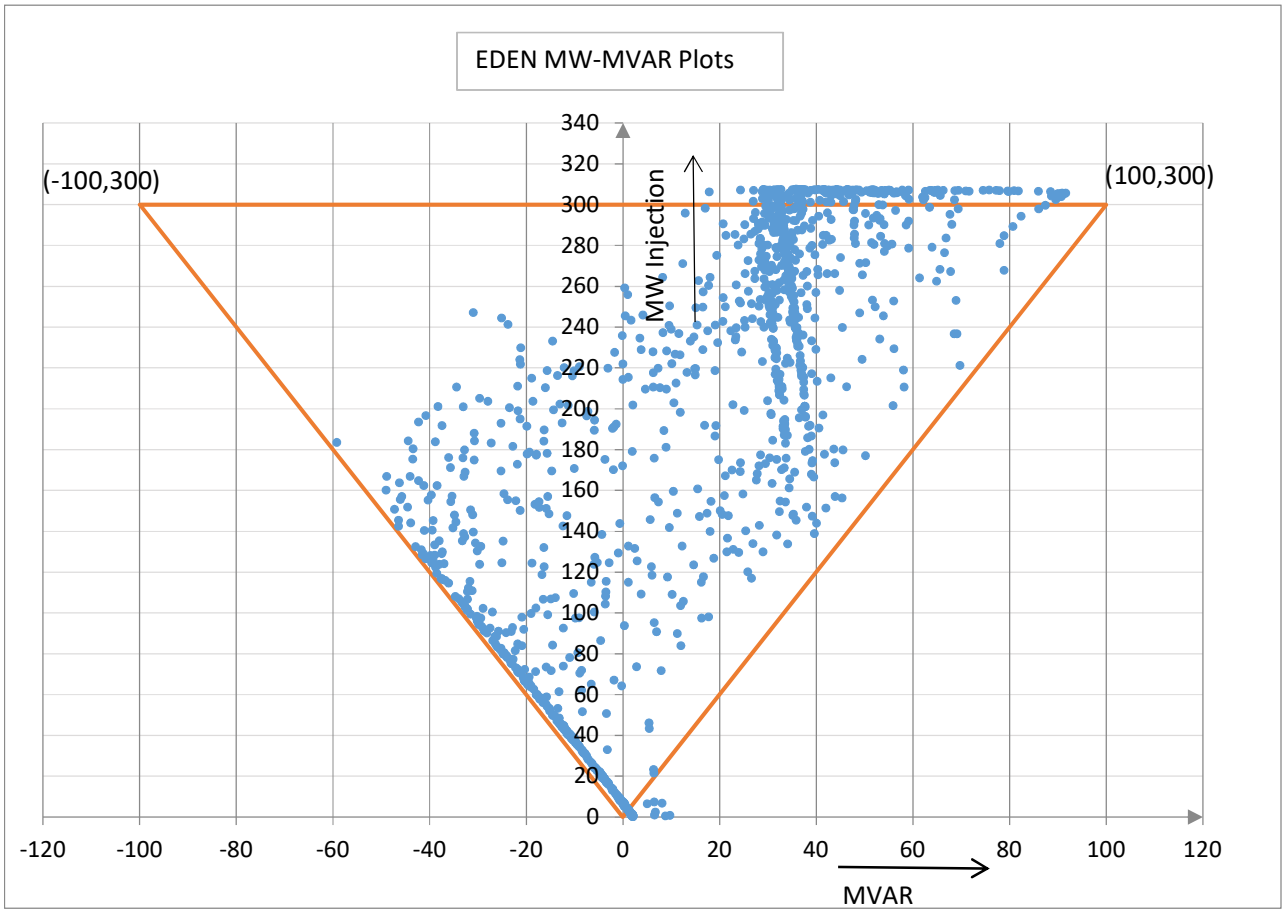

AHEJOL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

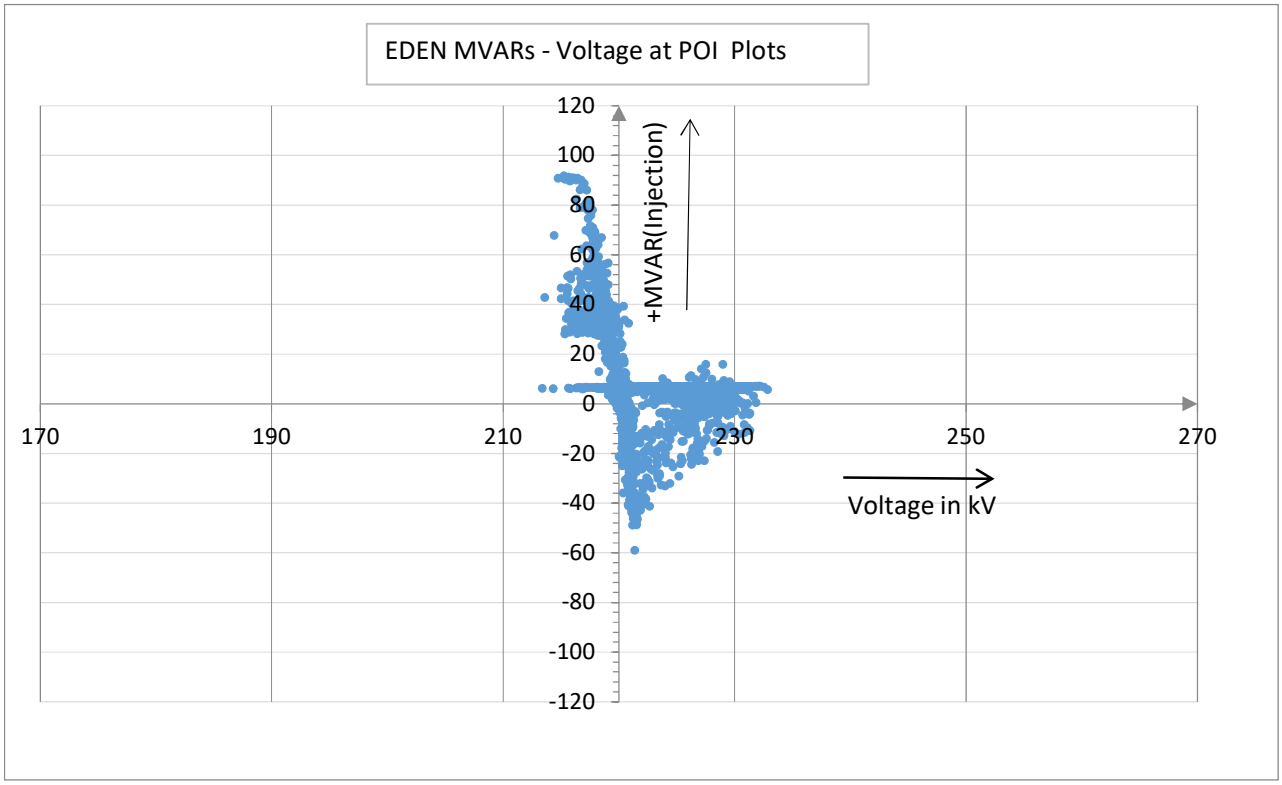

AHEJ3L MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
MVAR
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

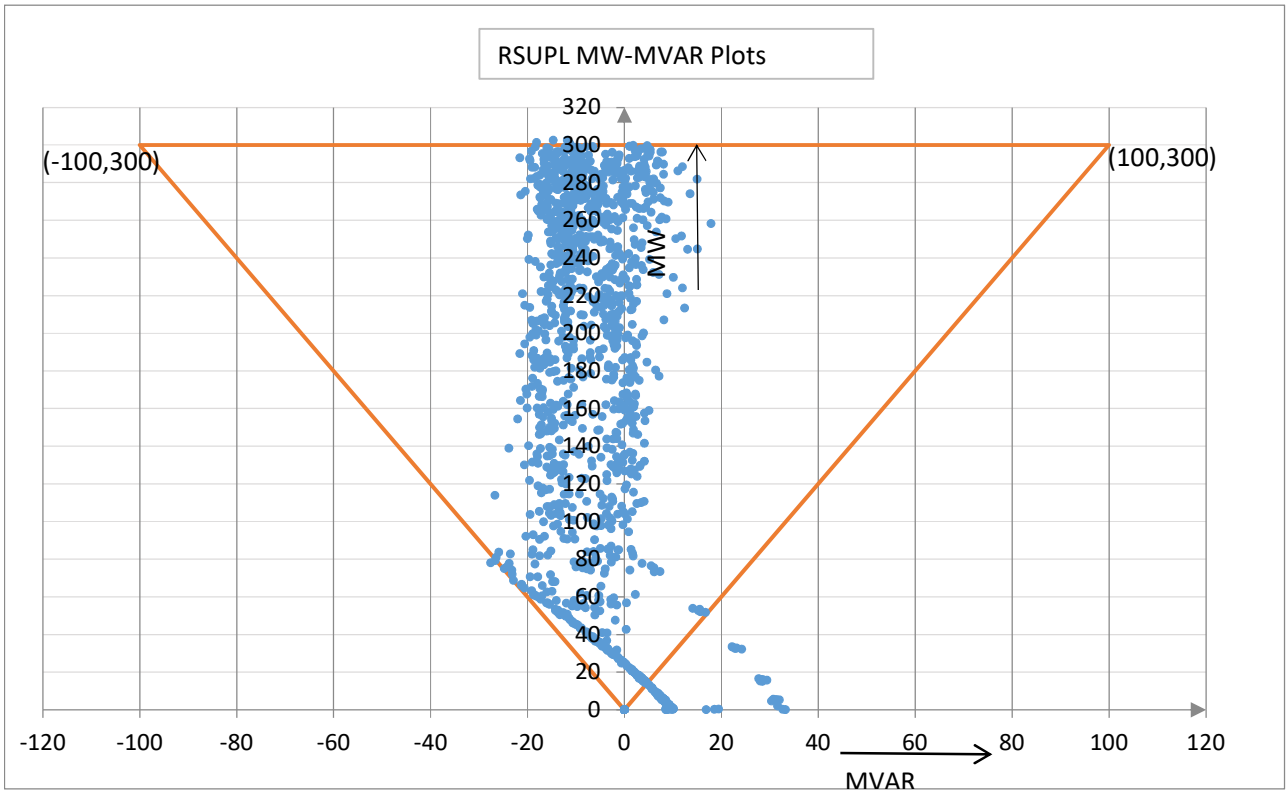

AHEJ3L MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

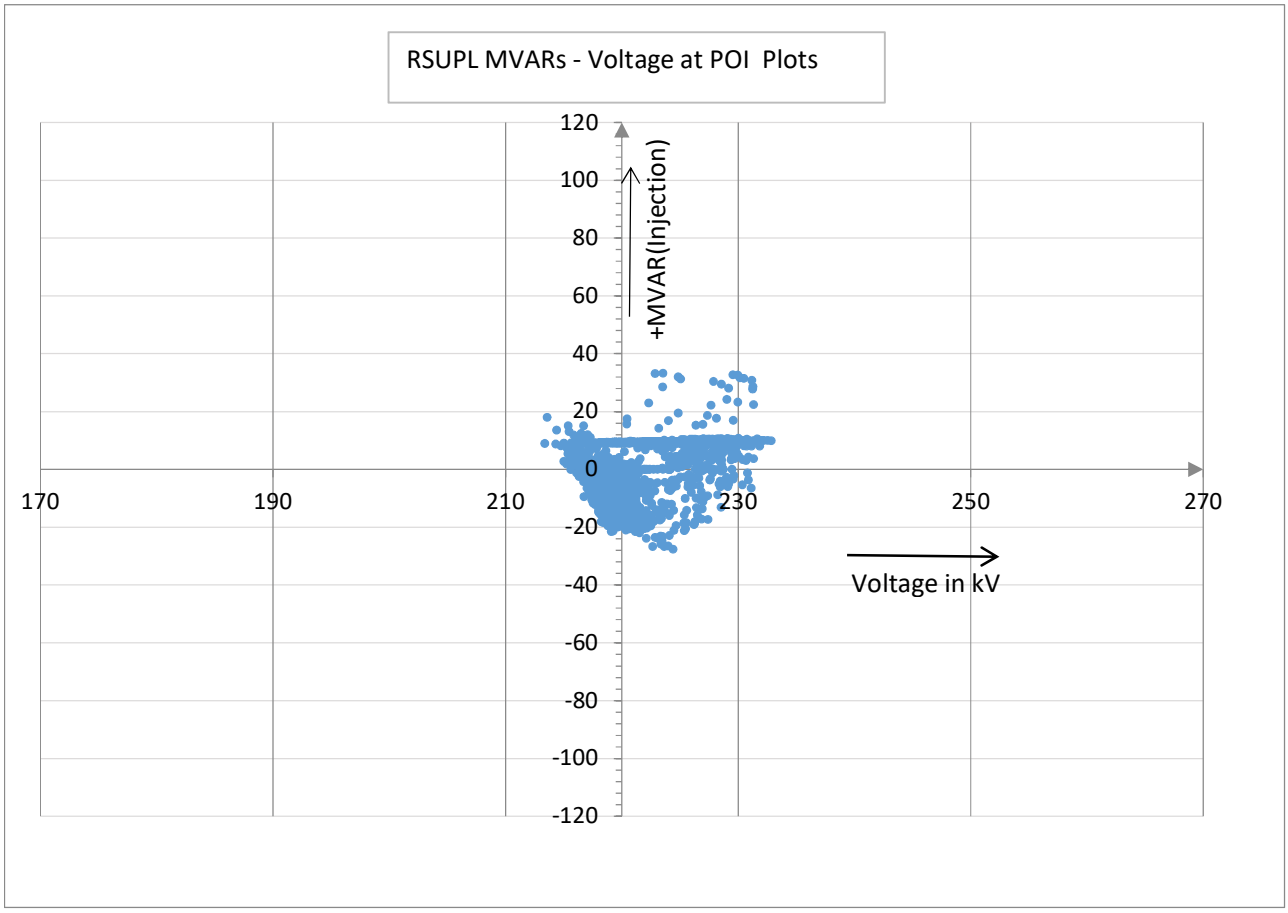

AHEJ2L MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
MVAR
360
320
280
240
200
160
120
80
40
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

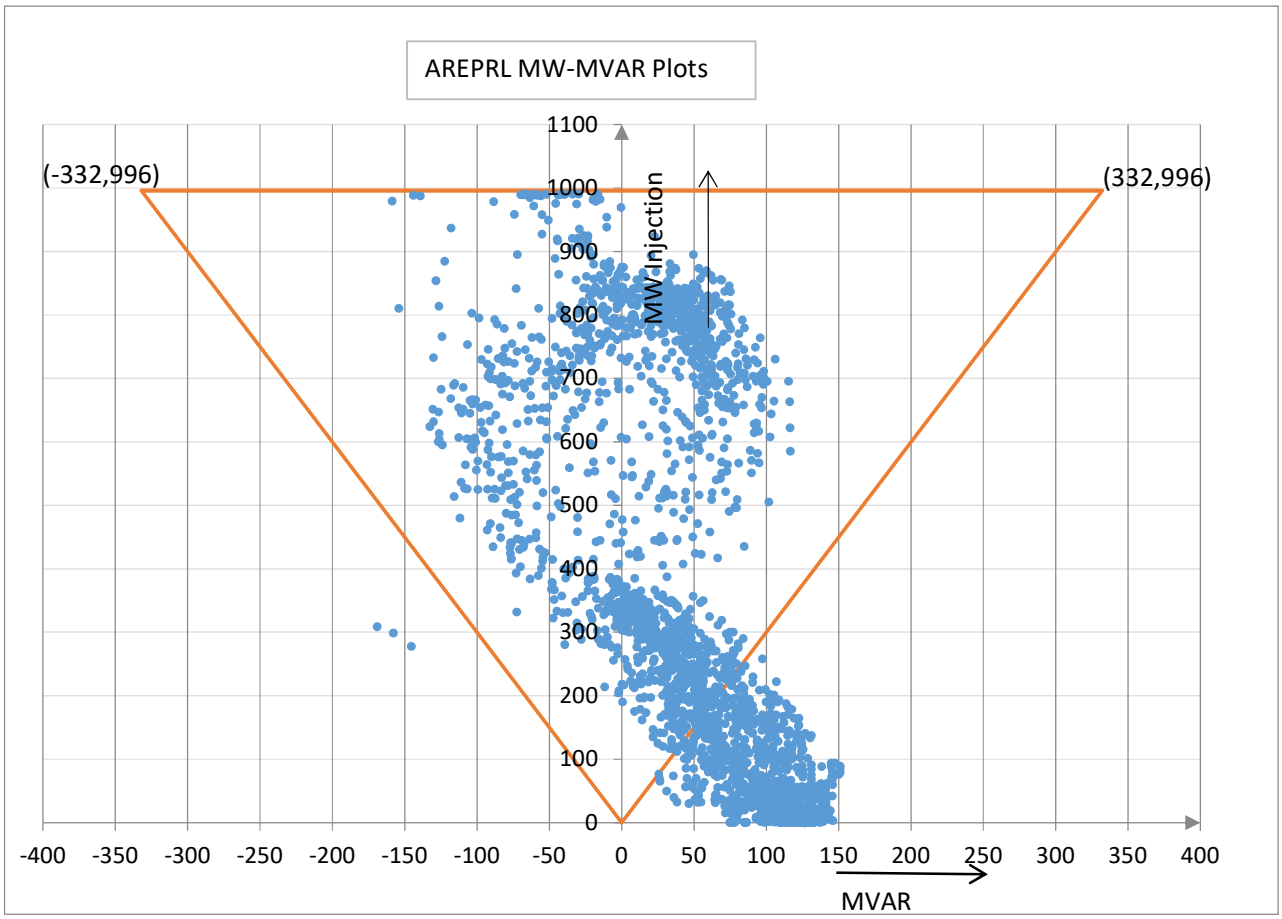

AHEJ2L MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

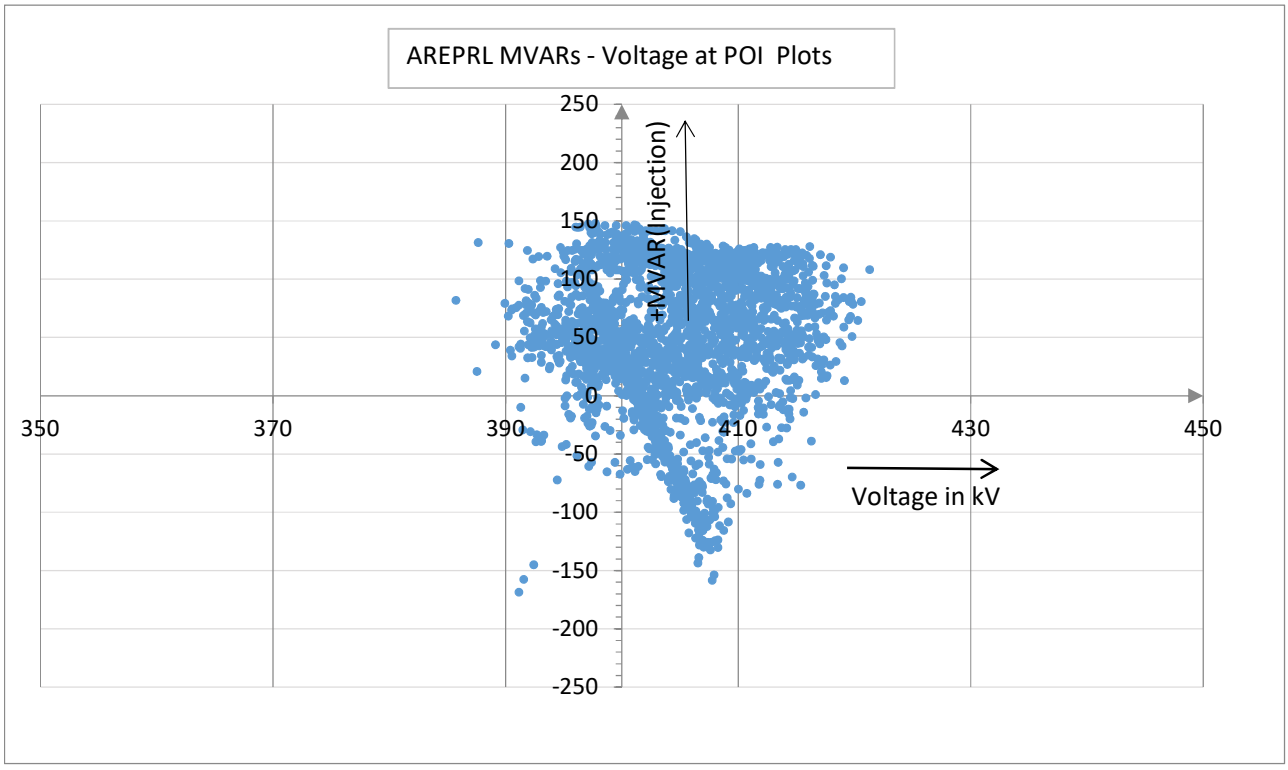

EDEN MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
MVAR
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

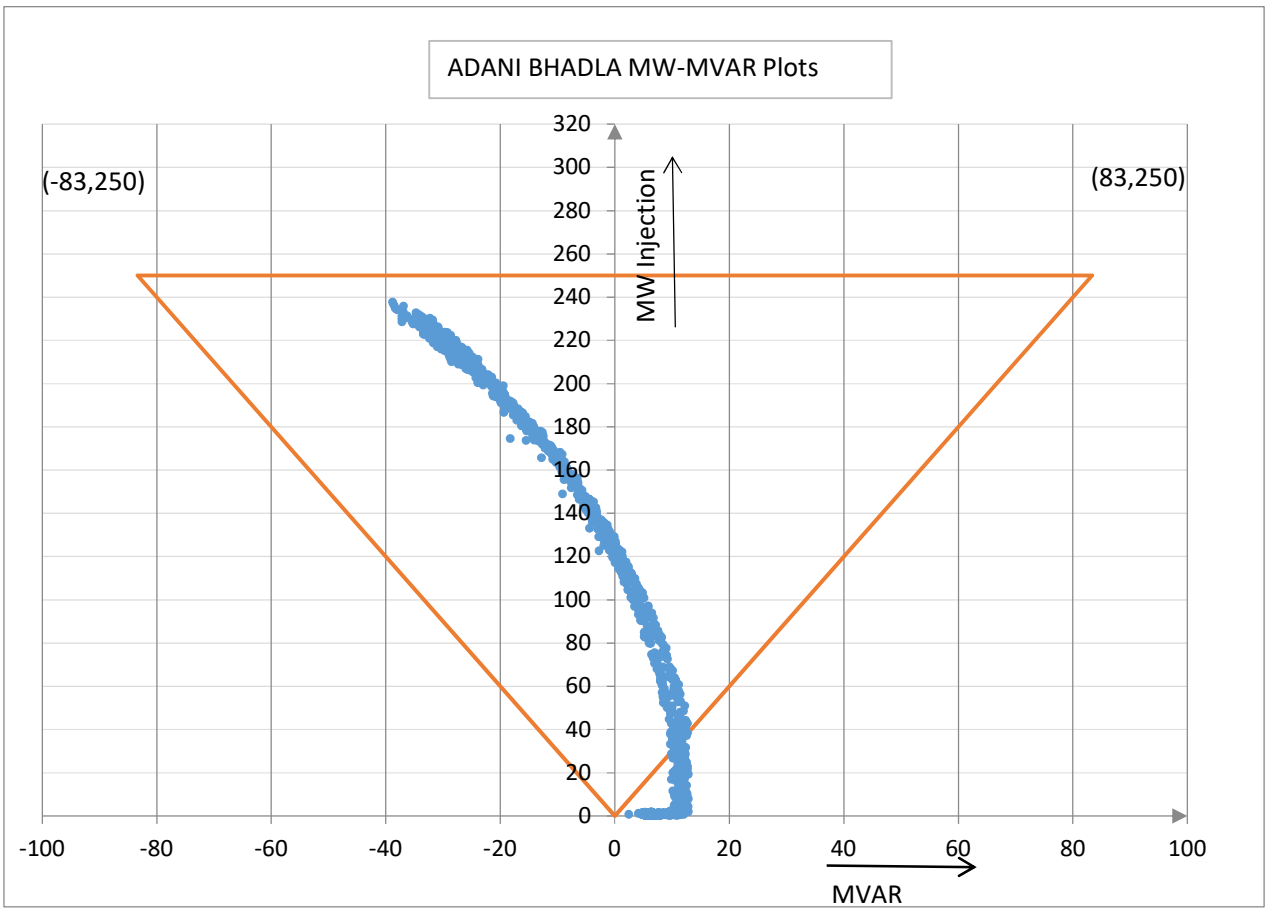

EDEN MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

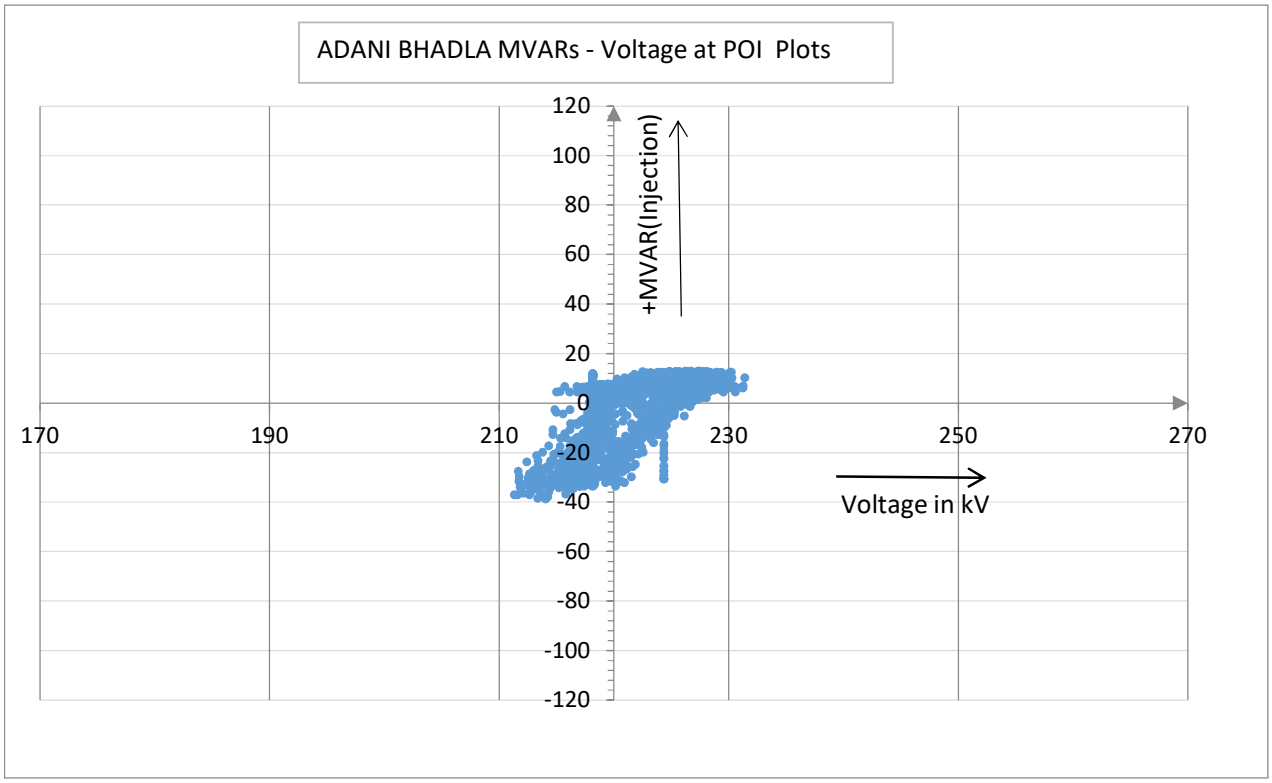

RSUPL MW-MVAR Plots
(-100,300)
(100,300)
MW
MVAR
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

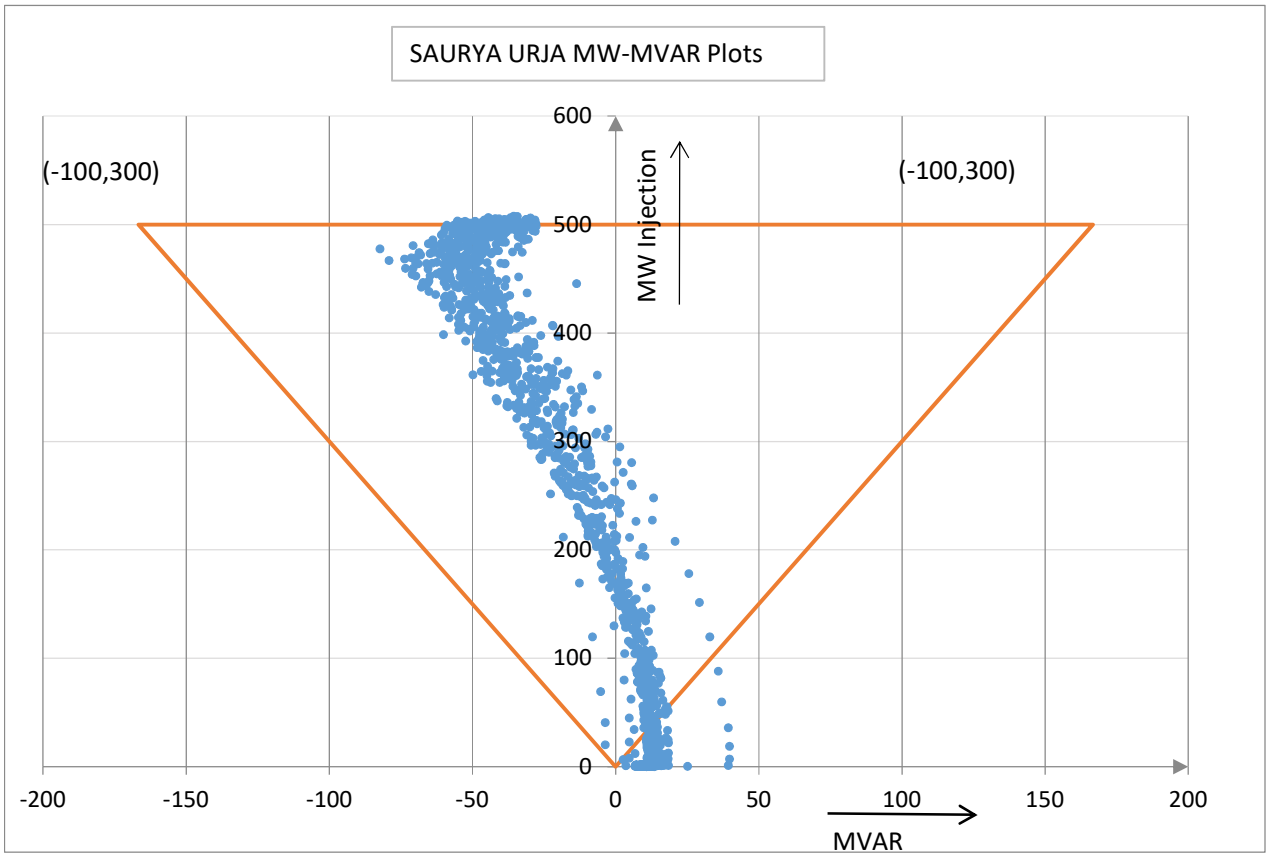

RSUPL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

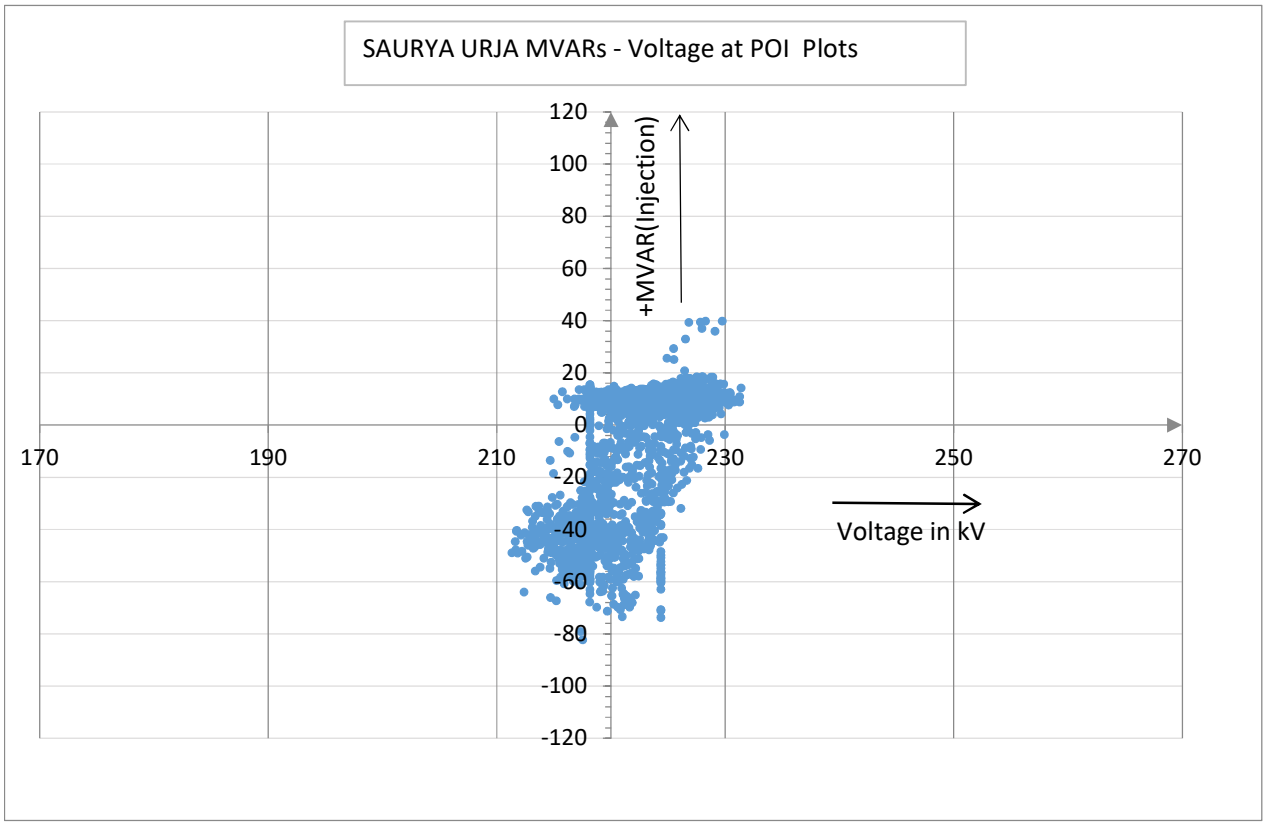

AREPRL MW-MVAR Plots
(-332,996)
(332,996)
MW Injection
MVAR
1100
1000
900
800
700
600
500
400
300
200
100
0
-400
-350
-300
-250
-200
-150
-100
-50
0
50
100
150
200
250
300
350
400

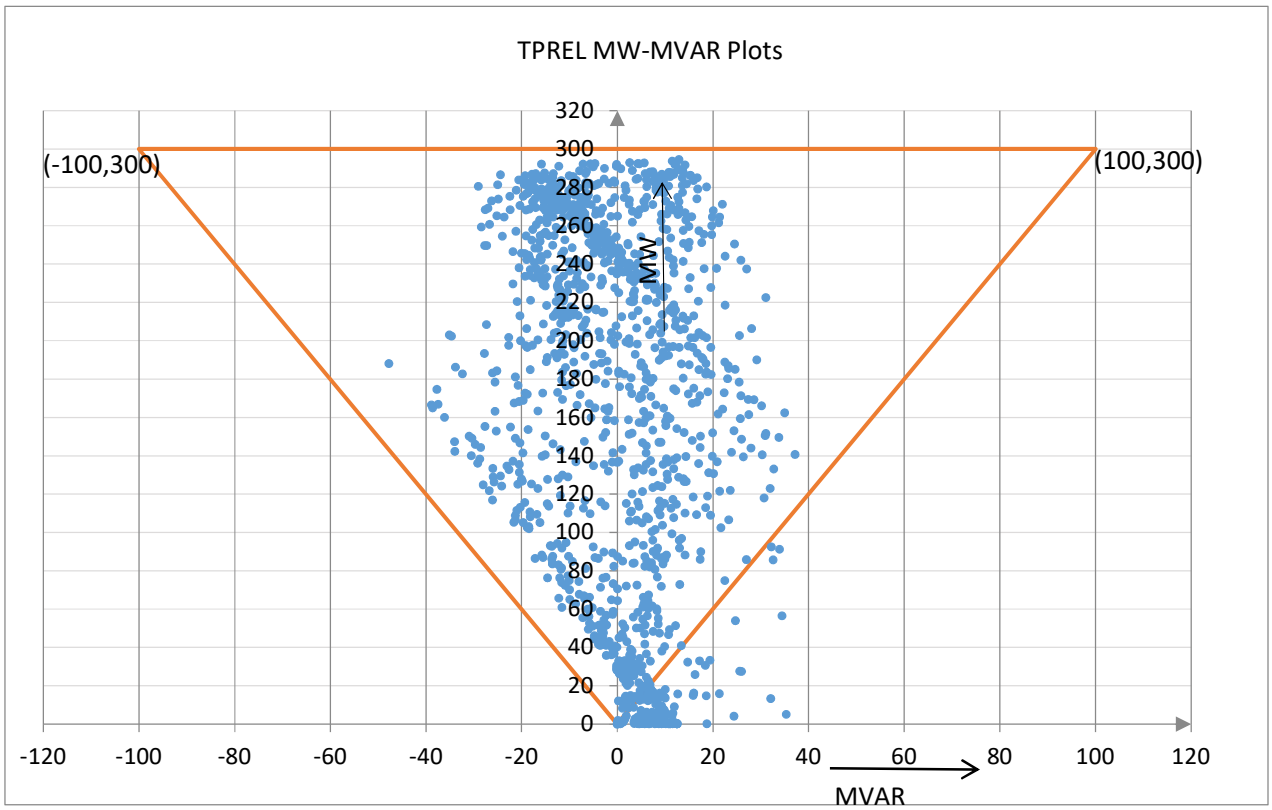

AREPRL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
250
200
150
100
50
0
-50
-100
-150
-200
-250
350
370
390
410
430
450

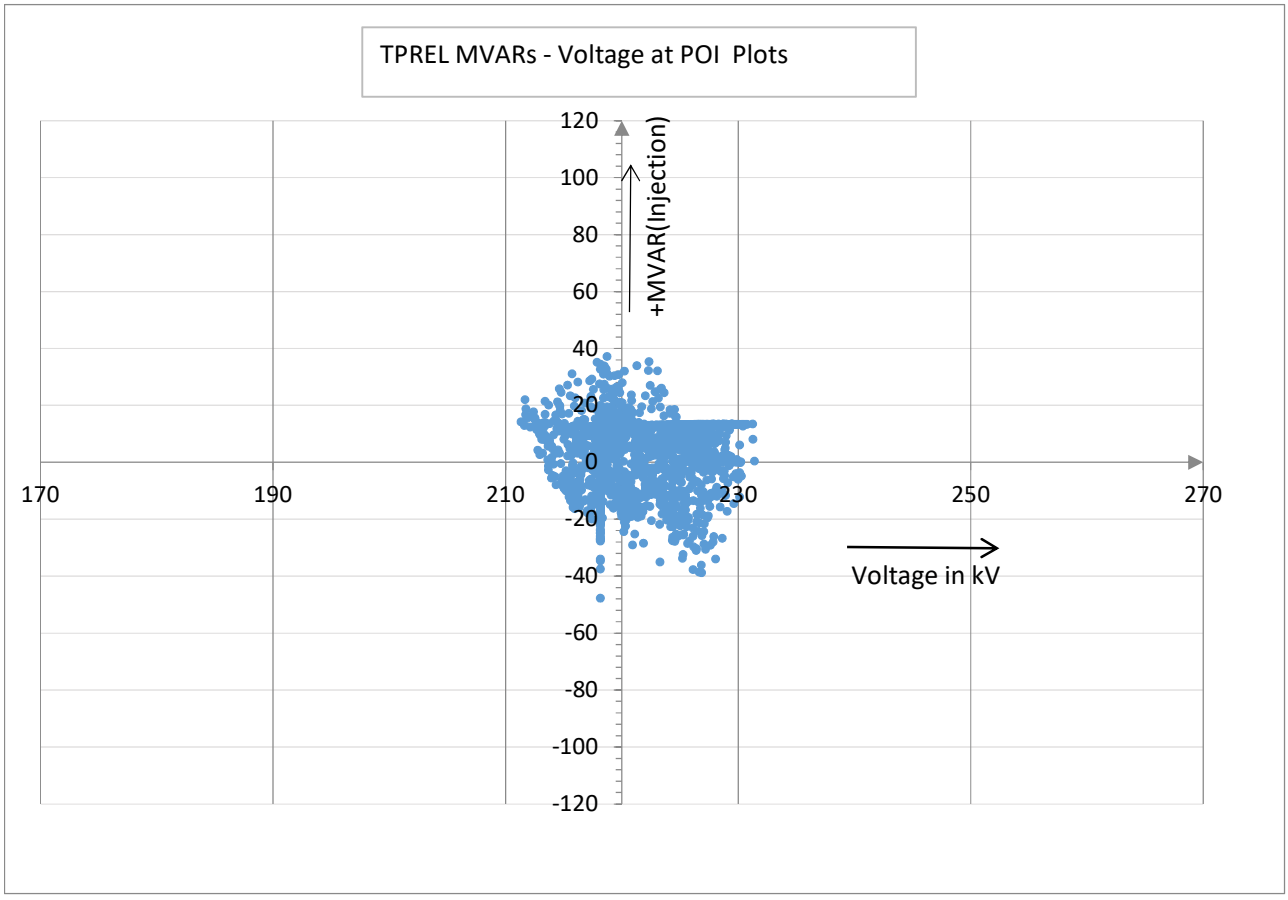

ADANI BHADLA MW-MVAR Plots
(-83,250)
(83,250)
MW Injection
MVAR
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-100
-80
-60
-40
-20
0
20
40
60
80
100

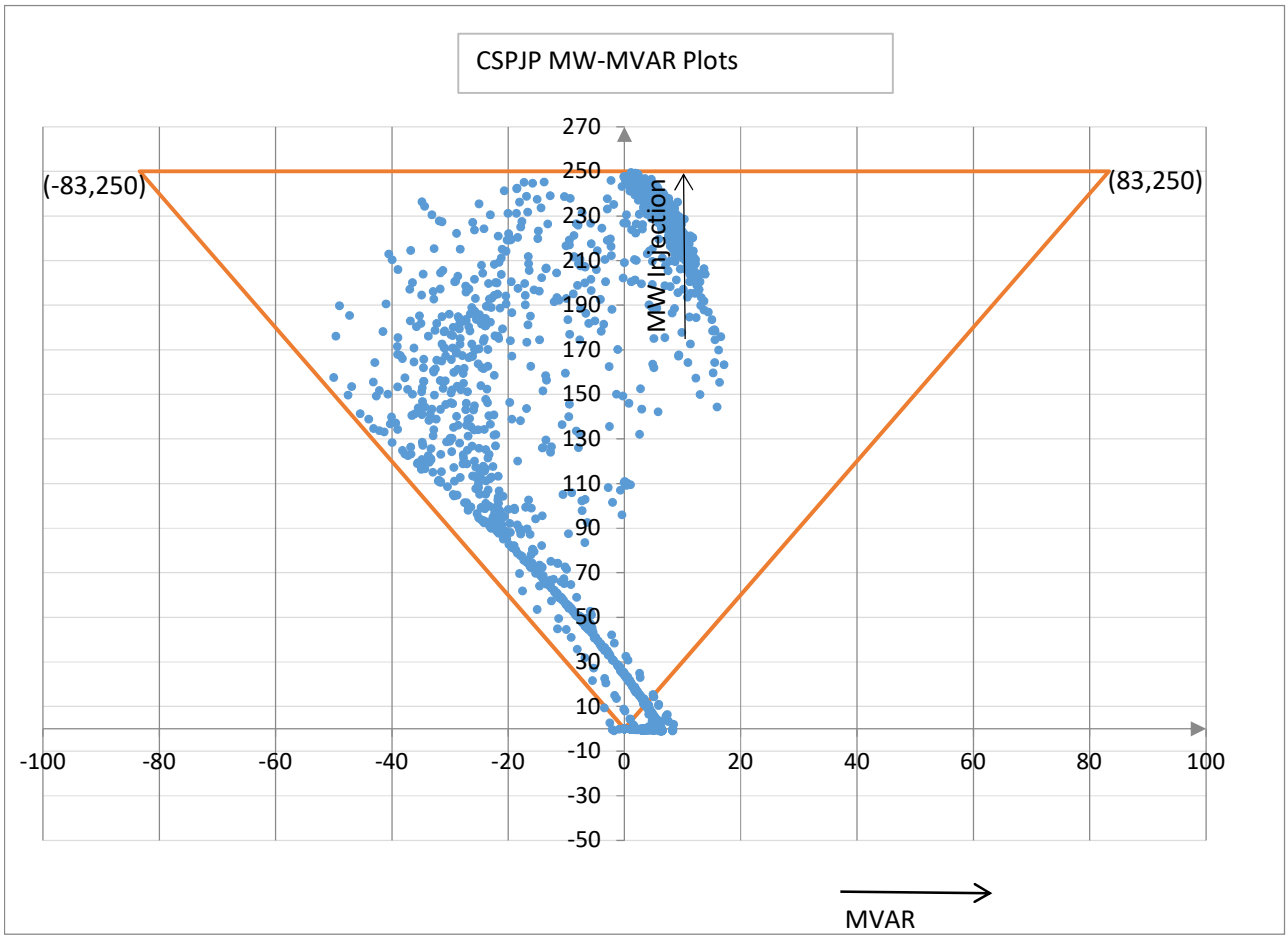

ADANI BHADLA MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

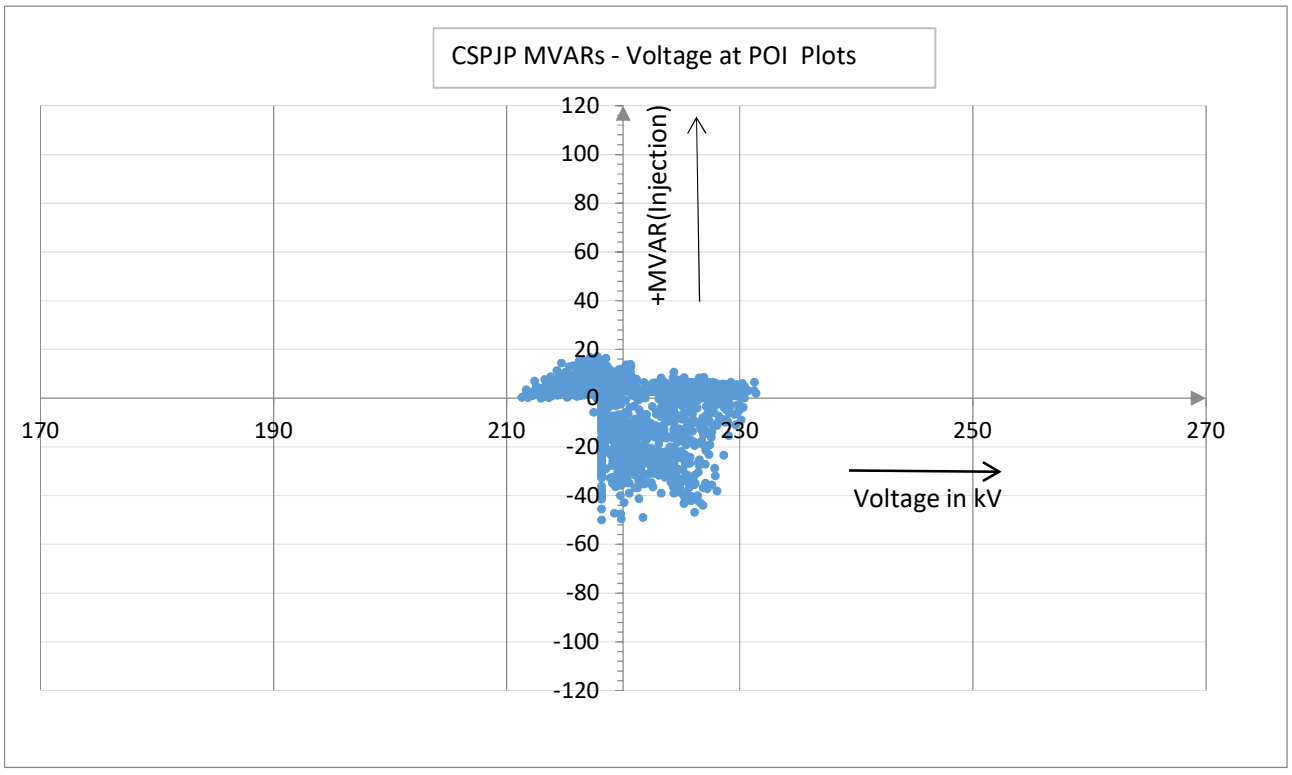

SAURYA URJA MW-MVAR Plots
(-100,300)
(-100,300)
MW Injection
600
500
400
300
200
100
0
-200
-150
-100
-50
0
50
100
150
200
MVAR

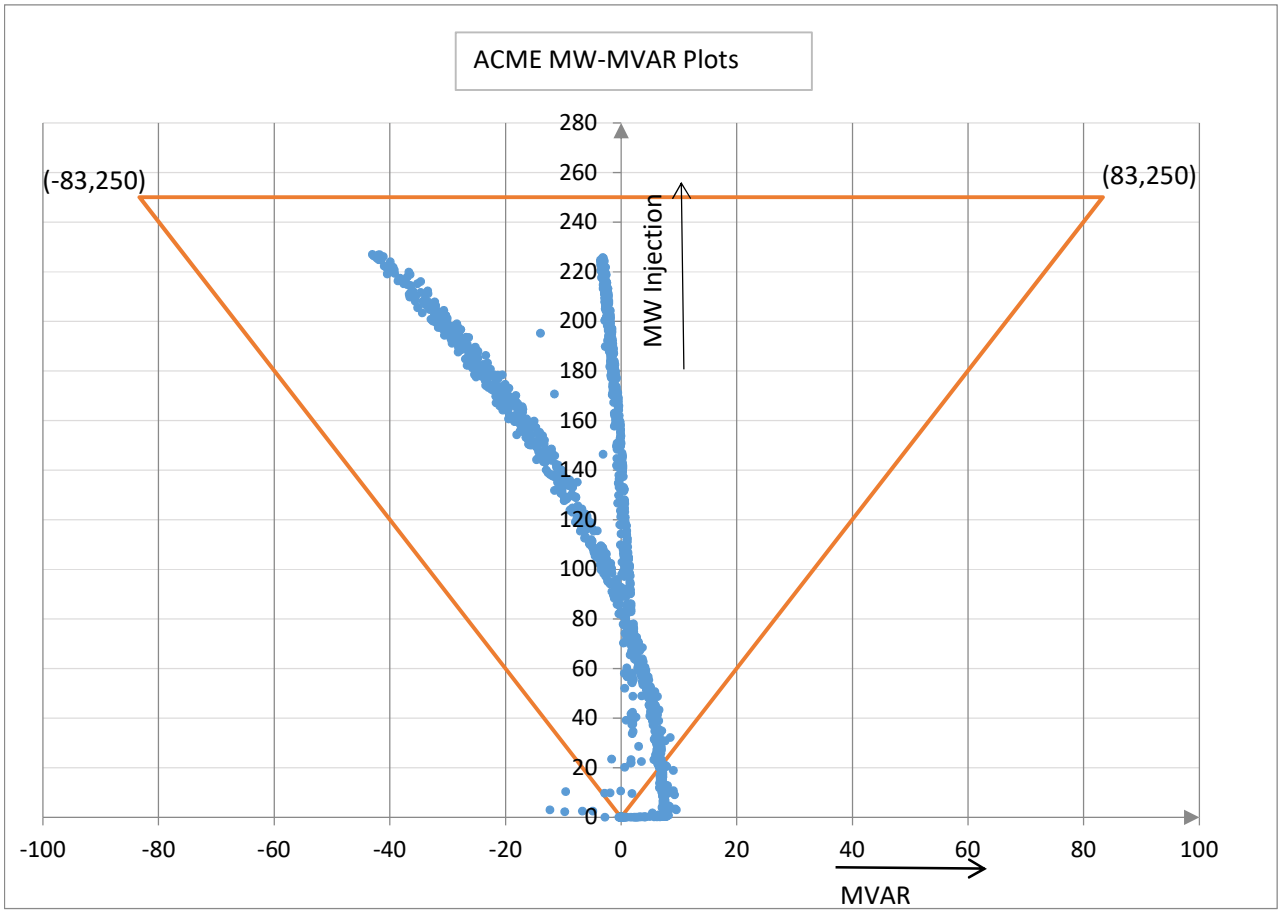

SAURYA URJA MVARs - Voltage at POI Plots
+MVAR(Injection)
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270
Voltage in kV

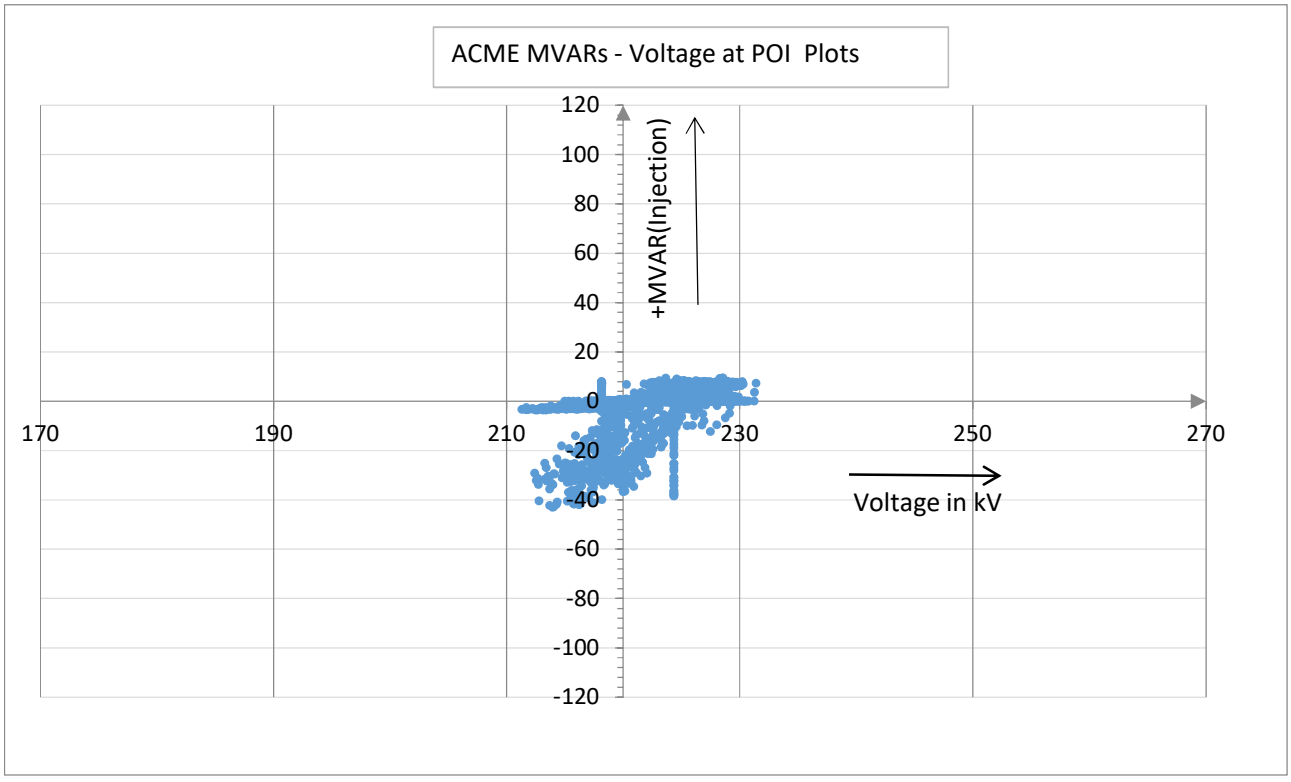

TPREL MW-MVAR Plots
(-100,300)
(100,300)
MW
MVAR
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

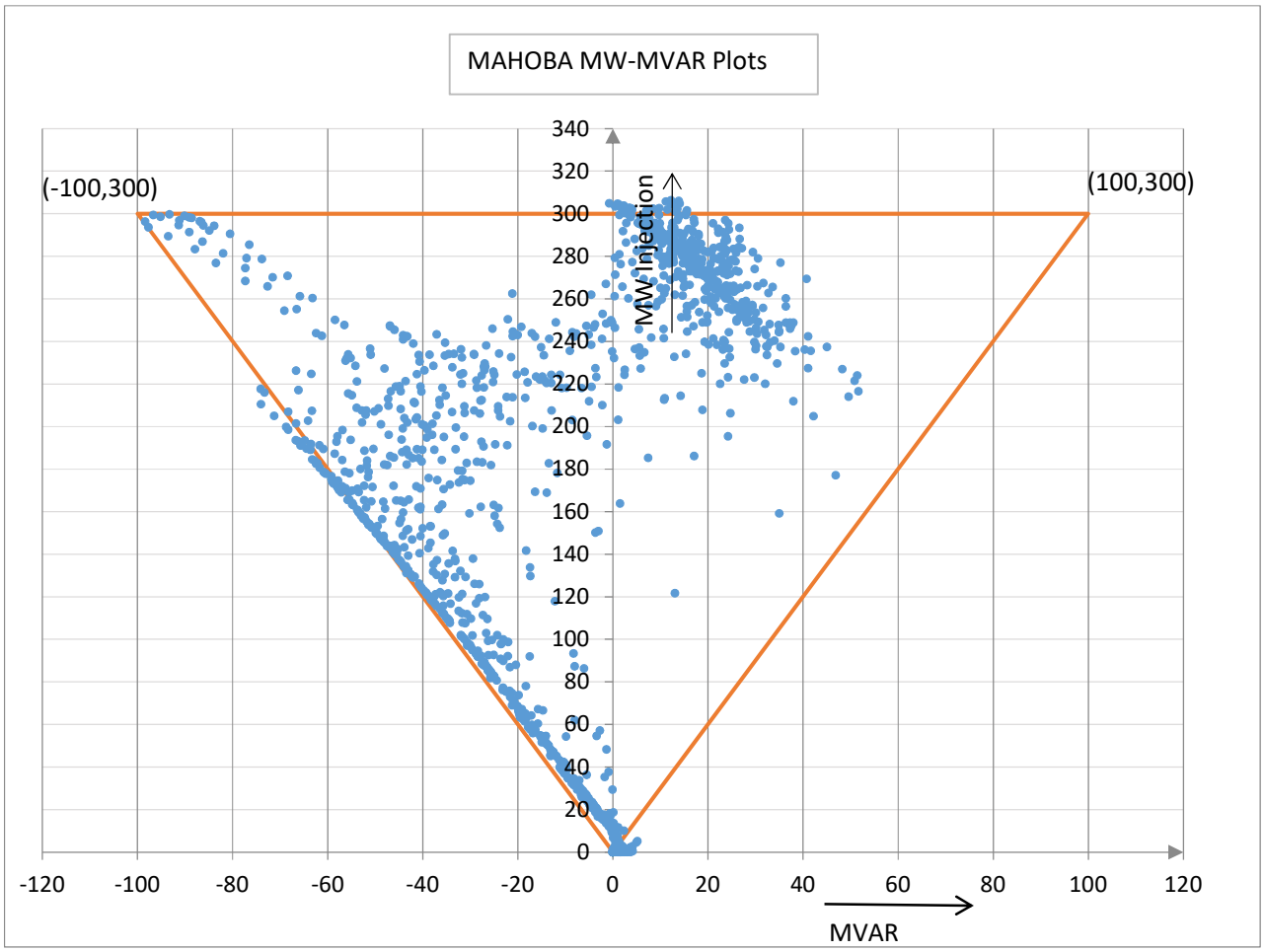

TPREL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

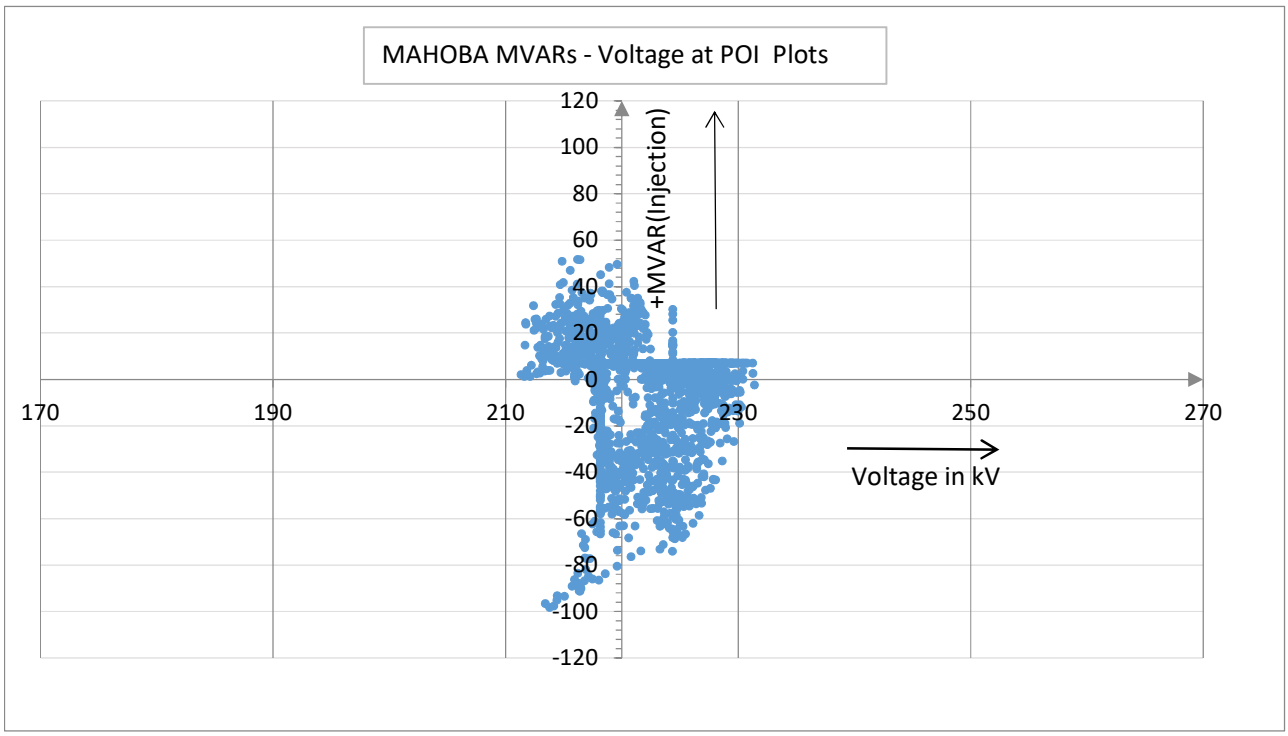

CSPJP MW-MVAR Plots
(-83,250)
(83,250)
MW Injection
MVAR
270
250
230
210
190
170
150
130
110
90
70
50
30
10
-10
-30
-50
-100
-80
-60
-40
-20
0
20
40
60
80
100

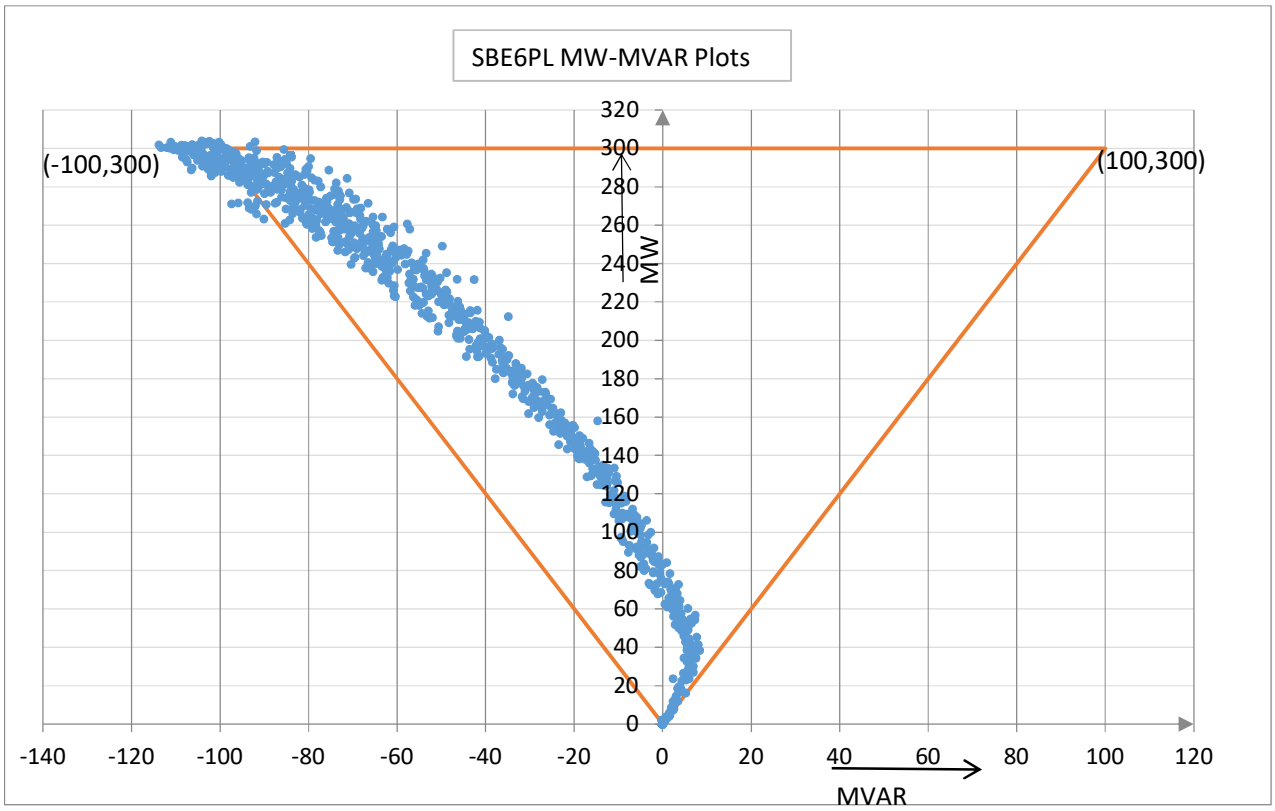

CSPJP MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

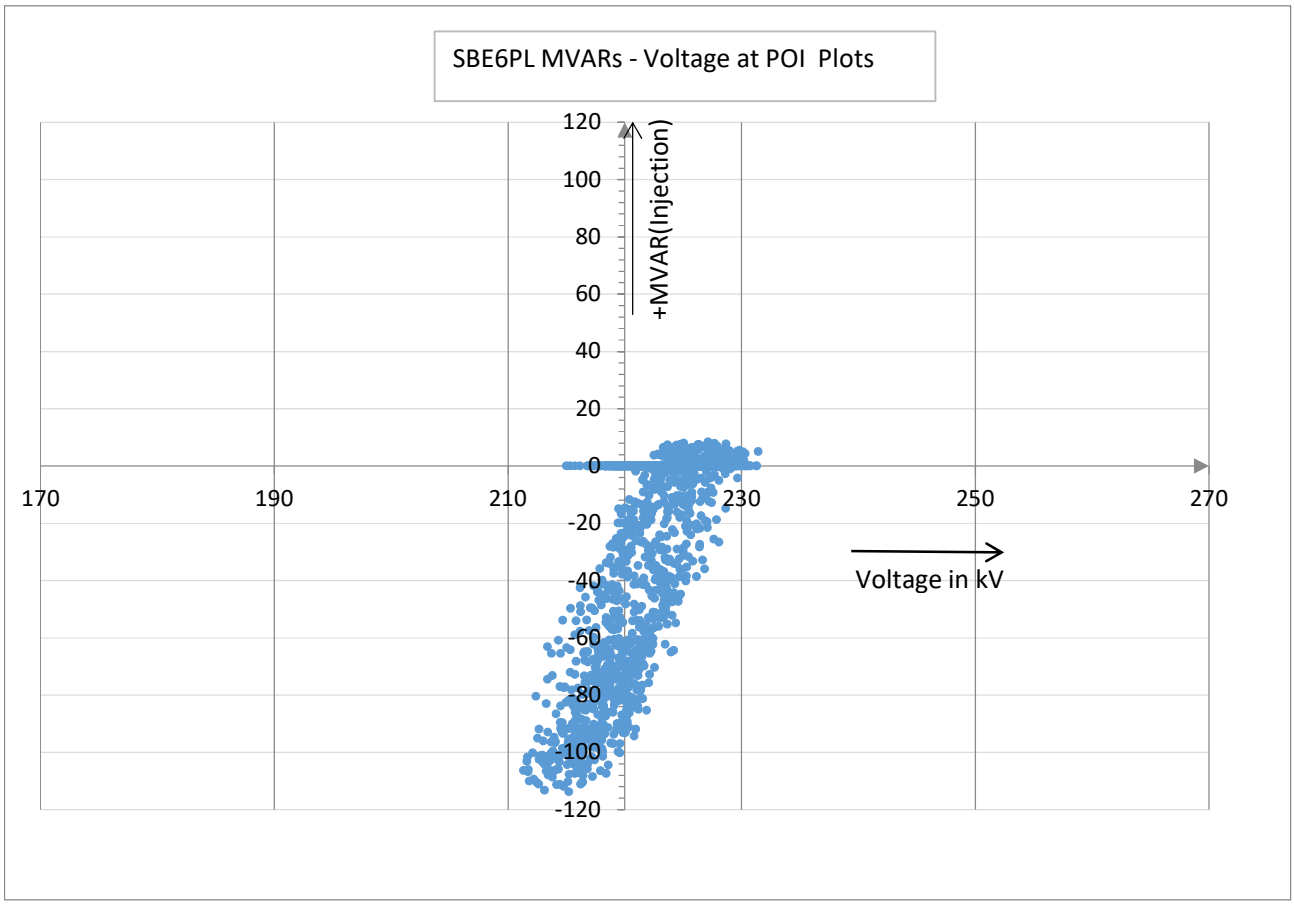

ACME MW-MVAR Plots
(-83,250)
(83,250)
MW Injection
MVAR
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-100
-80
-60
-40
-20
0
20
40
60
80
100

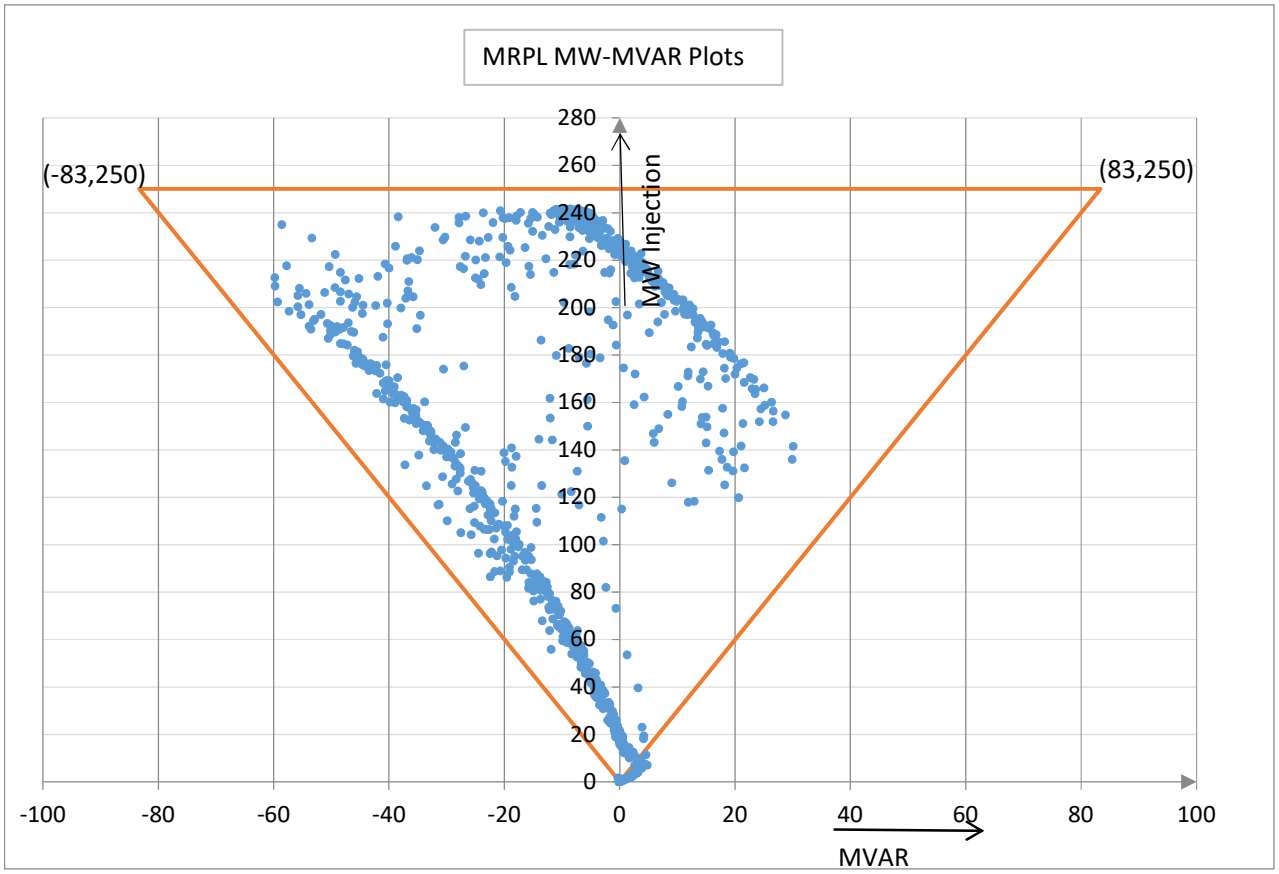

ACME MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

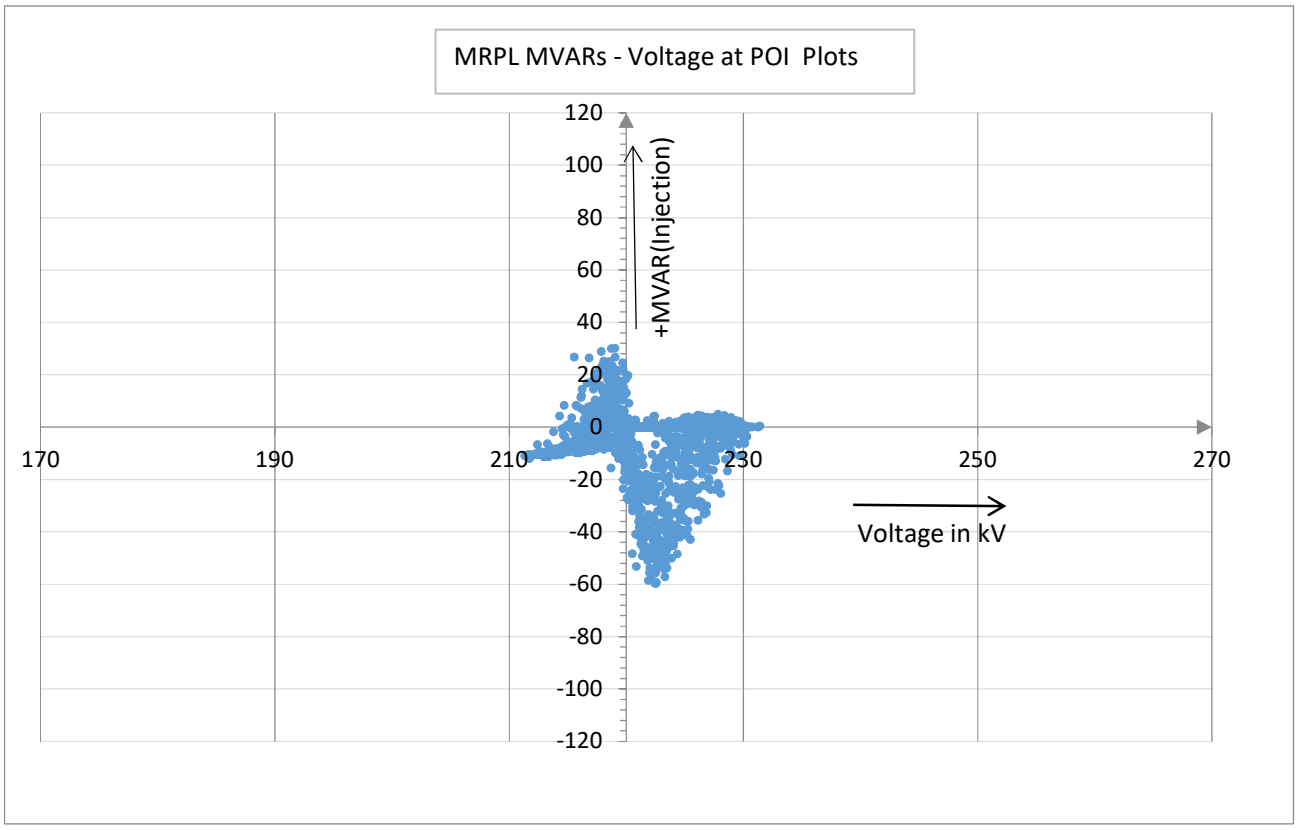

MAHOBA MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
MVAR
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

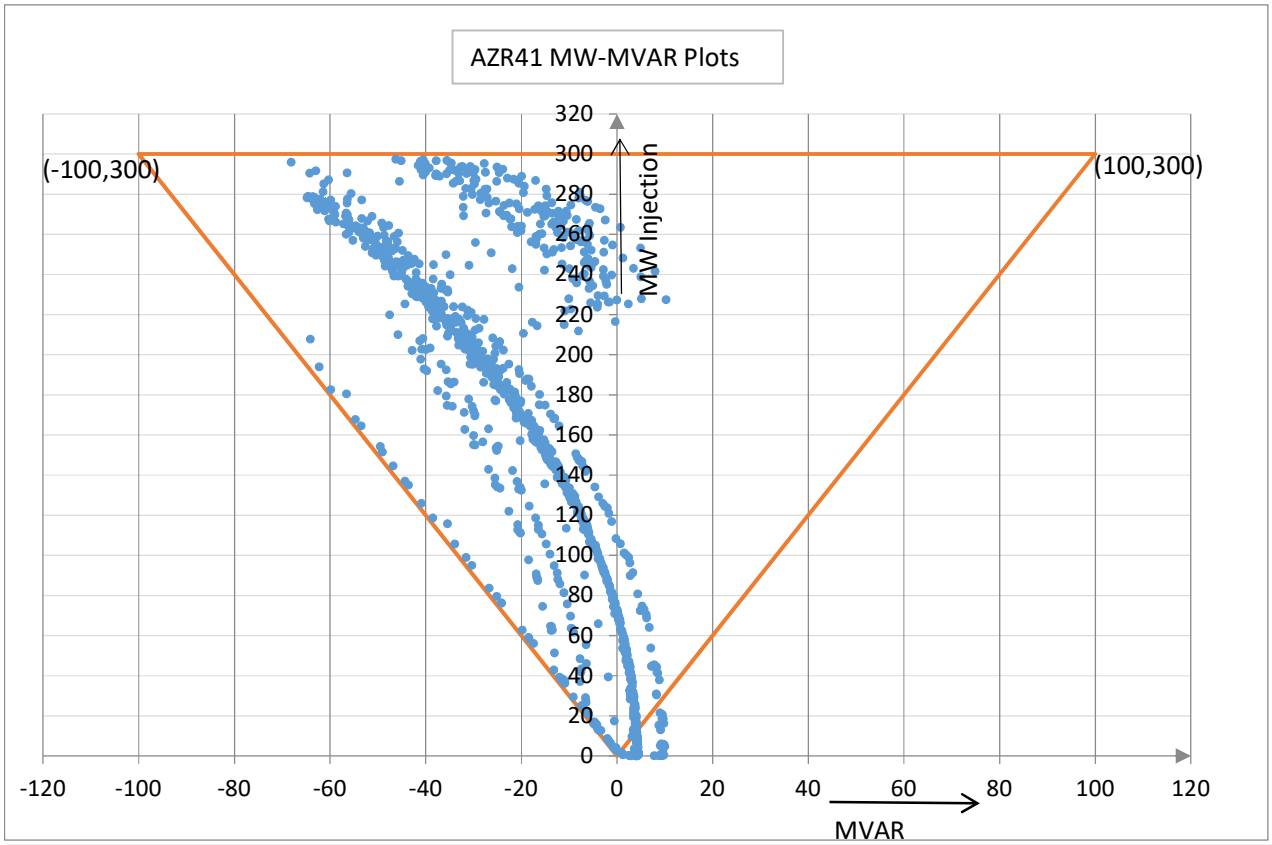

MAHOBA MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

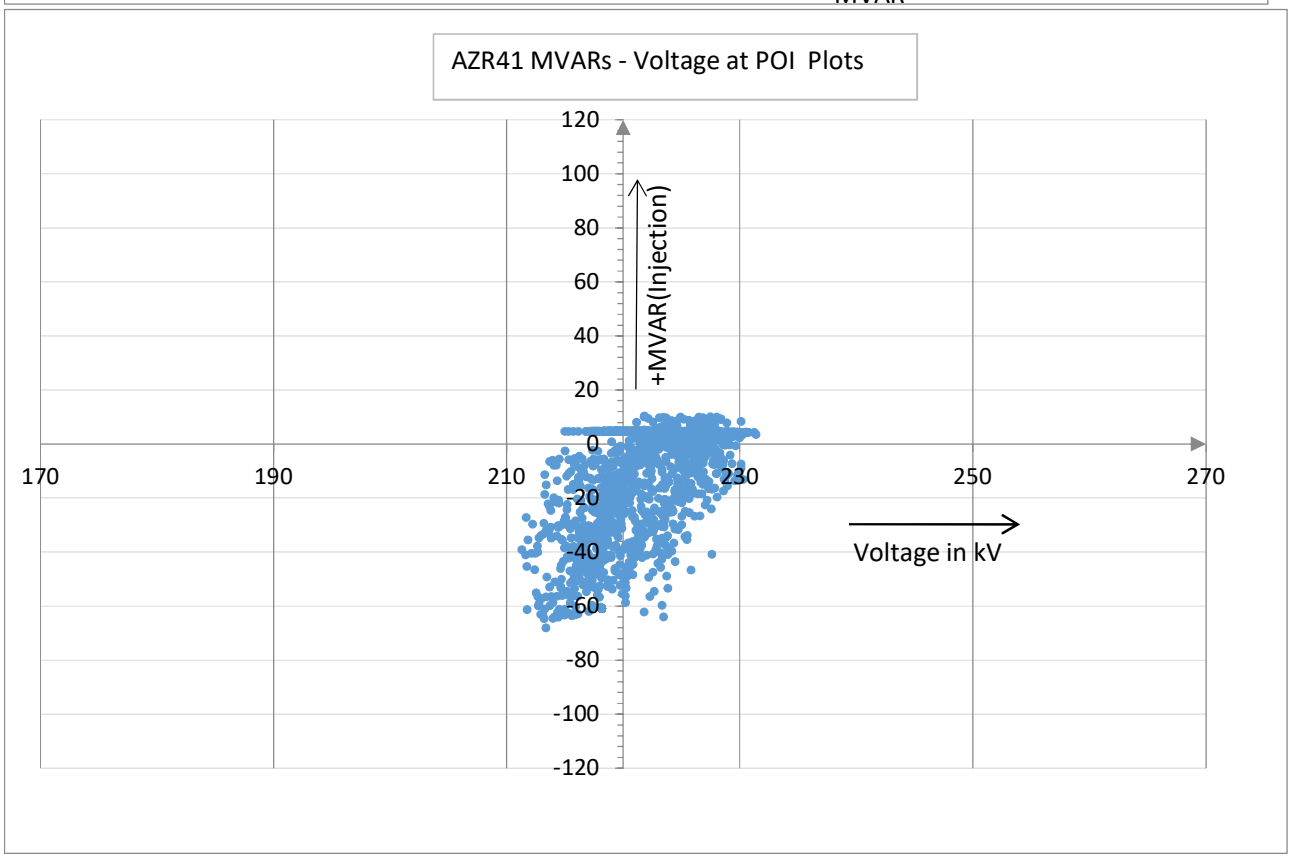

SBE6PL MW-MVAR Plots
(-100,300)
(100,300)
MW
MVAR
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-140
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

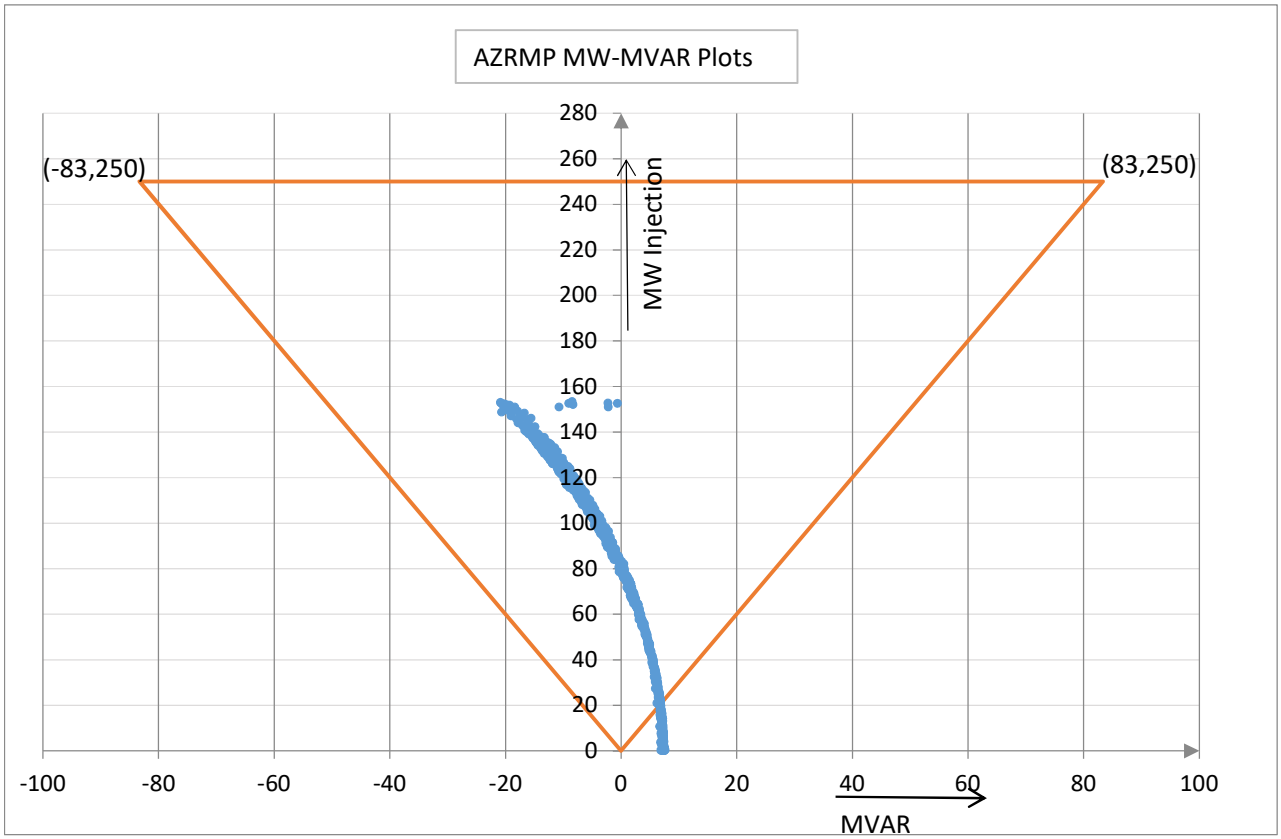

SBE6PL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

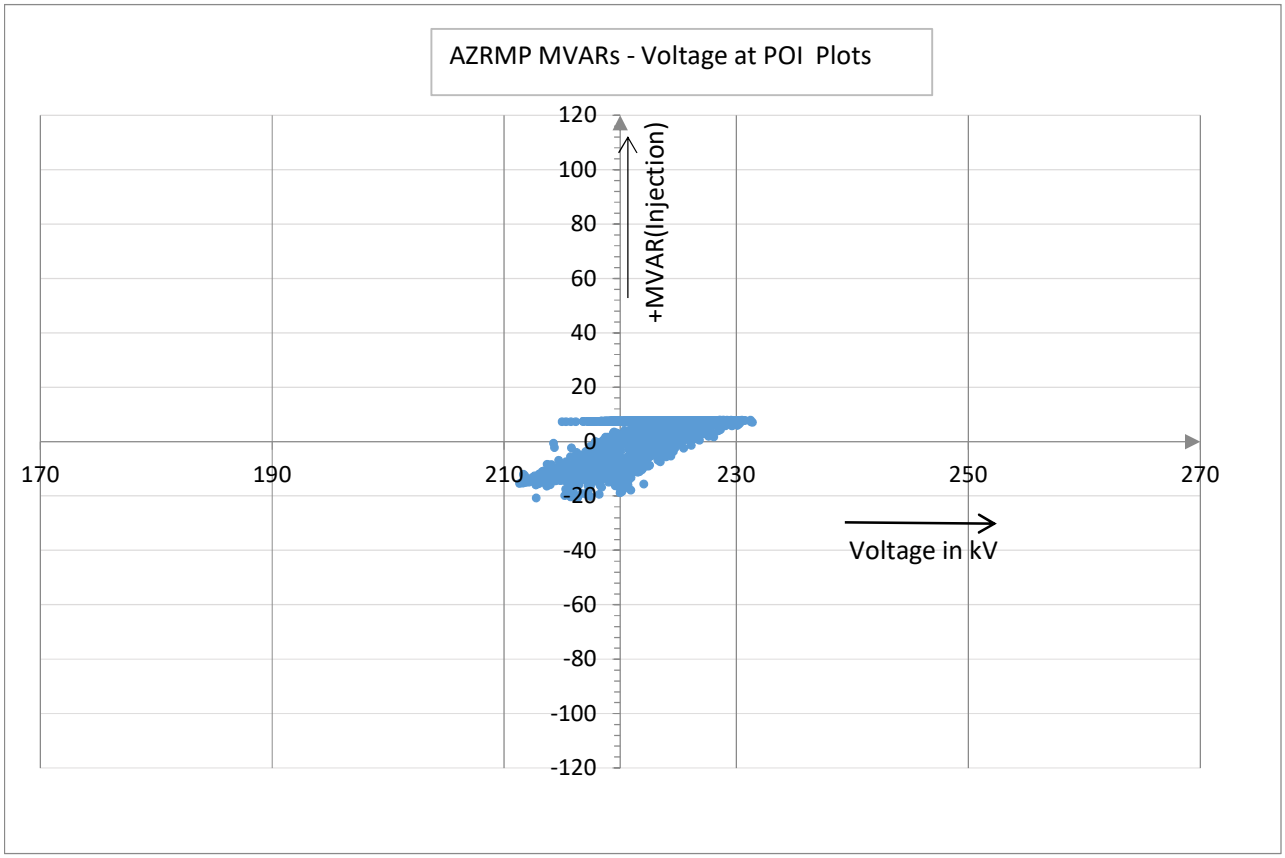

MRPL MW-MVAR Plots
(-83,250)
(83,250)
MW Injection
MVAR
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-100
-80
-60
-40
-20
0
20
40
60
80
100

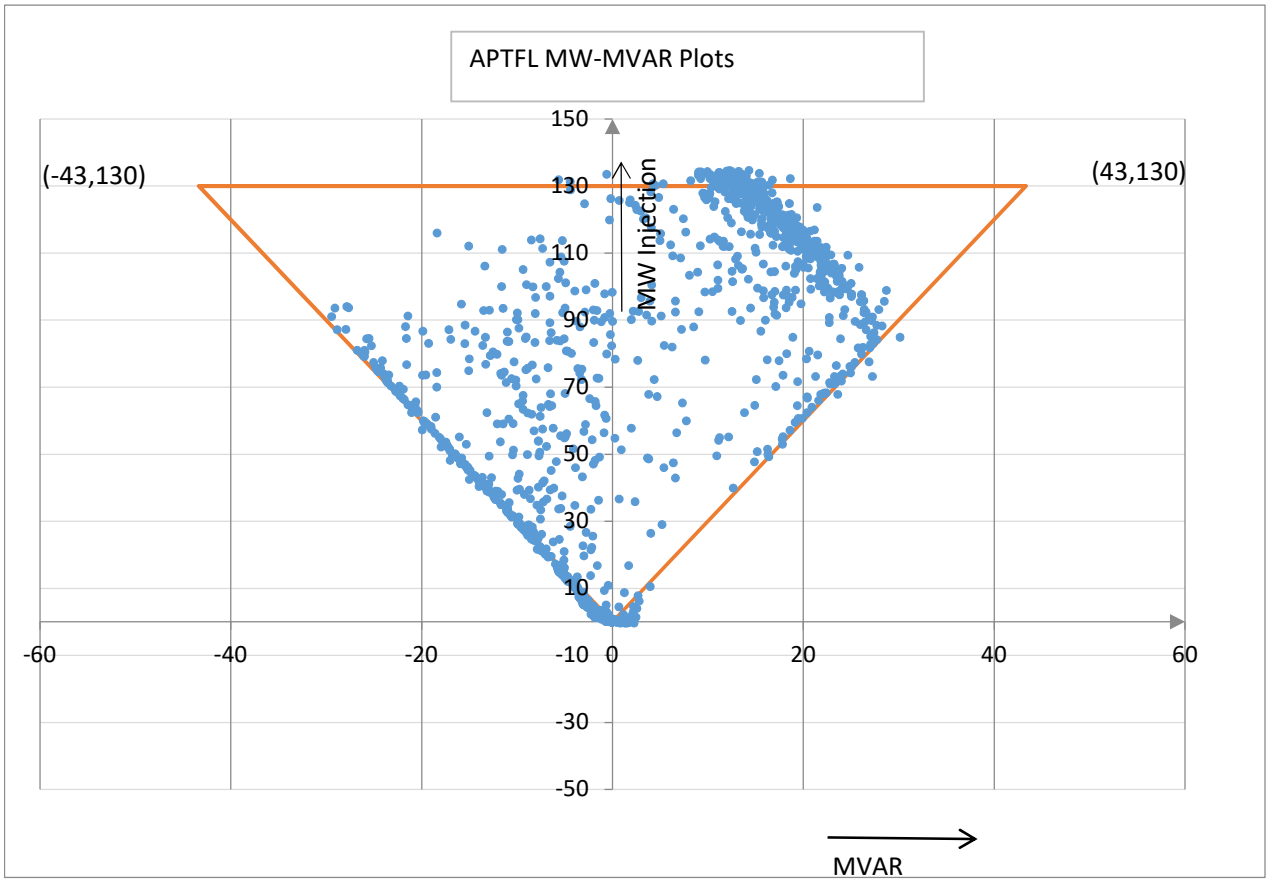

MRPL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

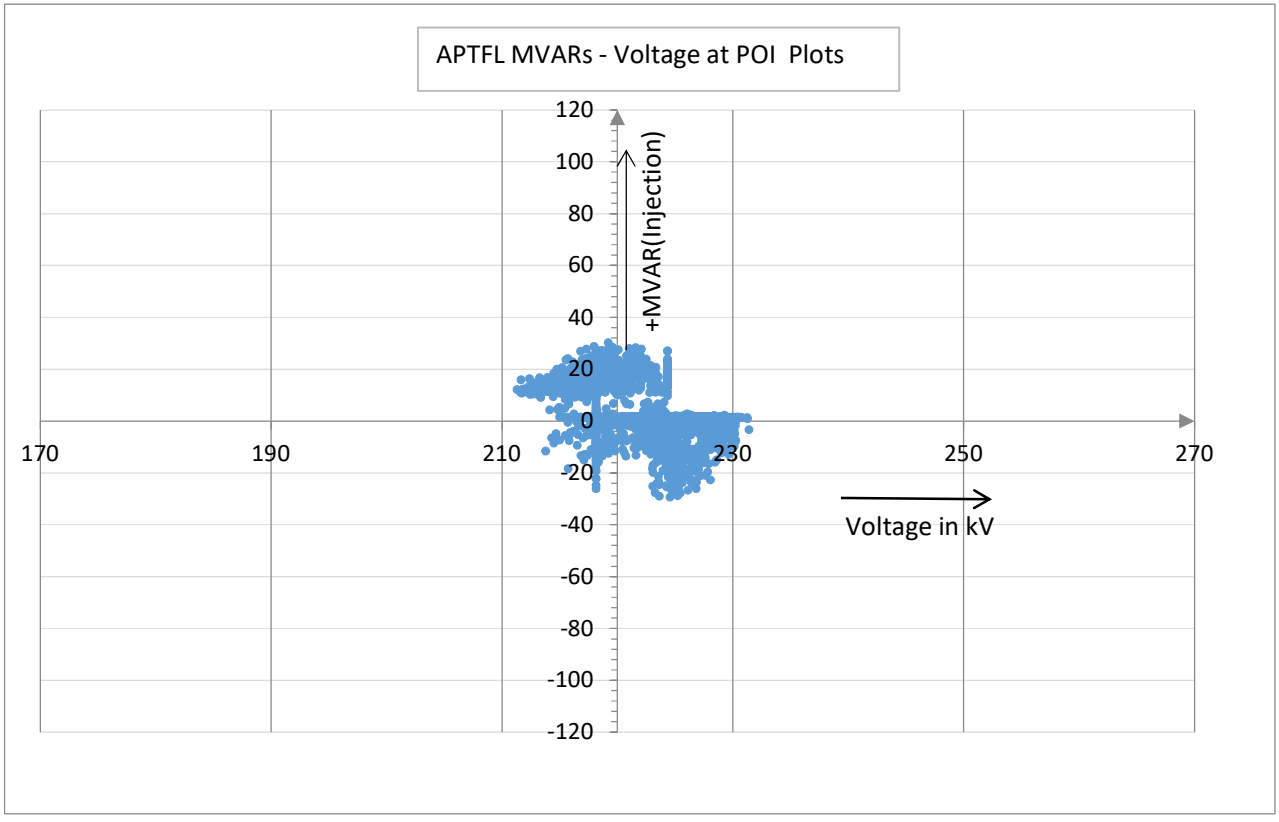

AZR41 MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
MVAR
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

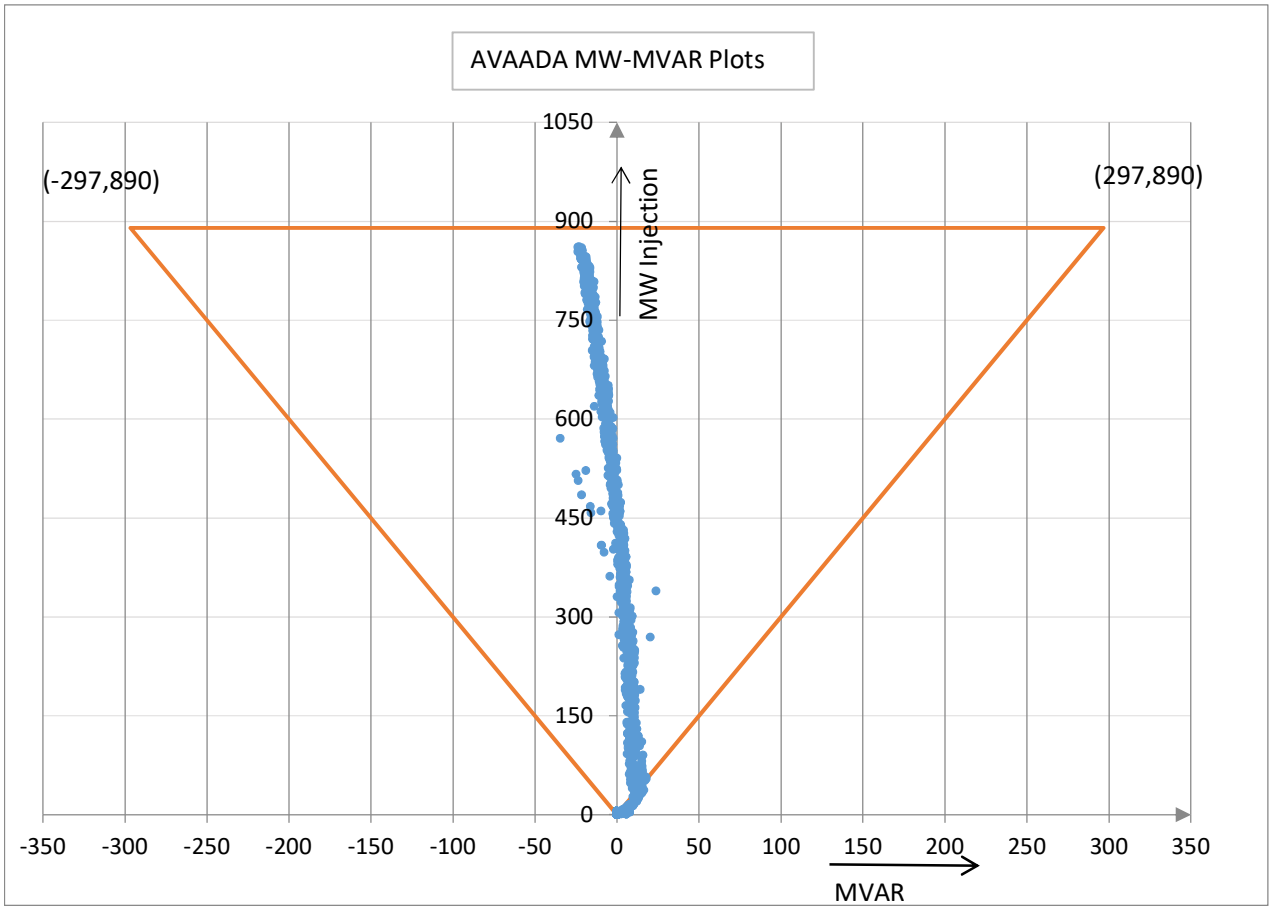

AZR41 MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

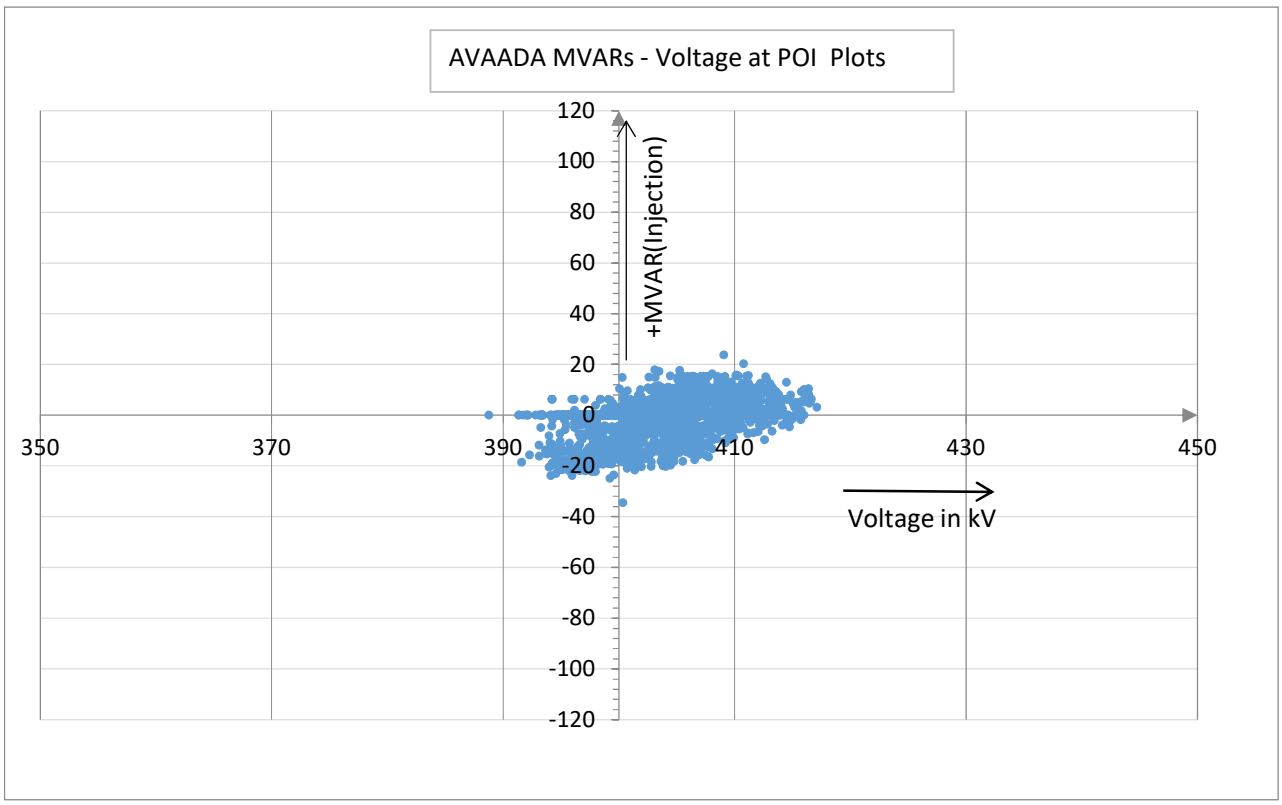

AZRMP MW-MVAR Plots
(-83,250)
(83,250)
MW Injection
MVAR
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-100
-80
-60
-40
-20
0
20
40
60
80
100

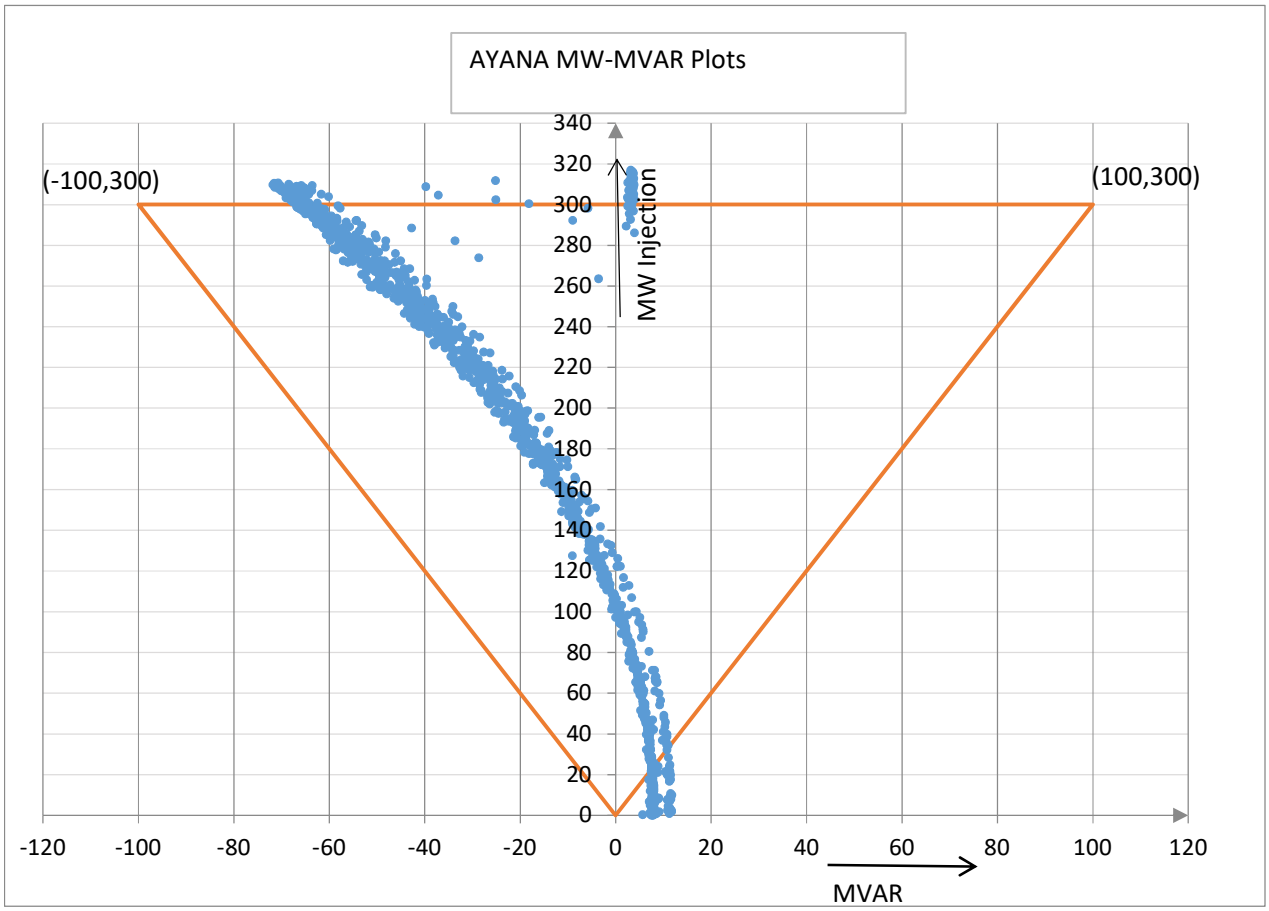

AZRMP MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

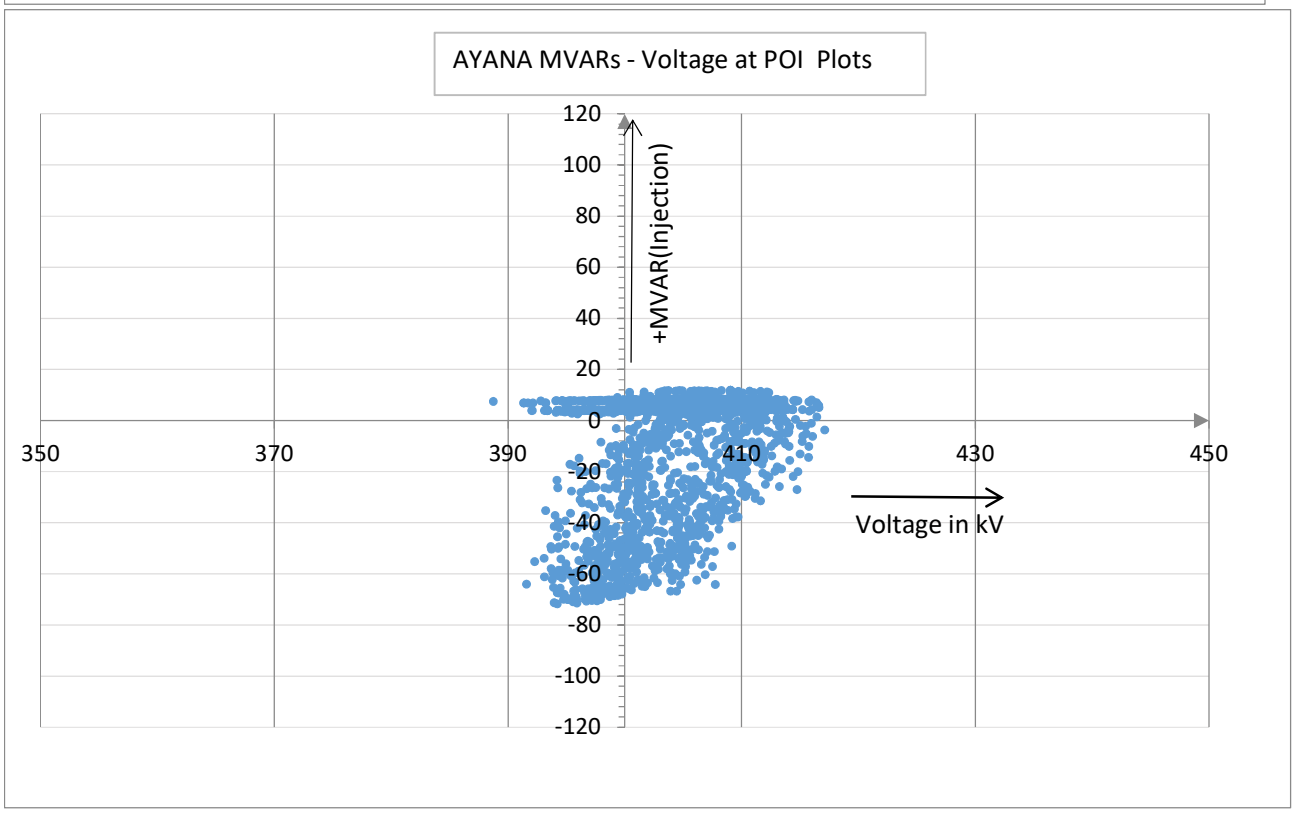

APTFL MW-MVAR Plots
(-43,130)
(43,130)
MW Injection
MVAR
150
130
110
90
70
50
30
10
-30
-50
-60
-40
-20
-10
0
20
40
60

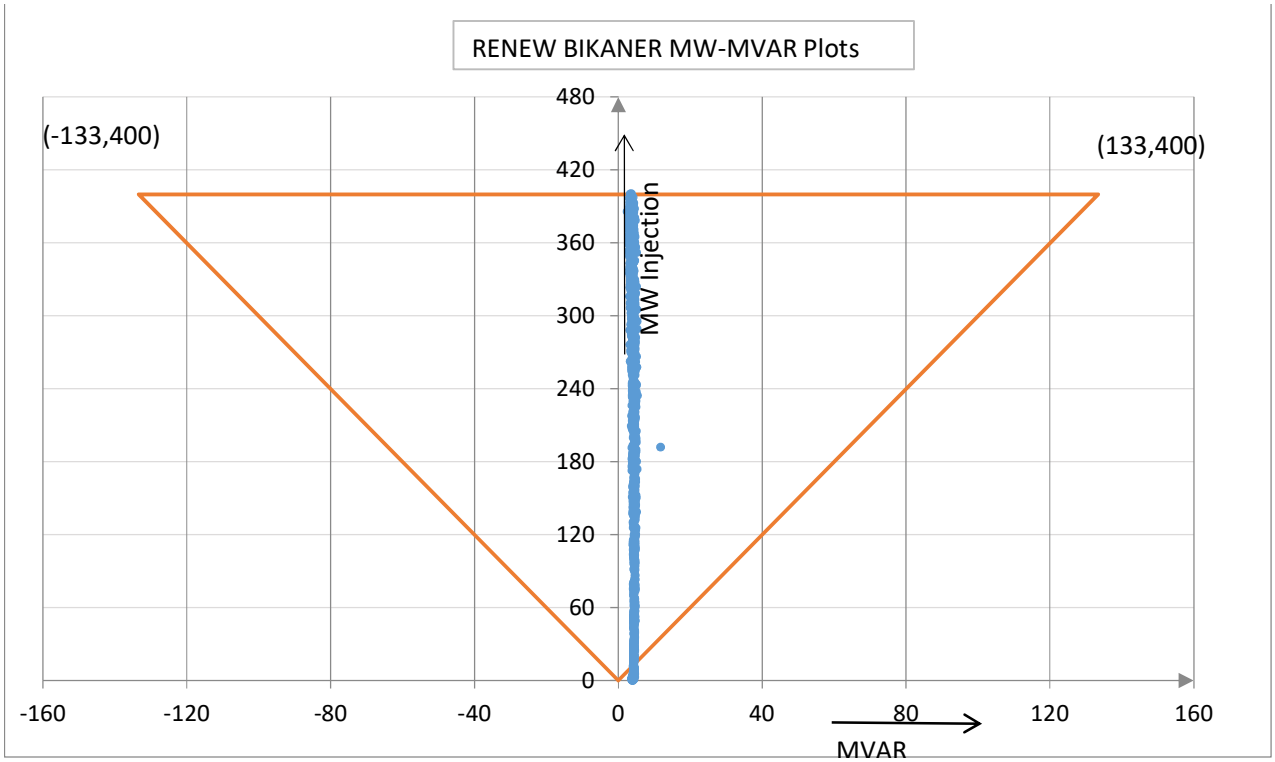

APTFL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

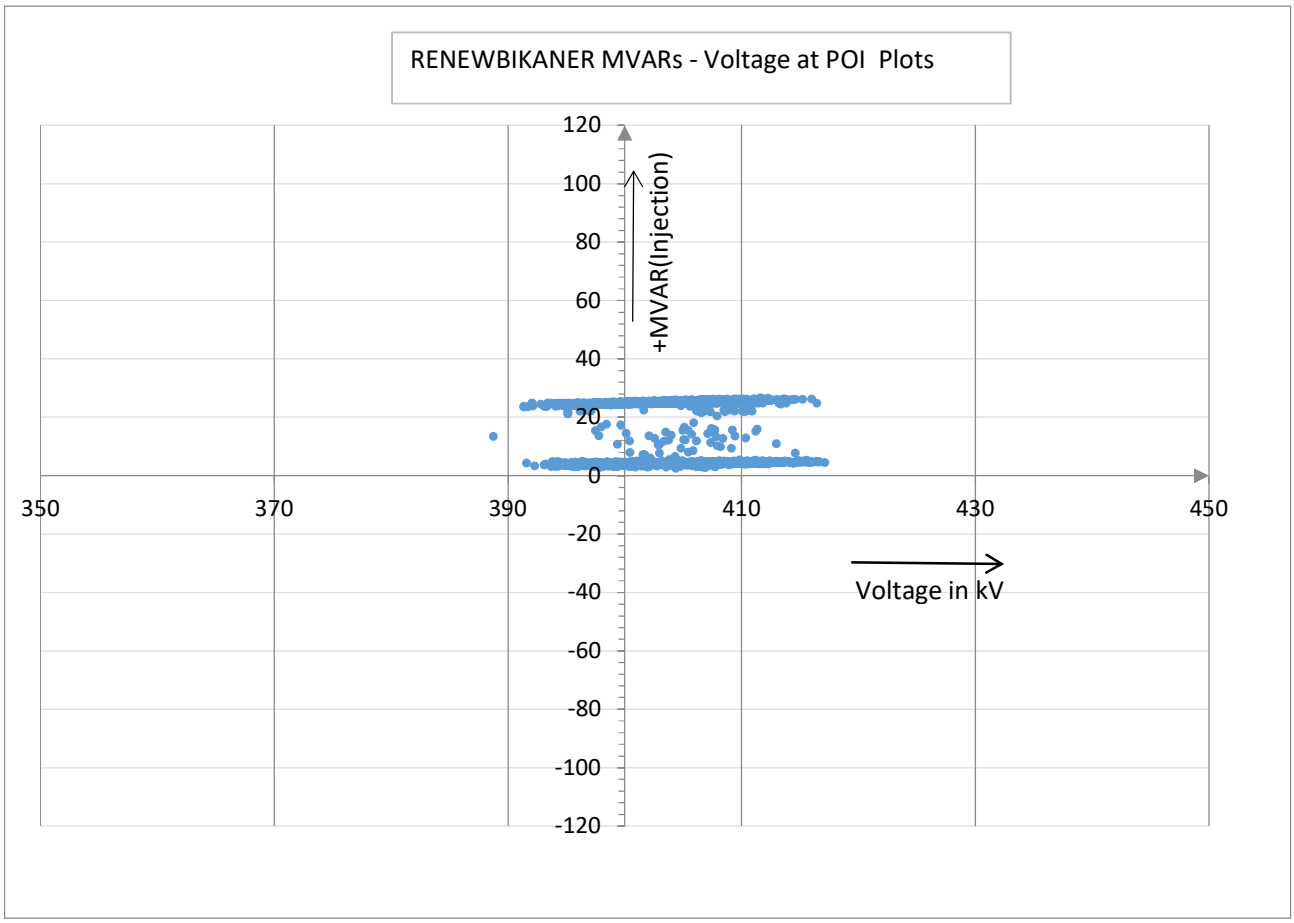

AVAADA MW-MVAR Plots
(-297,890)
(297,890)
MW Injection
MVAR
1050
900
750
600
450
300
150
0
-350
-300
-250
-200
-150
-100
-50
0
50
100
150
200
250
300
350

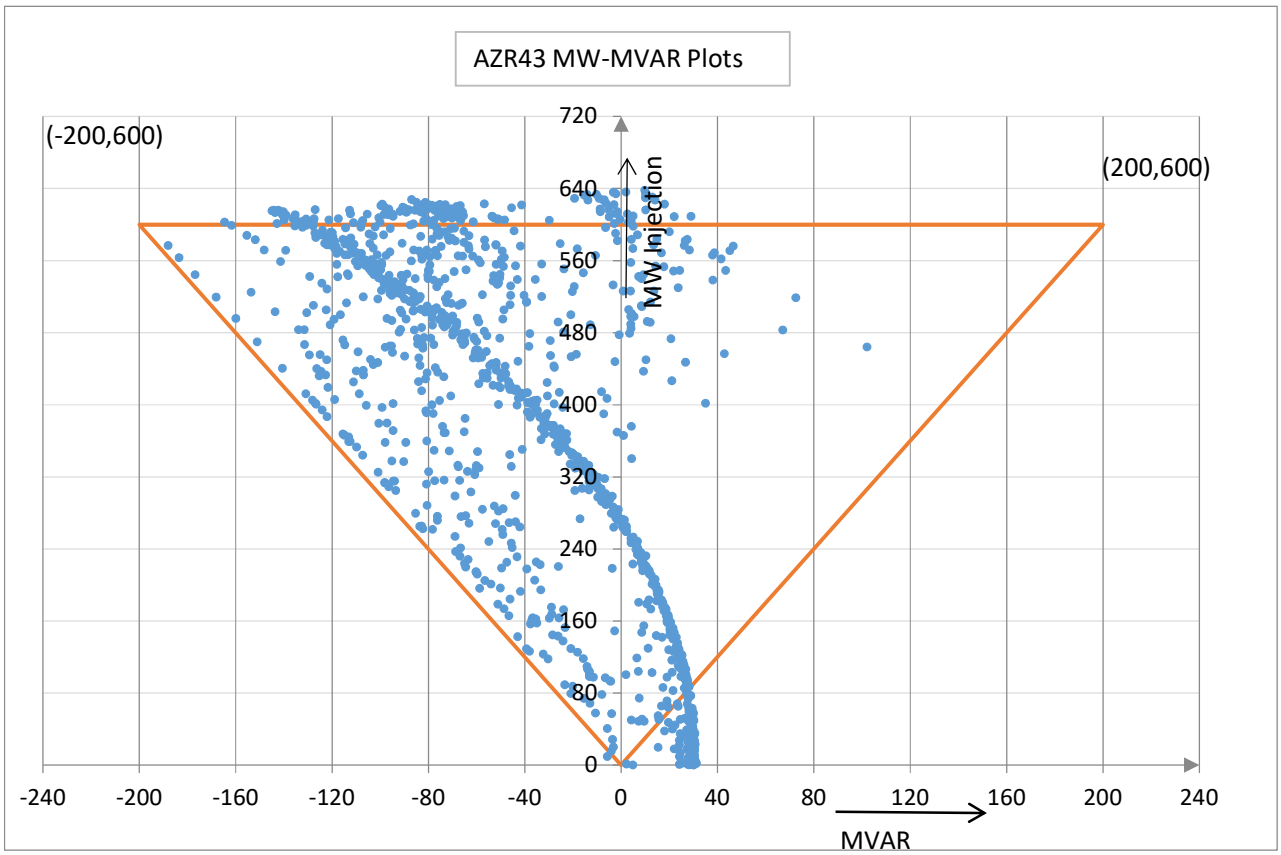

AVAADA MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
350
370
390
410
430
450

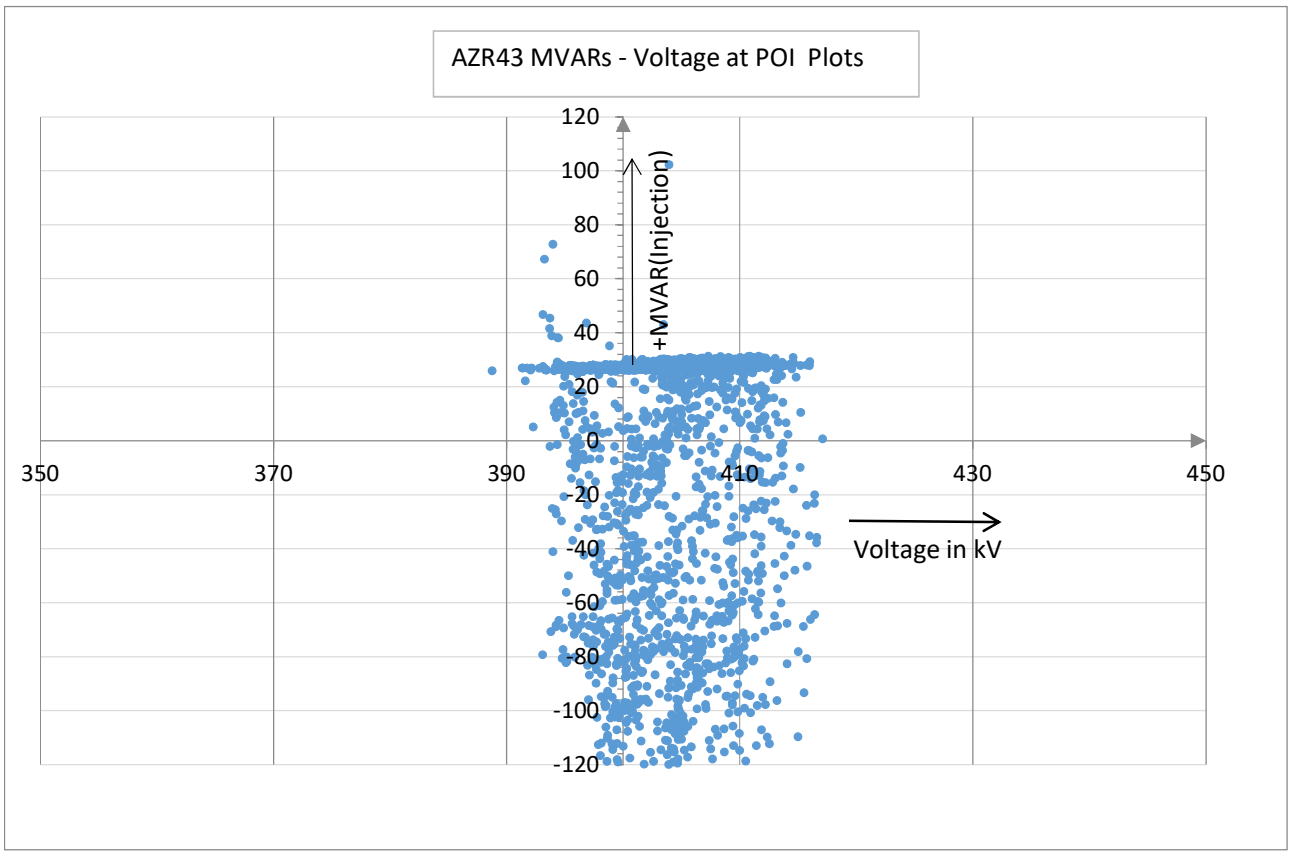

AYANA MW-MVAR Plots
(-100,300)
(100,300)
MW Injection
MVAR
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

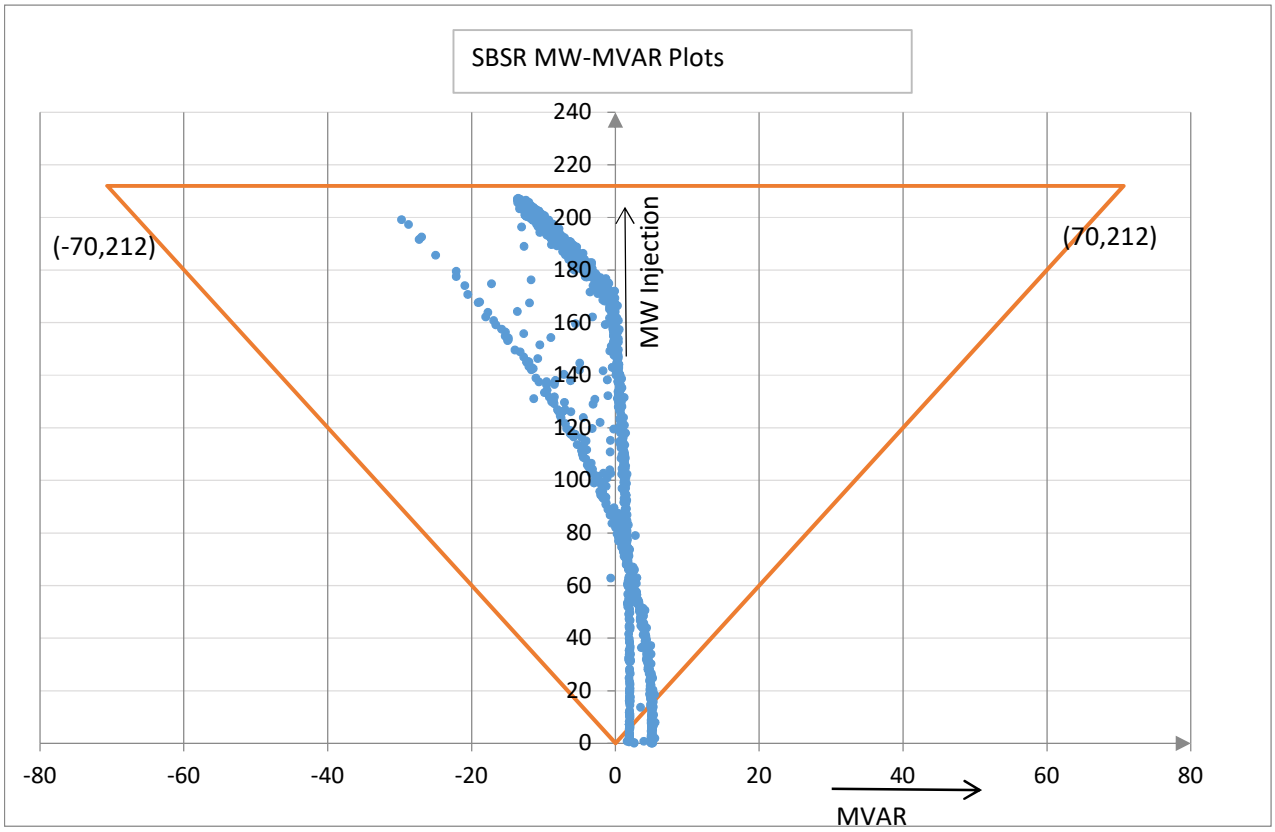

AYANA MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
350
370
390
410
430
450

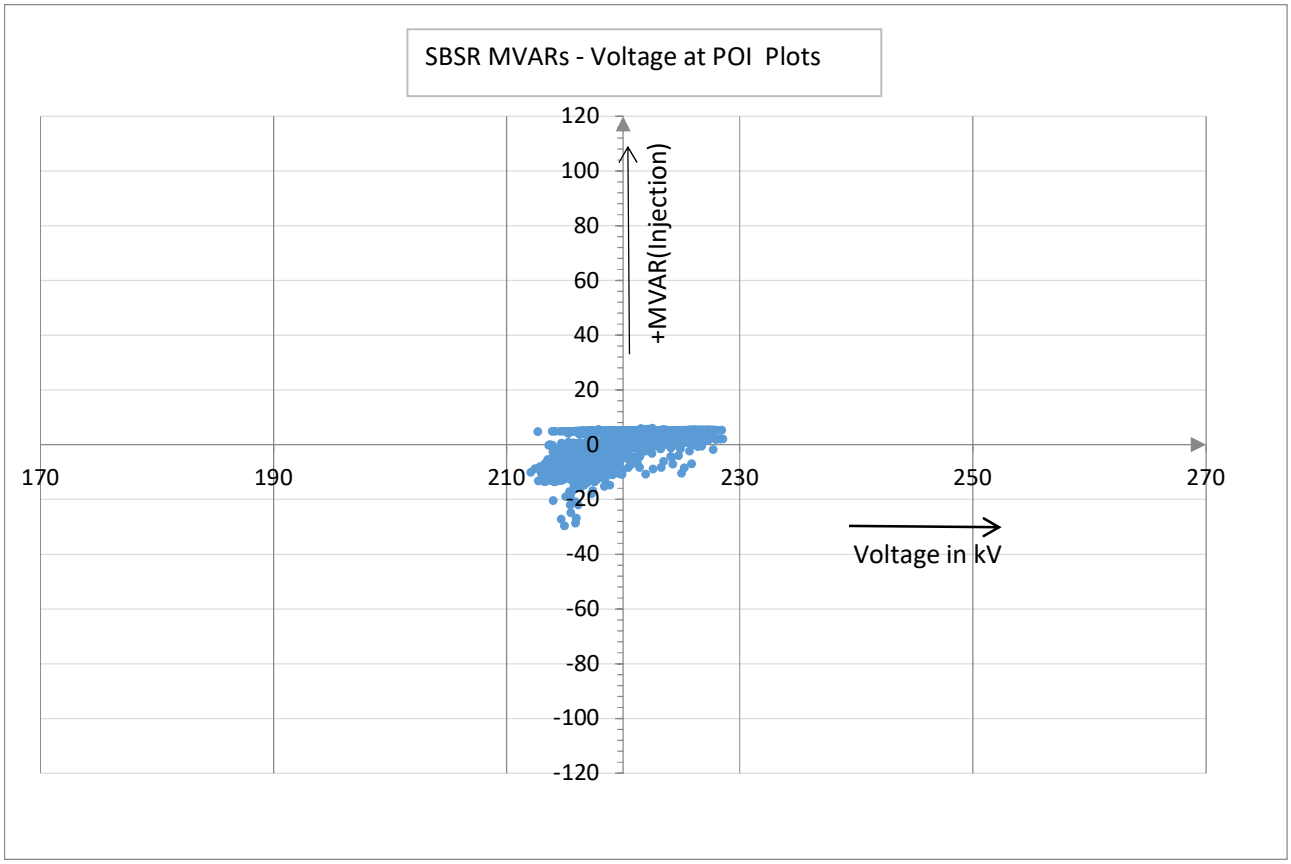

RENEW BIKANER MW-MVAR Plots
(-133,400)
(133,400)
480
420
360
300
240
180
120
60
0
MW Injection
-160
-120
-80
-40
0
40
80
120
160
MVAR

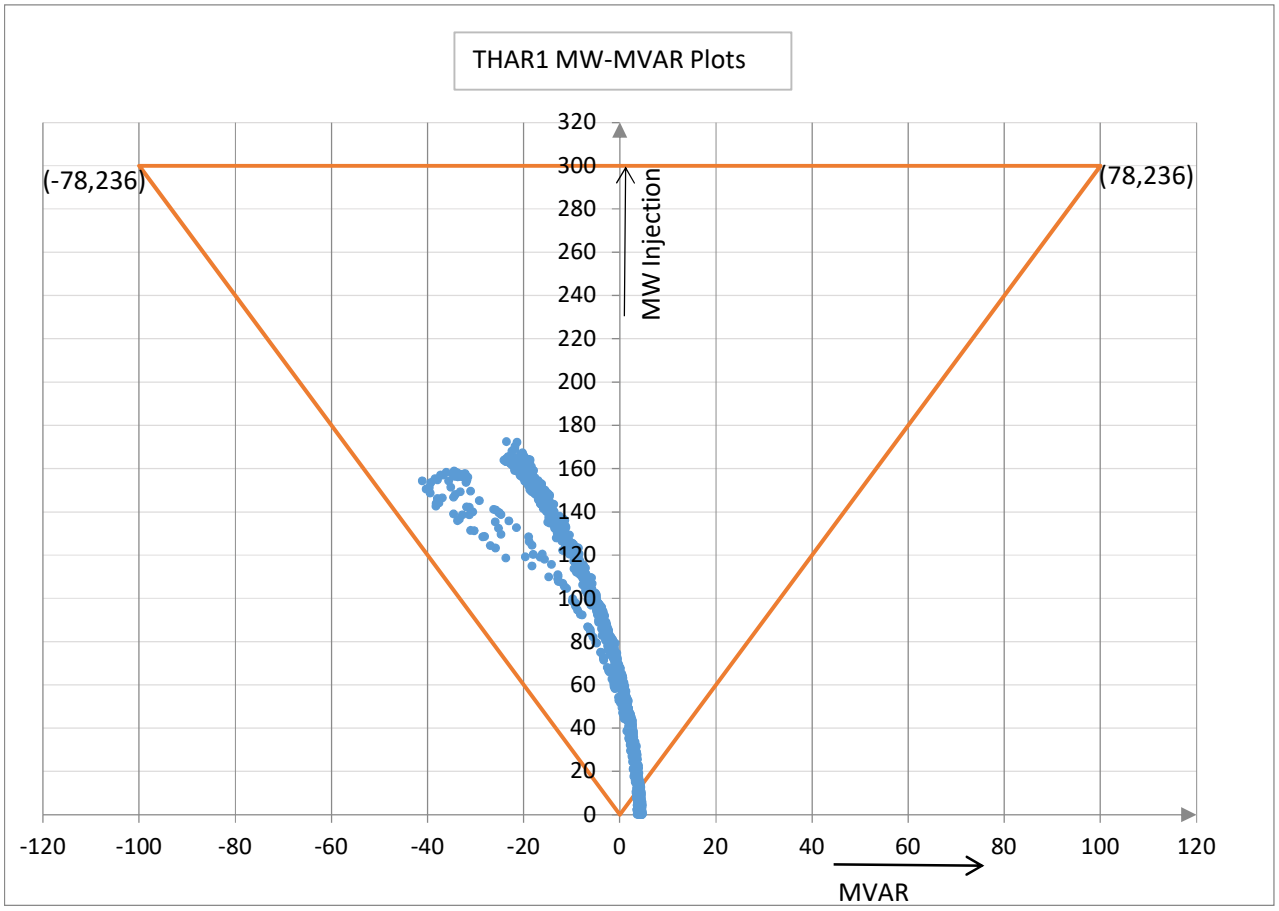

RENEWBIKANER MVARs - Voltage at POI Plots
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
+MVAR(Injection)
350
370
390
410
430
450
Voltage in kV

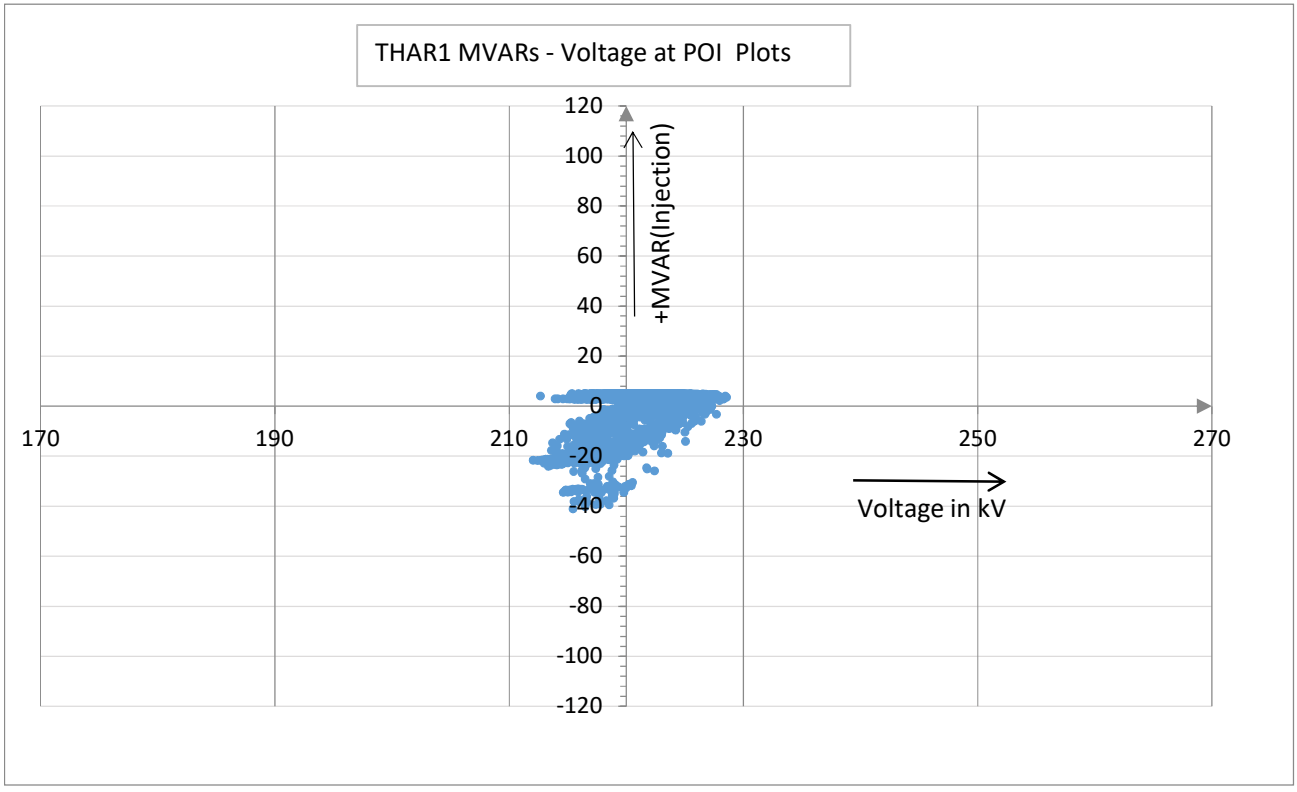

AZR43 MW-MVAR Plots
(-200,600)
(200,600)
MW Injection
MVAR
720
640
560
480
400
320
240
160
80
0
-240
-200
-160
-120
-80
-40
0
40
80
120
160
200
240

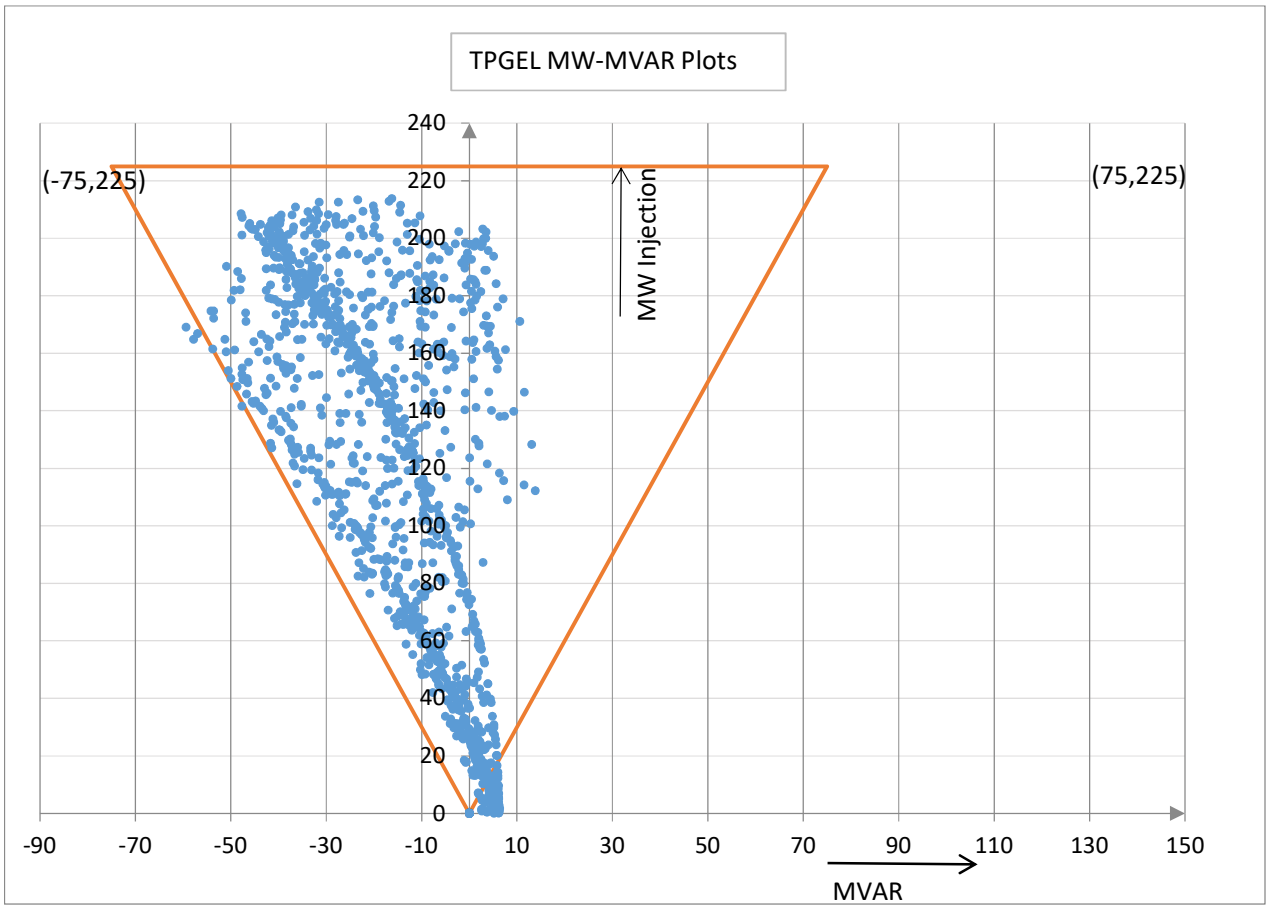

AZR43 MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
350
370
390
410
430
450

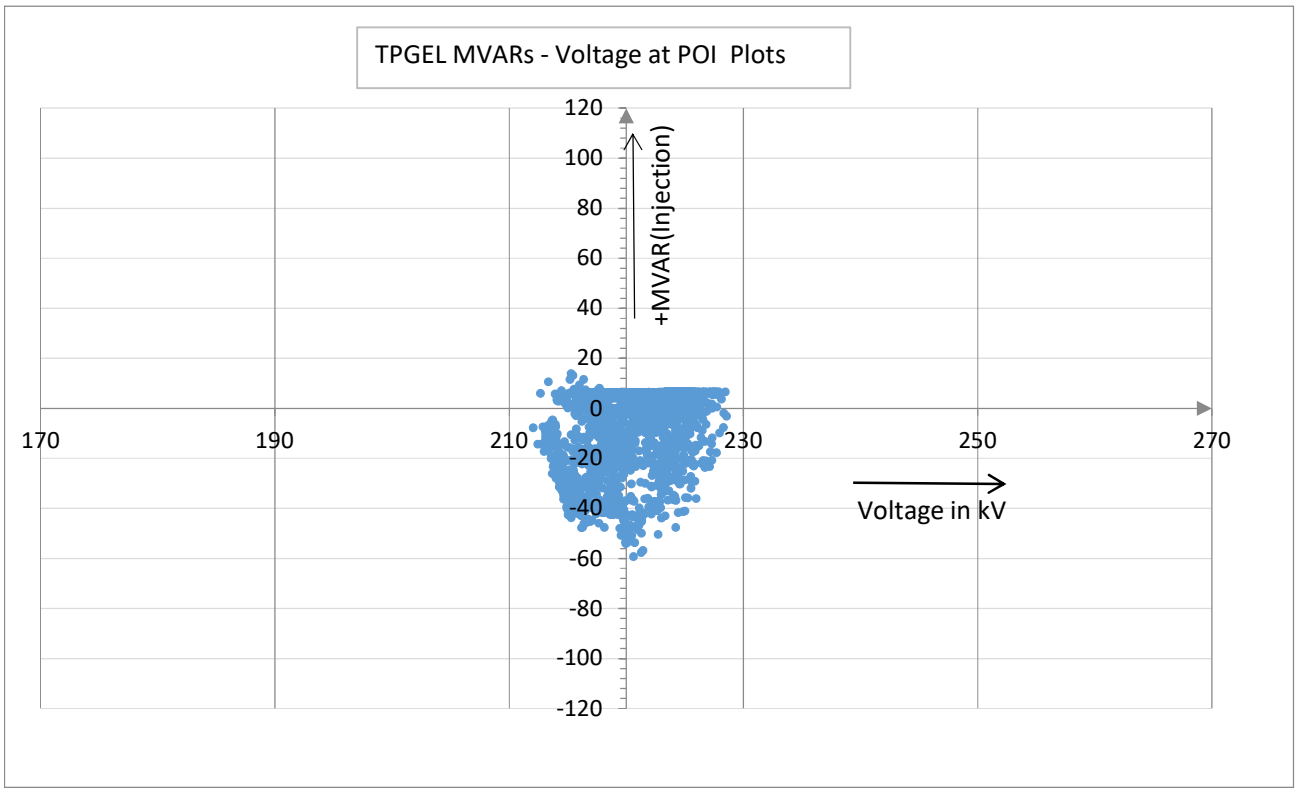

SBSR MW-MVAR Plots
240
220
200
180
160
140
120
100
80
60
40
20
0
-80
-60
-40
-20
0
20
40
60
80
MW Injection
MVAR
(-70,212)
(70,212)

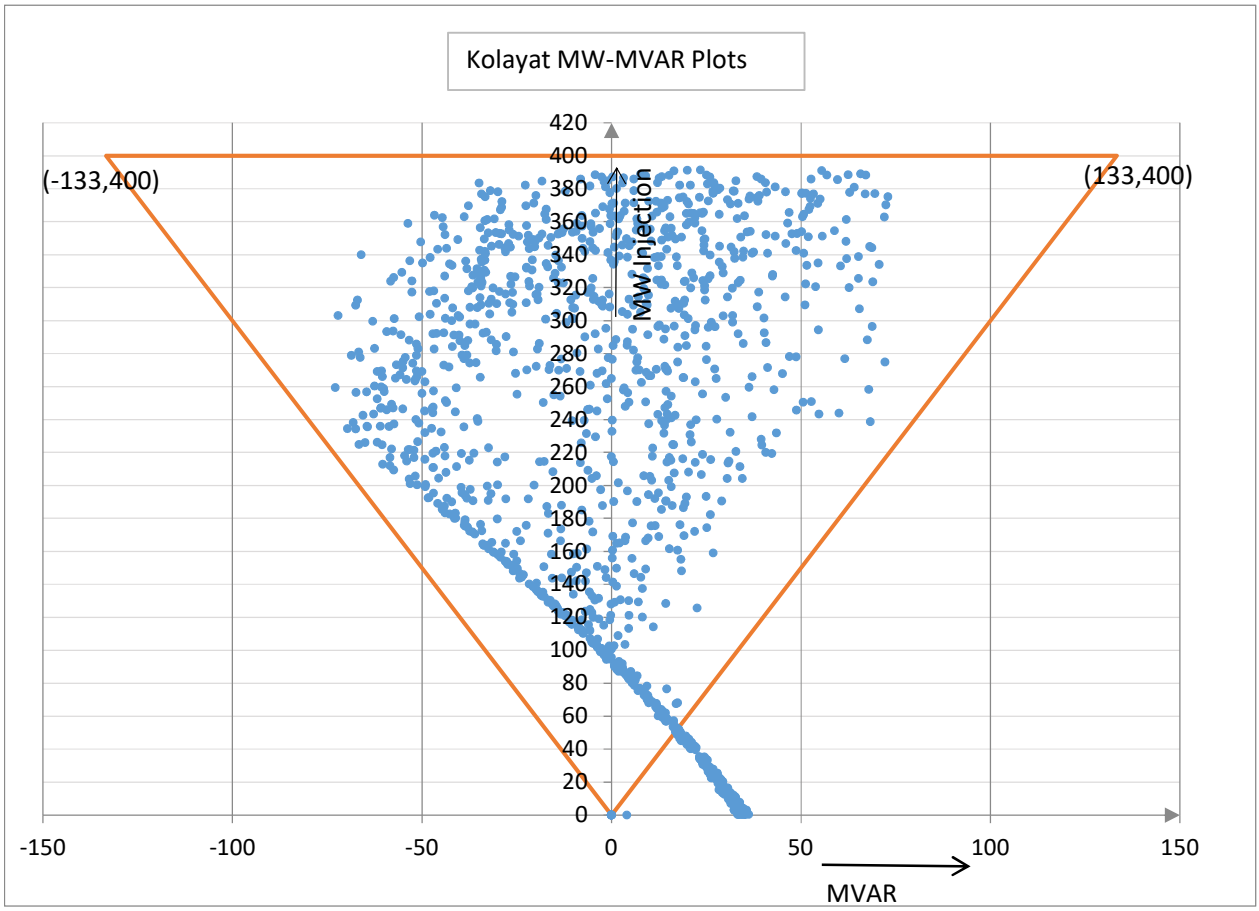

SBSR MVARs - Voltage at POI Plots
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270
+MVAR(Injection)
Voltage in kV

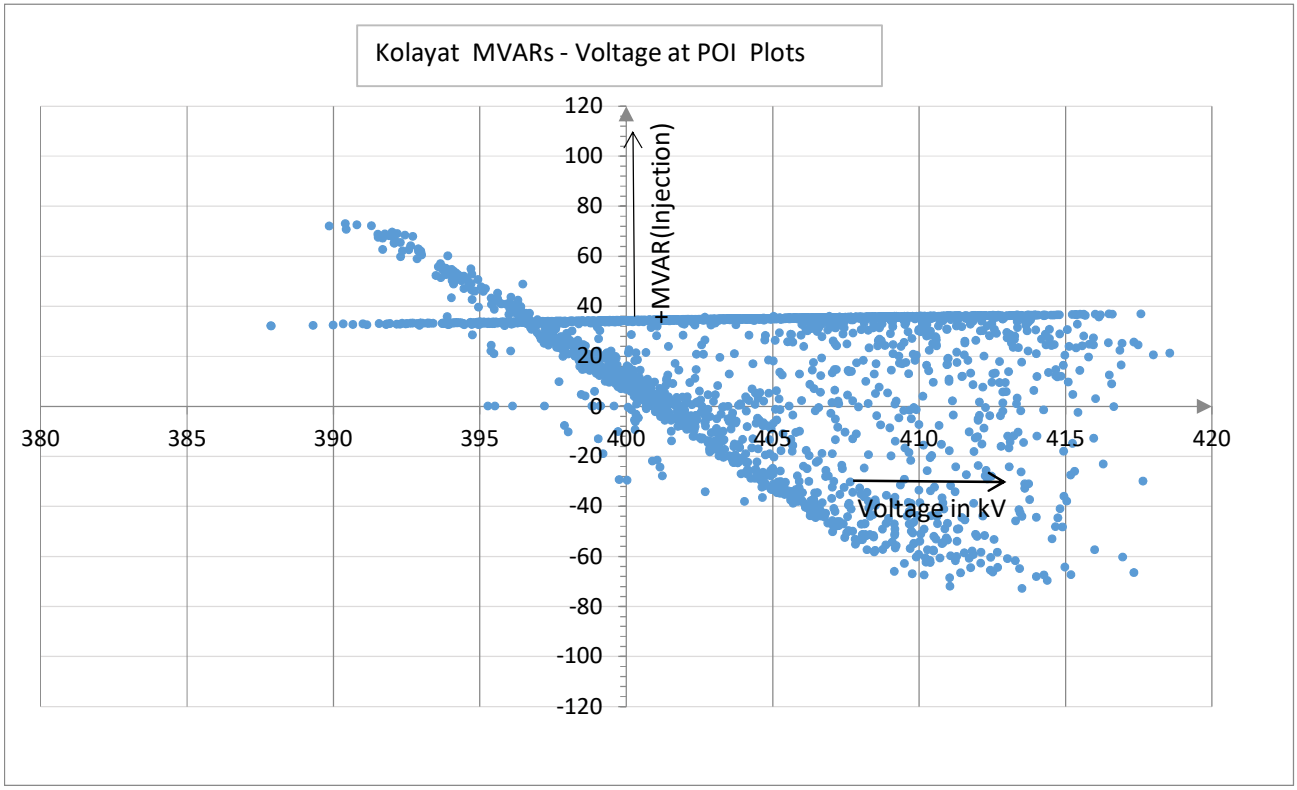

THAR1 MW-MVAR Plots
(-78,236)
(78,236)
MW Injection
MVAR
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80
100
120

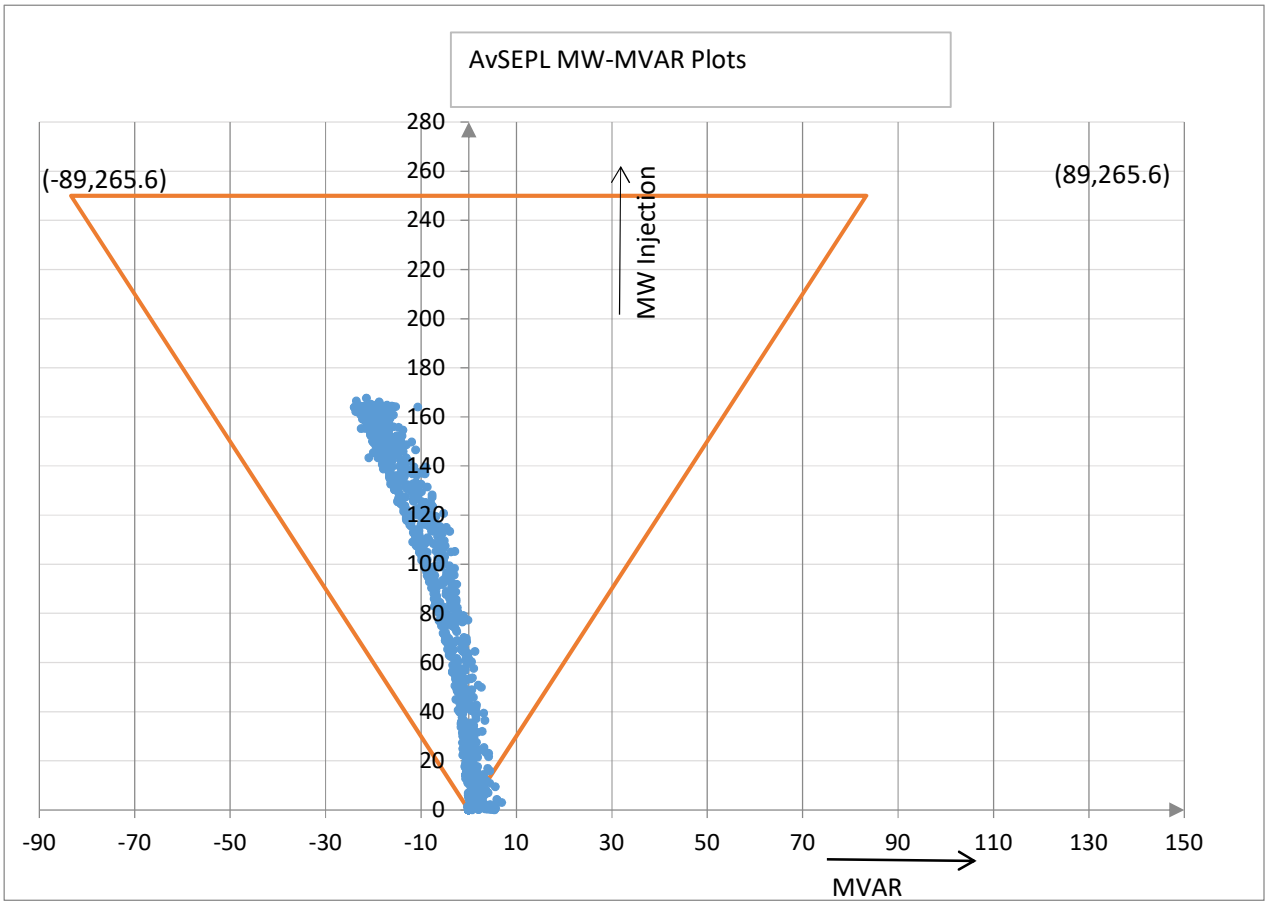

THAR1 MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

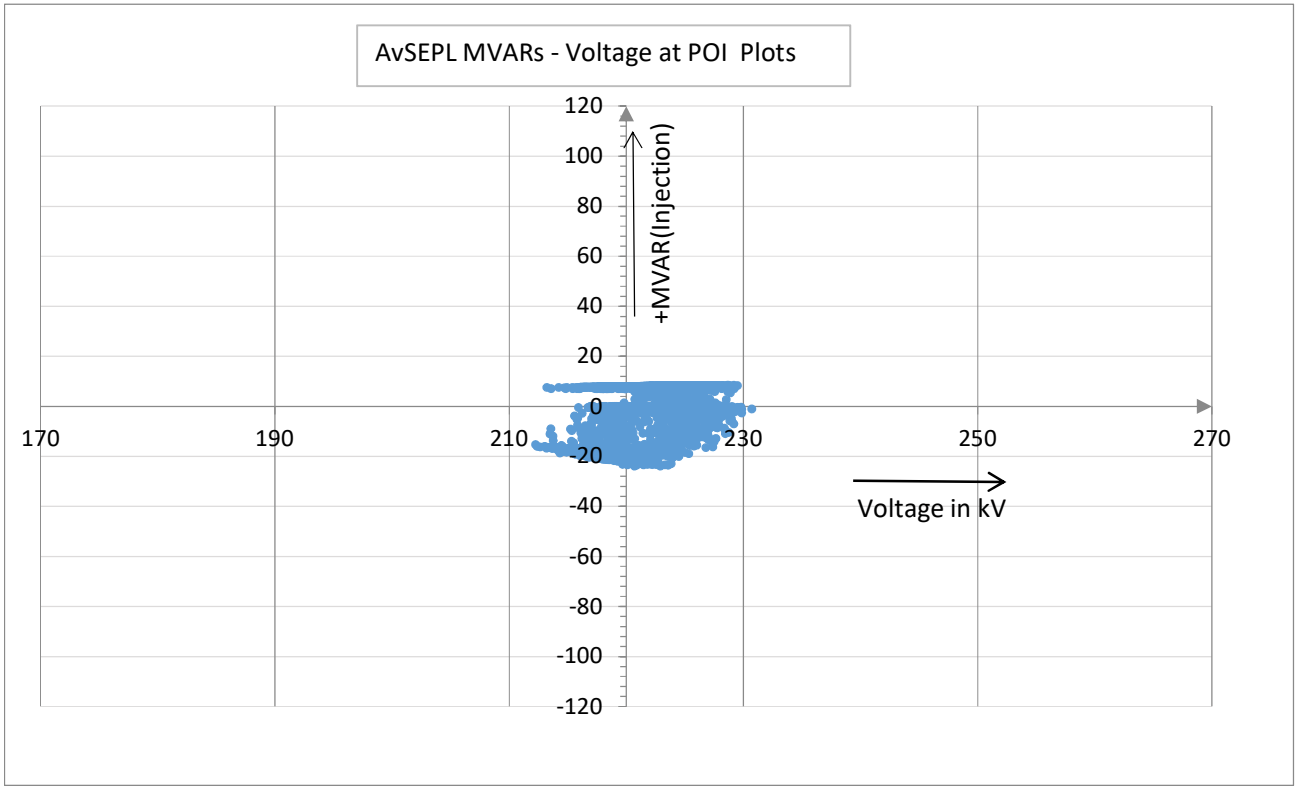

TPGEL MW-MVAR Plots
(-75,225)
(75,225)
MW Injection
MVAR
240
220
200
180
160
140
120
100
80
60
40
20
0
-90
-70
-50
-30
-10
10
30
50
70
90
110
130
150

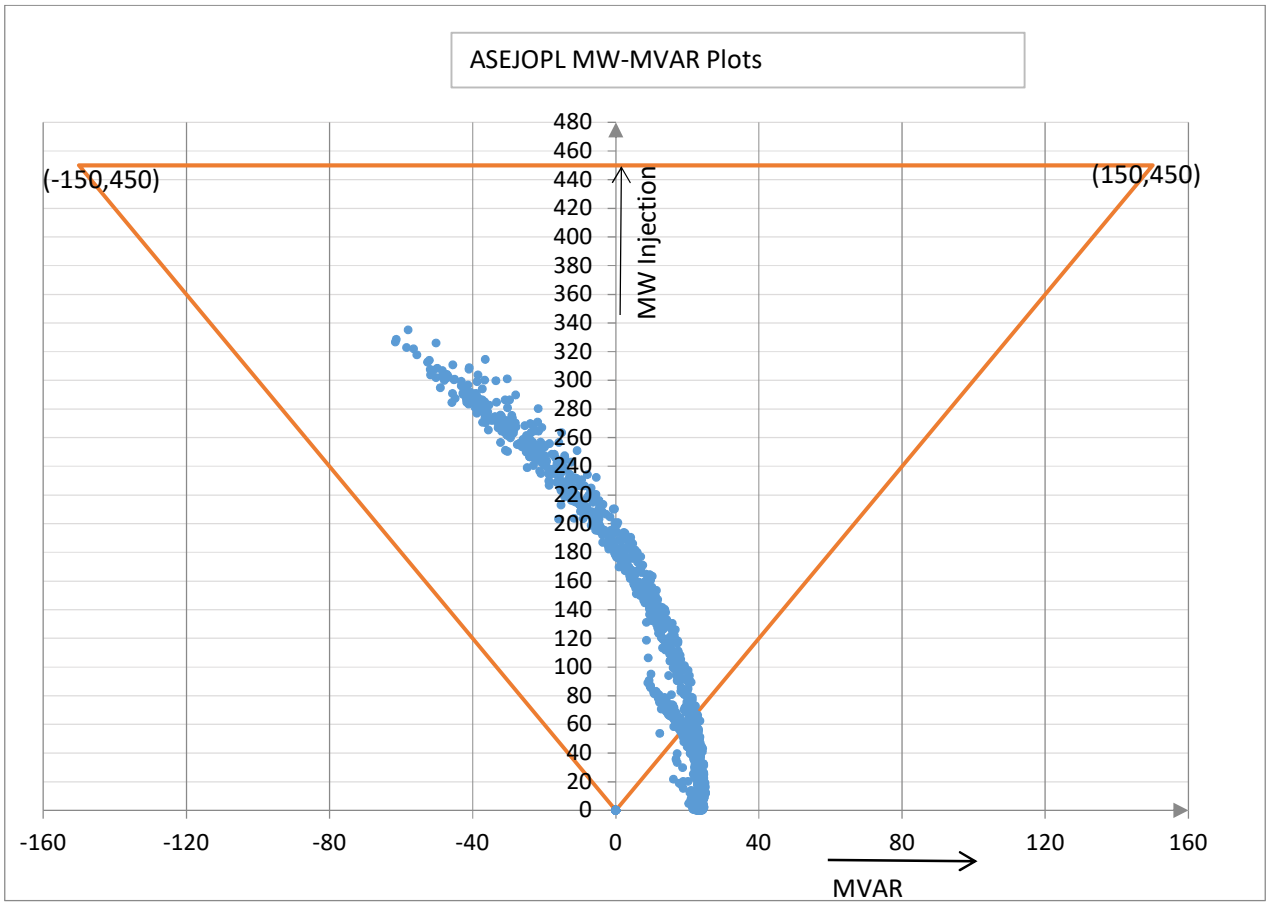

TPGEL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270

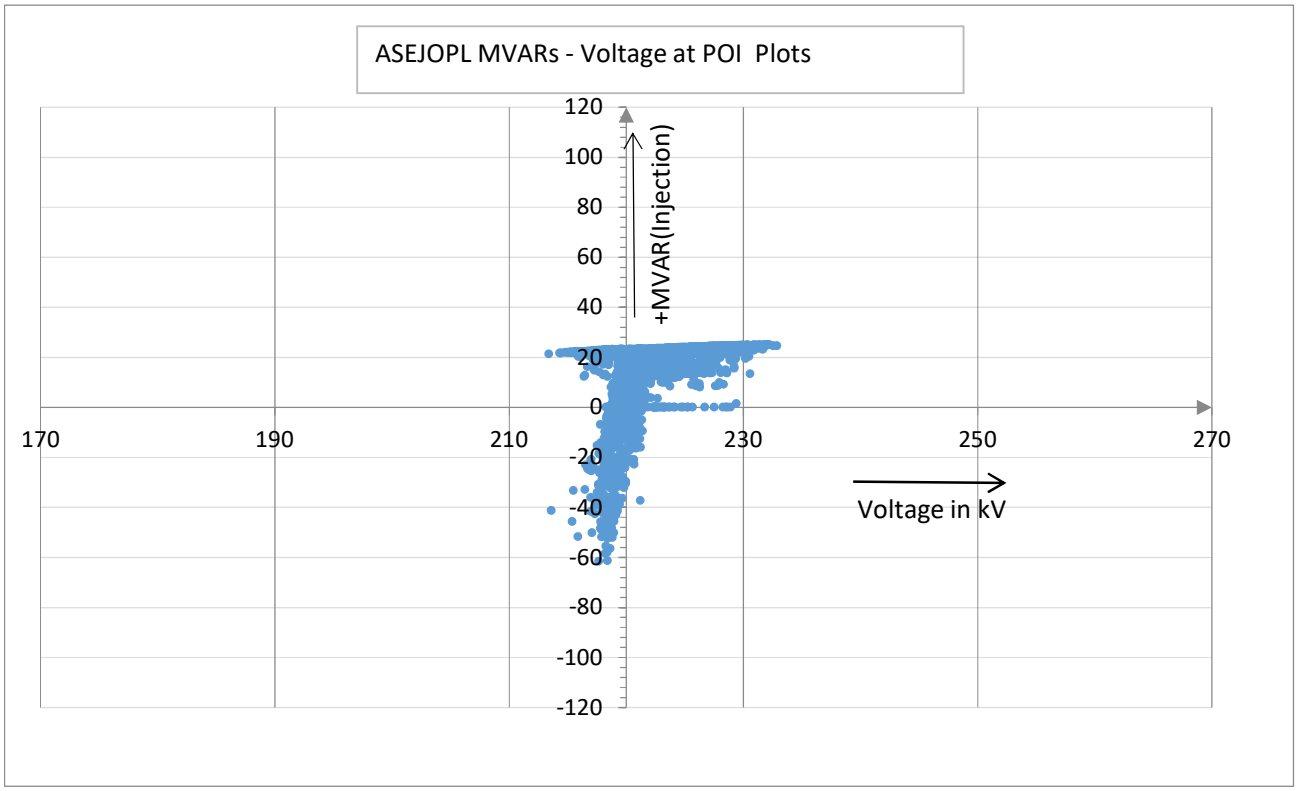

Kolayat MW-MVAR Plots
(-133,400)
(133,400)
MW Injection
MVAR
420
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-150
-100
-50
0
50
100
150


Kolayat MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
380
385
390
395
400
405
410
415
420


AvSEPL MW-MVAR Plots
(-89,265.6)
(89,265.6)
MW Injection
MVAR
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-90
-70
-50
-30
-10
10
30
50
70
90
110
130
150


AvSEPL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270


ASEJOPL MW-MVAR Plots
(-150,450)
(150,450)
MW Injection
MVAR
480
460
440
420
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-160
-120
-80
-40
0
40
80
120
160


ASEJOPL MVARs - Voltage at POI Plots
+MVAR(Injection)
Voltage in kV
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
170
190
210
230
250
270