



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

सं: उ.क्षे.वि.स./प्रचालन/106/01/2019/ 7261-7302

दिनांक: 12/07/2019

विषय: प्रचालन समन्वय उप-समिति की 161^{वीं} बैठक का कार्यसूची ।

Subject: Agenda of 161st OCC meeting.

प्रचालन समन्वय उप-समिति की 161^{वीं} बैठक दिनांक 16-07-2019 को 10:00 बजे से उ.क्षे.वि.स. सचिवालय, नई दिल्ली में आयोजित की जाएगी। उक्त बैठक की कार्यसूची उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट <http://www.nrpc.gov.in> पर उपलब्ध है।

161st meeting of the Operation Co-ordination sub-committee will be held on 16-07-2019 at 10:00 AM at NRPC Secretariat, New Delhi. The agenda of this meeting has been uploaded on the NRPC web-site <http://www.nrpc.gov.in>.

It is requested that the updated status of various points under follow-up action points of previous OCC meeting may kindly be furnished prior to the meeting.

Kindly make it convenient to attend the meeting.

(सौमित्र मजूमदार)
अधीक्षण अभियंता (प्रचालन)

सेवा में : प्रचालन समन्वय उप समिति के सभी सदस्य।

To: All Members of OCC

1. Confirmation of Minutes

The minutes of the 160th OCC meeting held on 17.06.2019 and 18.06.2019 at NRPC Secretariat, New Delhi were issued vide letter of even number dated 28.06.2019.

No comment on the minutes has been received from any of the members till date.

The sub-committee may kindly confirm the Minutes.

2. Review of Grid operations of June, 2019

2.1 Supply Position (Provisional) for June, 2019

Anticipated Power Supply Position v/s Actual Power Supply Position (Provisional) of Northern Region during the month of June, 2019 is as given below:

State	Req. / Avl.	(MU)			(MW)		
		Anticipated	Actual	Variation	Anticipated	Actual	Variation
Chandigarh	Avl.	185	202	9.4%	375	413	10.1%
	Req.	195	202	3.8%	385	413	7.3%
Delhi	Avl.	4110	3835	-6.7%	7540	6904	-8.4%
	Req.	4100	3838	-6.4%	7200	6904	-4.1%
Haryana	Avl.	6150	5741	-6.7%	10260	10237	-0.2%
	Req.	5620	5741	2.1%	9750	10237	5.0%
Himachal Pradesh	Avl.	840	892	6.2%	1710	1619	-5.3%
	Req.	870	892	2.6%	1490	1619	8.7%
Jammu & Kashmir	Avl.	1430	1445	1.0%	2410	2362	-2.0%
	Req.	1620	1688	4.2%	2880	2362	-18.0%
Punjab	Avl.	7120	6816	-4.3%	10670	13090	22.7%
	Req.	5980	6816	14.0%	13110	13090	-0.2%
Rajasthan	Avl.	8540	7545	-11.7%	15340	12620	-17.7%
	Req.	7320	7553	3.2%	11700	12620	7.9%
Uttar Pradesh	Avl.	13700	12774	-6.8%	20700	21407	3.4%
	Req.	12650	12912	1.0%	21000	21407	1.9%
Uttarakhand	Avl.	1300	1335	2.7%	2230	2164	-3.0%
	Req.	1340	1335	-0.3%	2180	2164	-0.7%
NR	Avl.	43375	40586	-6.4%	71235	64838	-9.0%
	Req.	39695	40978	2.9%	62500	65950	5.5%

As per above, it has been observed that there are higher variations (i.e. > 5.0%) in the Anticipated vis-à-vis Actual Power Supply Position (Provisional) for the month of June 2019 in terms of Energy Requirement for Delhi & Punjab and in terms of Peak Demand for Chandigarh, Haryana, HP, J&K and Rajasthan. **These states are requested to submit reason for such variations so that the same can be**

deliberated in the meeting.

All SLDCs are requested to furnish the provisional and revised power supply position in prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively in compliance to the provision 5.3 of IEGC.

2.2 Power Supply Position of NCR

NCR Planning Board (NCRPB) is closely monitoring the power supply position of National Capital Region. Monthly power supply position for NCR till the month of June 2019 is placed on NRPC website. (<http://nrpc.gov.in/operation-category/power-supply-position/>).

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 August 2019 is scheduled on 15.07.2019 at NRPC Secretariat, New Delhi.

3.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission lines for the month of August 2019 is scheduled on 15.07.2019 at NRPC Secretariat, New Delhi.

4. Planning of Grid Operation

4.1. Anticipated Power Supply Position in Northern Region for August 2019

The Anticipated Power Supply Position in Northern Region for August 2019 is enclosed at **Annexure-I**.

SLDCs are requested to update their estimated power supply position for August 2019 and measures proposed to be taken to bridge the gap between demand & availability, as well to dispose of the surplus, if any, in the prescribed format.

5. Information about variable charges of all the generating units in the Region

The variable charges detail for different generating units are available on the Merit Order Portal.

In the 160th OCC meeting, it was observed that some higher cost generating stations were scheduled before exhausting the available cheaper generating stations. In this regard, SLDCs had informed various operational constraints they had faced to schedule as such. OCC advised SLDCs to make such information (which lead to deviation from MERIT order) available under the remarks section on the portal.

It is observed in the available data of Haryana, Rajasthan, Uttarakhand and Delhi for 02.07.2019 that some higher cost generating stations were scheduled before exhausting the available cheaper generating stations and reason for the same was not mentioned in the Merit Order Portal. Details regarding the same as extracted

from the MERIT order portal is attached at **Annexure-II**.

Haryana, Rajasthan, Uttarakhand and Delhi SLDC are requested to submit the reasons for discrepancies as observed above.

GM Division, CEA has also highlighted that some states are not filling their data regularly on MERIT order portal and sometimes the data filled on the portal varies widely from the data available on the respective RLDCs daily reports.

All SLDCs are advised to fill the data regularly and ascertain the correctness of the same.

6. Reactive compensation at 220 kV/400kV level

6.1 In the 38th TCC & 41st NRPC meeting dt. 27th & 28th February 2018, following elements in NR were approved:

- a) 500 MVAR TCR at 400 kV bus at Kurukshetra S/S of POWERGRID.
- b) 30 nos. of 220 kV bus reactors and 18 nos. of 400 kV bus reactors, subject to availability of space.

6.2 POWERGRID:

500 MVAR TCR at Kurukshetra: Award placed in January 2019 with completion schedule of 22 months.

11 nos. of 400 kV Bus Reactor and 6 nos. of 220 kV Bus Reactor, which were earlier informed to be executed through TBCB project has been allotted to PGCIL for execution. Further, NIT for the said reactors has been floated and Bid Evaluation is under Process. LoA is likely to be placed by end of June 2019.

POWERGRID may update on any further progress made.

6.3 DTL:

The updated status of the reactors as received from DTL is placed below:

S.No.	Sub Station	Voltage level (kV)	Reactor (MVAR)	Updated Status (as on 01.07.19)
1	Peeragarhi	220	1x50	PR No 1100002017 Raised.
2	Mundka	400	1x125	PR No 1100002120 Raised.
		220	1x25	
3	Harsh Vihar	220	2x50	PR No 1100002162 Raised.
4	Electric Lane	220	1x50	Under financial concurrence
5	Bamnauli	220	2x25	PR under creation
6	Indraprastha	220	2x25	Under financial concurrence
TOTAL			450	

DTL may kindly update on any further progress made.

6.4 PSTCL:

In the 42nd TCC and 45th NRPC meeting, it was informed that sanction order for PSDF funding has been issued to PSTCL and re-tendering for 400kV bus reactor at Dhuri substation and 220kV bus reactors at Dhuri & Nakodar substations has already been done with bid opening date as 08.07.2019.

PSTCL may kindly update on any further progress made.

6.5 Uttarakhand:

125 MVAR reactors at Kashipur: Technical Bid for 125 MVAR reactor at Kashipur has been opened and is being evaluated.

PTCUL may kindly update.

6.6 Rajasthan:

The status as updated in the 158th OCC dt. 23.04.2019 meeting is placed below:

Item	Background	Status
3 Nos. each of 25 MVAR (220 kV) reactors for Akal, Bikaner & Suratgarh.	-	PSDF funding sanctioned. Tendering under process.
1 No. of 25 MVAR (220 kV) reactor for Barmer & 125 MVAR (400 kV) reactor for Jodhpur, included in 450 MVAR (13x25 + 1x125 MVAR) proposal	Revised DPR for 450 MVAR approved Reactor after separating STATCOM was submitted vide letter dt. 12.10.2018 to POSOCO for approval.	RVPN submitted reply to the sought clarifications. TESG has examined the same and put up for approval of Appraisal Committee.

Rajasthan may kindly update.

7. System Study for Capacitor Requirement in NR for the year 2019-20

- 7.1 In the 38th TCC & 41st NRPC meeting dt. 27th & 28th February 2018, it was decided to conduct capacitor requirement study of NR at 11/33 kV level from CPRI so as to obtain the true requirement of capacitor for FY 2019-20. In the subsequent NRPC meeting, approval was given to the Techno-Commercial offer of CPRI of Rs. 32 Lakh (excluding taxes) for conducting the capacitor study and the format for data submission was shared amongst the members.
- 7.2 In the 150th OCC meeting dt. 21.08.2018, members expressed concerns on the nature of the format. Accordingly, CPRI made a detailed presentation in the 151st OCC meeting and format was revised based on the received inputs & sent to respective SLDCs on 24.09.2018.
- 7.3 Utilities had been regularly pursued for the submission of data; however, data received from the utilities were mostly not in line with the requirement of CPRI.
- 7.4 In the 42nd TCC and 45th NRPC, members expressed concerns over non-submission of even sample data by the states. In the meeting all member states were requested to submit the data in a time bound manner latest by **30.06.2019**.
- 7.5 States which would not be able to submit the data by 30.06.2019, CPRI would be approached for collection of data of their states (based on the acceptance of CPRI)

and the expenditure would be booked to the respective states.

- 7.6 Complete data has been submitted by Haryana, Delhi. However, CPRI has further sought some clarifications from Delhi.

All utilities may kindly update.

8. Phase nomenclature mismatch issue with BBMB and interconnected stations

- 8.1. The issue of phase nomenclature mismatch of BBMB and interconnected stations was highlighted while discussing multiple elements tripping at 400/220/132kV Dehar HEP of BBMB in its 34th meeting held on 21.04.2017. Thereafter, it was decided that BBMB should modify phase sequencing at Dehar as Y-B-R instead of R-Y-B.
- 8.2. On the request of BBMB, a committee comprising of BBMB and its partner states, utilities with which BBMB has interconnection, NRPC Secretariat and POWERGRID was formed.
- 8.3. The committee had deliberated the draft action plan submitted by BBMB for the rectification of the phase nomenclature issue. POWERGRID had certain reservations on the action plan and stated that there might be some issues in the work such as **design constraint of tower, de-stringing and re-stringing of conductors etc.** for which it was proposed to conduct a site visit of the committee.
- 8.4. Accordingly, a site visit was held on 27.05.2019 and 28.05.2019 to resolve the issues at Bhiwani, Rajpura, Panchkula & Panipat S/s. The Minutes of the site visit was enclosed as Annexure-II of the Agenda of 160th OCC meeting.
- 8.5. However, in the **42nd TCC and 45th NRPC meeting**, POWERGRID representative informed that they were of the view that rather than going for the work as proposed by the committee in the Minutes of the site visit, the issue could be resolved by rewiring CT/PT at the secondary side. NRPC was of the view that if the quantum of work could be reduced by the action being proposed by POWERGRID, it could be thought of and advised POWERGRID to formulate the action plan involving all the concerned parties and submit the same by 30.06.2019 to NRPC Sectt. so that the same could be implemented in a time bound manner.
- 8.6. Accordingly, a meeting was held on 20.06.2019 between PGCIL and BBMB (Minutes attached at **Annexure-III**). BBMB and PGCIL in the meeting have brought out the technical issues in all the available solutions for rectification of phase nomenclature mismatch. As per the outcome of the meeting, BBMB and PGCIL have proposed that the existing system may be allowed to operate as such and the remedial measures as pointed out in the 142nd OCC meeting (**Annexure-IV**) shall be observed.

Members may deliberate.

9. Follow up of issues from previous OCC Meetings – Status update

The updated status of Agenda items is enclosed at **Annexure-V**.

All utilities are requested to update the status.

10. Status of FGD installation vis-à-vis installation plan at identified TPS

- 10.1 In the 160th OCC meeting, all the utilities were requested to submit the progress status as per format specified by CEA (attached at Annexure-V of the minutes). It was also requested that progress status may be submitted to NRPC Sectt. as excel file (template available at <http://164.100.60.165/Oper/2019-20/dataformat/FGD-status-format.xls>).

The status with NRPC as on date is attached at **Annexure-VI**.

The updated status in the specified format has only been received from NTPC-NR and Nabha Power Ltd. Other states / utilities are requested to submit the status at the earliest.

11. System Protection Scheme (SPS) in NR

11.1. SPS for ICTs at 765 kV Unnao sub-station

- 11.1.1. In the 160th OCC meeting, it was informed that Mock testing was done on 17.06.2019. Some issues were observed and the same are being rectified after which another mock testing will be done. Report of the mock test were to be submitted to NRPC/ NRLDC by 21.06.2019.

UPSLDC / UPRVUNL may kindly submit mock test report and update the status.

11.2 SPS for Kawai – Kalisindh - Chhabra generation complex:

- 11.2.1. In the 156th OCC meeting, it was intimated that Rajasthan has requested to review the SPS scheme for Kawai-Kalisindh-Chhabra generation complex upon commissioning of 400kV CTPP-Anta feeder.
- 11.2.2. Thereafter, in the 157th OCC meeting, Rajasthan was advised to share the studies carried out by their Planning Division, so that revised scheme can be formulated at the earliest. NRLDC also requested to share the dynamic data for AVR, Governor, PSS for the generators so that detailed studies can be carried out.
- 11.2.3. In the 160th OCC meeting, Rajasthan representative stated that the expected network configuration for future scenario was submitted via e-mail dated 20.05.2019. Revised SPS study was submitted by STU to SLDC on 12.06.2019 along with a copy marked to NRPC/ NRLDC.
- 11.2.4. NRLDC representative stated that partial dynamic data of generators has been submitted by Rajasthan as per following detail:
- i. Kawai: Most of the Generator, AVR, PSS data has been submitted; however, for governor only name plate details have been shared and no modeling data has been shared.
 - ii. Kalisindh: Generator data has been submitted. PSS parameters submitted but no information about model of PSS. Dynamic data of Governor and AVR not shared.

- iii. Chhabra: Only Generator data submitted. No data about Governor, AVR, PSS.

Rajasthan and NRLDC may kindly update.

12. Automatic Demand Management System

- 12.1. Clause 5.4.2 (d) of IEGC mandates for implementation of the state-of-the-art demand management schemes for automatic demand management to reduce over-drawal from the grid. The responsibility for the implementation of the same has been entrusted on SLDCs/SEB/DISCOMs. CERC in its order in petition No. 5/SM/2014 had granted time till 31.06.2016 to the concerned SLDCs/SEB/DISCOMs to implement ADMS, failing which action under Section 142 of the Act for non-compliance of the Regulation 5.4.2 (d) of the Grid Code and order of the Commission. RLDCs were also directed to submit the report in this regard to the commission by 31.08.2016. The issue of implementation of ADMS in NR is being deliberated regularly in the OCC meetings. The status of implementation of ADMS in states of NR is as under:

State/ Utility	Status
Punjab	<p>Not fully implemented.</p> <p>At SLDC level, 96 feeders of 66 kV are operational.</p> <p>At 11 kV feeder level, ADMS is to be implemented by Distribution Company. As per the information available with SLDC, for 50 feeders of 11 kV at Amritsar and Ludhiana, scheme was under finalization.</p>
Delhi	<p>Fully implemented by TPDDL, BRPL and BYPL.</p> <p>NDMC will be implementing by December 2019.</p>
Rajasthan	<p>Under implementation.</p> <p>LoA placed on 12.12.2018 with an execution period of 18 months for ADMS at the level of 33 kV feeders at EHV Substation of RVPN under SCADA / EMS part of project.</p> <p>ADMS functionality at 11 kV feeders from 33/11 kV substation is under the jurisdiction of the DISCOMs and matter is being perused with DISCOMs authorities</p>
UP	<p>Not fully implemented.</p> <p>Remote operation of 50 feeders at 132 kV level being operated from SLDC.</p> <p>For the down below network, issue taken up with the DISCOMs.</p>
Haryana	<p>Not implemented.</p>

SLDCs/SEBs/DISCOMs are requested update the status.

13. Status of implementation of recommendations of Enquiry Committee on grid

disturbances on 30 & 31.7.2012

13.1 Based on the recommendations of the Enquiry Committee on grid disturbances on 30th & 31st July 2012, utilities of NR were requested to take necessary action and submit compliance/status report to NRPC. In the 8th NPC meeting held on 30.11.2018, the non-submission of implementation status related information was highlighted and serious concern was shown. In the subsequent OCC meetings, utilities were requested to submit the requisite information regarding implementation of recommendations of Enquiry Committee. The status of information received in this regard is as under:

Submitted		Not Submitted	
NTPC (NCR) (19.08.2018)	POSOCO	Uttar Pradesh	Jammu and Kashmir
BBMB (24.07.2018)	NHPC (07.02.2018)	Himachal Pradesh	UT of Chandigarh
Punjab (16.07.2018)	HPGCL (Panipat TPS) (17.07.2018)	NTPC (NR-HQ)	HVPNL
Rajasthan (13.06.2018)	NPCIL (RAPS: 17.07.2018) (NAPS: 25.07.2018)		
THDC (18.07.2018) (19.07.2018)	POWERGRID (NR-1: 16.11.2018 NR-2: 13.07.2018 NR-3: 01.04.2019)		
SJVNL (NJHPS: 01.05.2019 RHPS: 08.05.2019)	Delhi (01.04.2019)		

UP, HP and NTPC (NR-HQ), HVPNL, Chandigarh and J&K are requested to kindly update the status.

14. Cyber Security Preparedness Monitoring

14.1 Based on the detailed presentation given by Chief Information Security Officer (CISO), MoP in the 37th TCC and 40th NRPC meeting, all utilities were requested to monitor actions being taken in regard to the following points and report the status:

- a. Appointment of organization-wise CISO and its status.
- b. Identification of organization-wise Critical Infrastructure and its status.
- c. Preparation of organization-wise Crisis Management Plan and its status.
- d. Status of Cyber Security Mock Drill activity in coordination with CERT-In.

- e. Status of Training / Workshops on Cyber Security organized / participated by power sector entities.
- f. Status of action taken on CERT-In / NCIIPC advisories.

The updated status on aforementioned cyber security action points is enclosed as Annexure-V(A) of the agenda of 160th OCC meeting. **All utilities are requested to update the status.**

- 14.2 In the 156th OCC meeting, it was mentioned that inherent vulnerability in the ICT infrastructure or website or web applications shall be accessed and remedial action thereon shall be taken by all utilities by conducting Vulnerability Assessment & Penetration Test (VAPT) of their respective ICT infrastructure, websites and web applications. The updated status of VAPT and cyber security audit is enclosed as Annexure-V(B) of the agenda of 160th OCC meeting.

All utilities are requested to update the status of VAPT conducted in their respective organization and VAPT plan for the future.

15. Expediting construction of 132kV supply for railway traction substation for railway electrification projects in states in NR region

- 15.1 Ministry of Railways has accorded high priority to railway electrification projects for reducing dependence on fuel based on crude oil and enhancing energy security of nation. However, progress of ongoing transmission line and substation works, being executed by SEBs, is not matching with the targets for railway sections planned to be commissioned on electric traction. State-wise detail in respect of NR is as under:

Sl. No.	State	Tr. Line to be expedited		Contract to be awarded		Estimate awaited	
		(original target)	(updated status)	(original target)	(updated status)	(original target)	(updated status)
1	UP	19	-	5	-	1	-
2	Haryana	5	-	2	-	-	-
3	Punjab	1	-	2	-	2	-
4	Rajasthan	5	4* completed	5	1** completed	7	***
5	J&K	1	-	-	-	-	-

* 1 no. railway end pending due to demarcation in Army area.

** 2 nos. proposals withdrawn by Railways, 1 No. under progress, 1 No. route to be revised by Railways.

*** 3 Nos. proposals withdrawn by Railways, 2 Nos. A&FS pending and 2 Nos. works under progress.

- 15.2 In the 159th OCC meeting, HVPN has submitted the status (Annexure VI of minutes) of the ongoing works for railway traction substations.

UP, Punjab and J&K are again requested to take up the matter with concerned utilities for expeditious completion of the identified transmission line & substation works and update the status.

16. Mapping of UFR, df/dt relay details in SCADA

16.1 As per CERC regulation, UFR and df/dt mapping is mandatory. In the 136th OCC meeting dt. 16.06.2017, it was decided that in addition to the SCADA mapping, states should provide the following information regarding the UFR, df/dt relays installed at their respective substations:

- Source of frequency measurement for UFR, df/dt relay viz. positive sequence, phase-to-neutral, phase-to-phase
- Computational time for measurement of frequency, rate of change of frequency in UFR, df/dt relays respectively.

16.2 In the 137th OCC meeting dt. 18.07.2017, NRPC reiterated that mapping of UFR has to be done in the SCADA of SLDC & NRLDC for better visibility of relay status and feeder load relief. In the subsequent OCC meetings, all state utilities were requested to correct the SCADA UFR, df/dt displays as per the comments.

16.3 NRLDC representative in the 160th OCC meeting, sensitized the house about requirement of mapping of UFR and df/dt and how it is helpful during crisis / grid disturbance condition.

16.4 NRLDC representative further presented the current status of mapping of UFR and df/dt in SCADA:

% SCADA data visibility

State Name	UFR (Main)	UFR (Alternate)	df/dt (Main)	df/dt (Alternate)
Punjab	67	13	77	12
Haryana	91	0	0	0
Rajasthan	29	75	100	100
Delhi	100	100	100	100
Uttar Pradesh	2	0	48	0
HP	88	79	73	0
Uttarakhand	0	0	0	0
J&K	0	0	0	0

16.5 Following action points were decided in the 160th OCC meeting:

- All the feeders coming under UFR and df/dt scheme shall be mapped in the display despite of data availability, RTU availability. In case data is not available, alternate feeder details to be mapped. All the details (main feeder details and alternate feeder details) to be mapped before 30th June 2019. (**Action by:** All the state utilities of NR)
- All the state utilities shall check and monitor the UFR, df/dt display on monthly basis and submit the monthly progress report to NRPC / NRLDC. (**Action by:** All the state utilities of NR)
- All the suspected data in the mapping shall be monitored on daily basis and accordingly remedial measures shall be taken. (**Action by:** All the state utilities of NR)

Utilities are requested to comply to the action points as decided above and provide the updated SCADA UFR, df/dt display status.

17. Maintenance & support (AMC) renewal of PSS@E licenses

In the 155th OCC meeting, DTL requested for the AMC renewal of PSS@E licenses, supplied by CTU to NR constituents during 2012. In the meeting, it was decided that all STUs may renew their licenses on their own as procurement & distribution of PSS@E software along with 5 years embedded AMC by CTU was one-time measure.

The OEM of PSS@E software has submitted budgetary quote to NRPC Secretariat on 28.06.2019 for the maintenance & support of all PSS@E licenses, supplied to Punjab, Rajasthan, J&K, BBMB, HP, UP, Haryana, DTL, Uttarakhand and Chandigarh by CTU during 2012.

Respective STUs may take necessary action in view of the decision taken in the 155th OCC meeting.

18. Consent and permission for shutdowns for installing of Inter-State boundary metering using ABT type energy meters. (agenda by UNHVN, Haryana)

18.1 Haryana DISCOMs had decided to install AMRs in parallel to the existing SEMs at the interface boundaries of their State. The matter was also discussed at length with the MoP and CERC on several previous occasions. POWERGRID was requested to provide consent and allow shutdowns for installing AMRs in its area of jurisdiction, while discussing this matter in the 44th meeting of NRPC & 41st meeting of the TCC (copy of relevant portion of the minutes enclosed at **Annexure-VII**). However, consent of POWERGRID is still pending.

18.2 The work of installing these meters has already been assigned to M/s BCITS and their teams would initiate the installation work once the consent of the POWERGRID is received. The time, location and date of shutdown may be conveyed well in advance as per stipulated norms.

POWERGRID is requested to give its consent at the earliest.

19. Unplanned shutdown of DVC Mejia-7 (agenda by BYPL)

19.1 The un-planned shutdown of DVC Mejia-7, in which BYPL share is 111MW, availed by DVC w.e.f 00:00 hrs of 02.07.2019 for the period of 35 days. It was not scheduled shutdown as per LGBR of ERPC.

19.2 DVC, SLDC vide email dt. 27.06.2019, informed to avail this shutdown at the end of June'2019 and BYPL vide letter dt 27.06.2019 requested to defer shutdown to Nov'19 as Delhi is suffering with severe heat wave to which DVC did not responded. On 01.07.2019 at around 5.00 PM it was informed that Mejia-7 shall be under shutdown from 00:00 hrs of 02.07.2019. It is inappropriate on part of DVC to inform for shutdown when arrangement of power from alternate source was not possible. BYPL approached ERLDC/NRLDC/DVC and thereafter DVC agreed to defer the shutdown for one day.

19.3 DVC did not avail the shutdown on 14.05.2019 as per LGBR schedule of ERPC, and again did not take the consent of beneficiaries for revised date of shutdown. As per Regulation 5.7.4 of IEGC planned shutdown shall be routed through RPC and the

annual outage plan for respective Region shall be finalized by RPC Secretariat in consultation with LDC, and it will be reviewed by RPC Secretariat on quarterly and monthly basis in co-ordination with all stakeholders. The same was not followed by DVC for its proposed CoH of Mejia-7 for 35 days. BYPL communication in this regard are enclosed in **Annexure-VIII**.

19.4 In view of the above, NRPC is requested to take the appropriate step:

- i) For early revival of machine in view of hot summer season in Delhi to avoid unnecessary shortage of power in BYPL area.
- ii) Take up the matter with ERPC to follow the well-defined guidelines and not to allow unplanned shutdown without consent of beneficiaries as it is extremely difficult to arrange 100 MW power for a month in summer from reliable source.

Members may deliberate.

Part-B NRLDC

1. Reliability issues in the grid: June/July 2019

In previous OCC meetings, NRLDC had shared results of studies carried out for assessing the TTC/ATC of large state control area of Northern region for upcoming summer (as per network information available at NRLDC and details shared by respective states). During past few weeks, NR has met very high demand of order of ~66000MW. Reliability issues observed during this time are highlighted below (**graphs attached as Annexure-IX**):

- **Delhi:** As per studies carried out by Delhi SLDC and NRLDC, TTC limit was assessed as 6800MW. Considering reliability margin of 300MW, ATC limit comes out 6500MW. Simulation studies suggested N-1 non-compliance at 400/220kV Mundka and Harsh vihar ICTs.

Delhi has met its highest ever demand of 7370MW on 02.07.2019 at 15:25 hrs. It was observed that during this time loading of Bamnauli and Mundka ICTs were above their N-1 contingency limit. Delhi SLDC to share actions being taken by them to control loading of lines and ICTs at the time of high demand.

- **Uttar Pradesh:** As discussed in previous OCC meetings, simulation studies were performed after incorporating network changes given by UP. NRLDC has assessed TTC as 13400MW under state generation scenario of 10000MW. Considering reliability margin of 600 MW ATC comes out as 12800 MW. UP has assessed TTC limit of more than 13200MW under generation scenario of ~10000MW which is quite similar to limits assessed by NRLDC. Simulation studies based on data provided suggest N-1 non compliances at 400/220kV Agra(PG) and 400/132kV Mau ICTs. TTC/ATC of UP state control area depends on its own generation scenario and would increase/decrease, depending upon internal generation.

This year UP has met maximum demand of 21,900 MW on 11.06.2019 at 20:25 hrs. In real time, loadings above N-1 contingency limits were observed at Agra (PG) and Mau ICTs. Further, with outage of one 315MVA ICT, N-1 non-compliance issues may arise at Allahabad. One 500MVA ICT at Sarnath has also been replaced by 315MVA ICT due to fire incident. As highlighted in last OCC meeting, during the time ICT was out, there was continuous N-1 non-compliance at Sarnath ICTs. After revival of ICT although with reduced capacity, loadings close to N-1 contingency limits are observed.

- **Haryana:** TTC/ ATC limits were initially assessed by NRLDC as 7500MW/ 6900MW respectively with N-1 non-compliance at 400/220kV Dipalpur and Panipat ICTs. 220kV lines from Hisar, Lula ahir, Abdullapur etc. were heavily loaded. As discussed in last OCC, Haryana SLDC have assessed their TTC/ATC limit as 7900MW/ 7300MW. Recently, Haryana SLDC has shared basecase with new elements commissioned; however, assessment of ATC/TTC has not been shared. NRLDC is incorporating changes shared by Haryana at their end and also reassessing ATC/TTC limits of Haryana state. Meanwhile, Haryana is requested to share assessment of ATC/TTC done by them.

In real-time also under import of 6000-7000MW, loading of Deepalpur, Sonapat, Kabulpur and Panipat (BBMB) ICTs are high (close to N-1 limits). Further, 315MVA ICT-3 has been commissioned at Nawada however, same has not been taken on load. Due to this there is severe N-1 non-compliance issue at Nawada. While performing simulation studies at time of ATC/TTC assessment it was assumed that Nawada has three ICTs in service. Haryana SLDC to update.

- **Punjab:** ATC/TTC limits of Punjab state control area were revised to 6400/7000 MW on submission from Punjab SLDC that generation at Talwandi Saboo would not be upto full capacity, and would generally be around 1600MW. Simulation studies suggested N-1 non-compliance at 400/220kV Amritsar, Rajpura, Mukstar ICTs. On managing loading at these ICTs, next severe contingency would be N-1 of 400/220kV Ludhiana, Nakodar and Makhu ICTs. Further, Punjab has started to supply agricultural (paddy) load from 13.06.2019. With this, import of Punjab is close to its ATC limit of 6400MW. Loading at Amritsar and Rajpura ICTs is above N-1 contingency limits while that of Ludhiana ICTs is close to N-1 contingency limit. Punjab SLDC is requested to manage loading of ICTs below N-1 contingency limits as this limit of TTC/ATC was agreed on confirmation from Punjab SLDC that they shall manage loadings of ICTs below N-1 contingency limit.

Rajasthan: N-1 non-compliance at Akal and Bhadla ICTs. High loading of ICTs at Akal is being observed leading to constraints in evacuation of renewables. As highlighted by NRLDC on previous many occasions, there is need for additional reactive power support at Akal. In an event on 05.07.2019, generation loss of around 1500MW was reported in Akal area, when 220 KV Bus-I Jumper of C Phase of 220 KV Akal- Bhu Line-I Snapped & Grounded and tripping occurred in 220 kV system. Long outages of ICTs at Akal have been reported in past months. Even, when ICTs were revived, ICTs were reportedly taken under shutdown due to some or other issue. It is important to understand that already there is N-1 non-compliance at Akal ICTs and outage of ICTs further aggravates the problem.

In real time, loading of ICTs at Bhadla is being observed in range of 900-1200 MW. Thus, there is N-1 non-compliance on daily basis from 10:00hrs to 16:00hrs when solar generation is high.

Under N-1 contingency of ICT at Akal or Bhadla, there could be generation loss of the order of 1000-1300MW, which is severe contingency in grid resulting in large scale frequency excursions (dip). Thus, there is need for SPS design to trip some generation in case of tripping of one ICT at these stations and antecedent loading of ICTs being higher than N-1 contingency limit.

Rajasthan SLDC to present actions being taken/ planned.

SB energy vide letter dated 27.06.2019 has submitted that they have taken immediate actions with OEM to resolve the tripping of inverters due to waveform distortions resulted by grid disturbances. OEM has upgraded firmware and same was tested for LVRT conditions. SB Energy is requested to give presentation suggesting details of tests carried out and results obtained depicting inverter behaviour under different grid conditions.

2. Monsoon Preparedness: It is known that Northern region is meeting very high demand since past few weeks. As on date, Northern region has met maximum demand of 66,600MW and maximum energy consumption of 1491 MUs on 03.07.2019. During monsoon period, sudden thunderstorm, rainfall, large hydro outages on silt causes load-generation mismatch leading to variations in voltage, frequency, MW loadings and pose challenge for grid operation. Practices to be followed to combat such situation have been deliberated and agreed in previous various OCC/TCC meetings including 160th OCC meeting. Few areas which need action for better operation of grid are as follows:

- a. **Maintenance of reserves:** Large states i.e. Punjab, Haryana, Rajasthan, Uttar Pradesh should maintain adequate reserves to combat the real time imbalances in the system. All these states also have big generating stations and outage of one unit may cause mismatch in LGB. Small states i.e. Himachal Pradesh, Uttarakhand, Jammu & Kashmir etc. whose major load caters through hydro station shall make banking arrangement with other states which could be utilized in case of outage of Hydro stations on silt.
- b. **Coal/ Fuel shortage for thermal stations:** Advance information of coal stock of thermal plants ensures the generating unit availability and it is important during high demand season. It has been observed that sudden information of outage of thermal units on coal unavailability pose challenges to meet high demand. This year few state generating units such as Bara, Meja, are reportedly out due to coal shortage. It is also important to keep in mind that during these months generators also report outages due to wet coal issues. Thus, it is important that generating stations ensure sufficient coal stocks and also intimate same beforehand to system operators.
- c. **Load crash events:** Sudden thunder storm during summer in NR is probable phenomenon and subsequent load crash in range of 7-15 GW in region as a

whole also. Such fast reduction of large load causes frequency/voltage excursions, line loading etc. and is challenge for system operators. NRLDC has been reiterating measures to be taken by all stakeholders under such conditions in OCC/TCC meetings. Same are once again highlighted:

- Weather monitoring and warning/alert issuance within control centers for taking advance & fast actions
 - Backing down of thermal generation up to technical minimum in order to control high frequency operation besides containing over voltages.
 - Fast ramping down during reduction in generation.
 - Immediate actions to surrender power from ISGS generating stations
 - Tower strengthening and availability of Emergency Restoration System (ERS)
- d. **Better forecasting of Silt and Planned action for hydro outages:** Large hydro outage in short duration during monsoon on silt is a common phenomenon and the associated challenges have been highlighted in regular OCC/TCC meeting. It has been experienced that states those have major share in hydro e.g. Himachal Pradesh over draw from the grid during such condition. It is once again requested that states manage their portfolio such that impact of silt based outages is minimized.

It was decided in last OCC meeting that Jhakri will submit the real time silt measurement data to NRLDC through FTP. This data will be helpful for real time system operation in view of frequent hydro generation outage due to silt.

In last OCC meeting, MS NRPC had asked HP, Uttarakhand and J&K to develop action plan / guidelines and share with NRPC/ NRLDC or in OCC meeting.

Update on above may be provided.

3. Voltage vs MVAR performance of generators: It was decided in 159th OCC meeting that utilities would take actions to improve reactive power response and telemetry of MVAR data from generators to control centers. It was further decided that three generators would be identified every month whose response and MVAR data issues would be regularly studied and improvements be done accordingly. Anpara C, Anpara D, Bara were identified as three generators whose telemetry and MVAR data are to be improved before next OCC.

In 160th OCC meeting, UP SLDC had shared Voltage vs MVAR plots for 21.05.2019-31.05.2019. Based on available SCADA data at NRLDC, plots were developed and shared with UP SLDC vide email and then shared in 160th OCC meeting.

UP SLDC vide emails dated 30.05.2019 and 10.06.2019 and in 160th OCC meeting was requested to:

- i. Confirm above telemetry data from site (generators). Actions taken to correct telemetry of Bara Unit 3.

- ii. Information regarding Vsch (voltage set point) of these generators and tap position of GT.
- iii. Since voltage ratio of 765kV and 400kV are varying widely from nominal ratio for Anpara C and Anpara D, kindly confirm tap positions of 765/400kV ICTs as well so that requirement for tap change be studied.

UP SLDC may kindly update.

4. Hydro / Thermal generation related issues: Kishenganga HEP has 3x110MW units in operation since May 2018. However, since its commissioning Kishanganga HEP at its full capacity is available very few times despite spillage conditions. It is observed that:

- All the 3 machines are available but the DC is not being given to full capacity.
- Many times, unit 3 not available due to cooling water pump problem (as mentioned by KHEP).
- 220kV Kishenganga-Delina lines are tripping on number of occasions (8 times in Jun'19) resulting in generation loss at Kishenganga HEP. This has resulted in spillage of water and energy loss due to non-availability of transmission lines. Details are attached as **Annexure-X**.
- Many times, machines are not in operation after lines revival due to UGB pads high temperature.

Other hydro generator related issues are as follows:

- As per AS3 format the max possible ex bus injection (including overload) of Chamera 3 is 254.1 MW but despite spillage the declared capacity is 231 MW RTC except the peak hours DC of 235 MW.
- As per AS3 format the max possible ex bus injection (including overload) Chamera 2 is 312 MW but despite spillage the declared capacity is 300 MW RTC except the peak hours DC of 303 MW.
- Dulhasti unit 3 has been restricted to 50-60 MW by plant due to high noise level, the unit needs early rectification because there is continuous spillage.
- As per format AS3, maximum possible ex bus injection (including overload if any) of Salal is 683 MW and Tanakpur is 93.26MW but the DC is upto 735MW and 96MW respectively, clarify the ambiguity.
- 220kV Chamera3-Chamba ckt. 2 and Chamera 3 bus-1 are under outage since 14.05.2019 due to breaker damage. In this hydro season with high generation at Budhil and Chamera-3, loading of 220kV Chamera 3 – Chamba ckt.1 is nearing 300MW. NHPC may intimate the breaker replacement time at Chamera 3 end and POWERGRID may intimate the tower rectification of Chamera 3- Chamba line. Further, loading of 2*315 MVA 400/220kV ICTs at Chamba is in range of 150-165MW. Thus, under N-1 contingency of one ICT loading of other ICT may reach 300-330MW which could lead to outage of both ICTs and hence generation loss.

- BBMB may intimate the revival of Pong unit 2 and Bhakra unit 3.
- Flushing planning may be intimated to NRLDC well in advance and the planning should be staggered.
- All states may intimate their state hydro status.

Apart from this, NTPC-NR has intimated that Rihand stage-I Unit-1 and Unit-2 internal component replacement work is in progress and this will be completed by 18.07.2019 and 24.07.2019 respectively. Till the work is completed, Rihand Stage-1 Units 1 and 2 would generate less (~500-600MW). Moreover, Unit 2 at Rihand 2 is out for major overhauling work since 16.06.2019. Thus, during this peak demand period prolonged outage/ less generation at thermal stations is not desirable. Thus, it is requested to expedite works for revival of units of Rihand Stage I and II to their full capacity.

All concerned are requested to present actions being taken by them in this regard.

5. Frequent forced outages of transmission elements

Following transmission elements were frequently under forced outages during the month of **Jun'19**:

Sl. NO.	Element Name	No. of forced outages	Utility/SLDC
1	220kV Delina(JK)-Kishanganga HEP(NHPC) ckt-1	8	J&K/POWERGRID/NHP C
2	220kV Delina(JK)-Kishanganga HEP(NHPC) ckt-2	8	J&K/POWERGRID/NHP C
3	220kV Kishenpur(PG)-Ramban(JK)	5	J&K/POWERGRID
4	400kV Agra(UP)-Unnao(UP)	4	UP
5	400kV Azamgarh(UP)-Gorakhpur(UP)	4	UP
6	400kV Rewa Road(UP)-Banda(UP) ckt-1	3	UP
7	400kV Alwar(Raj)-Hindaun(Raj)	3	Rajasthan
8	220kV Amargarh(NRSS29)-Delina(JK) ckt-1	3	J&K/POWERGRID/NRS S29
9	400kV Banda(UP)-Orai(UP) ckt-2	3	UP
10	400kV Bhadla(RRVPNL)-Bikaner(RRVPNL) ckt-2	3	Rajasthan
11	400kV Bhiwadi(PG)-Hisar(PG)	3	POWERGRID
12	765kV G.Noida(UP)-Mainpuri(UP)	3	UP
13	400kV Koldam(NTPC)-Ludhiana(PG) ckt-2	3	POWERGRID/NTPC/PK TCL

The complete details are attached at **Annexure-XI**. Frequent outages of such elements affect the reliability and security of the grid. Hence, utilities are requested to look into such frequent outages and share the remedial measures taken/being taken in this respect.

In 160th OCC meeting, NRPC raised concern on non-submission of details to NRPC/NRLDC and suggested to all the SLDCs to compile the information and share the remedial measures report for last ten months tripping presented in various OCC meeting. All the concerned utility shall prepare the presentation on remedial measures taken and present during 161st OCC meeting.

Members may like to discuss.

6. Multiple element tripping events in Northern region in the month of Jun'19:

A total of **39** grid events occurred in the month of Jun'19 of which **28** are of GD-1 category. The preliminary report of all the events have been issued from NRLDC. A list of all these events along with the status of details received by 05-July-19 is attached at **Annexure-XII**.

Further, despite persistent discussions/follow-up in various OCC/PCC meetings, the compliance of the regulations is still much below the desired level.

Maximum Fault Duration is **1560ms** in the event of multiple element tripping at 220 kV Bareilly (UP) on 24-Jun-19 at 10:31hrs.

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **9** events out of 39 grid events occurred in the month.

Members may take expeditious actions to avoid such tripping in future and discuss the same. Moreover, utilities may impress upon all concerned for providing the Preliminary Report, DR/EL & Detailed Report of the events in line with the regulations.

Members may like to discuss.

7. Details of tripping of Inter-Regional lines from Northern Region for Jun'19:

A total of **14** inter-regional lines tripping occurred in the month of Jun'19. The list is attached at **Annexure-XIII**. 6 out of 14 tripping incidents are related to HVDC system. 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 is in violation of various regulations. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/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 mandated by CEA (Grid Standard) Regulations.

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

8. Discussion on submission of feeder wise load relief details for Agra-Gwalior SPS and finalization of load groups:

The 765kV Agra-Gwalior D/C is an important link between WR-NR. An SPS is in place to take care of the contingencies associated with the aforesaid link.

After discussion in various OCC meeting, revised logic of Agra-Gwalior SPS scheme was implemented in the month of Apr-19. As per approval in 158th OCC meeting, mock testing of 765 kV Agra-Gwalior SPS was conducted on 01st May 2019. Detailed report based on input from different utilities is prepared by NRLDC and shared with all the concerned utilities. This report was attached and discussed in 159th OCC meeting and thereafter a separate meeting was also called on 23rd May 2019 through video conferencing. In this meeting concerned utilities shared its input on shortcoming highlighted in the NRLDC report. Details of the shortcoming in mock testing and reply of concerned utility is again discussed in 160th OCC meeting. Following are the key highlights of the discussion during the meeting:

- *NRLDC representative raised concern about submission of load relief information by most of the utilities on the basis of average load on the feeders however it has already been discussed and approved in NRPC meeting that load relief quantum shall be calculated on minimum load on these feeders.*
- *For calculation of minimum load, it was suggested that utilities shall take the yearly data and calculate the average of 30days of minimum load period on that particular feeder and share the details in next OCC meeting.*
- *If there is any shortfall in load relief than utilities shall submit the additional load feeders on the same locations where DTPC is already available/ installed.*
- *Load groups shall be finalized in next OCC meeting after input from all the concerned utilities (Punjab, Haryana, Rajasthan, Uttar Pradesh and Delhi).*

It is requested to all the concerned utilities to kindly share the feeder wise details of load relief based on minimum yearly load on those feeders and also share the input for finalization of load group along with feeder wise details of MW relief on the basis of suggested procedure.

Members may like to discuss.

9. Frequency response characteristic:

One FRC based event has occurred in the month of **July-2019**. Description of the events is as given below:

S. No.	Event Date	Time (in hrs)	Event Description	Starting Frequency (in Hz)	End Frequency (in Hz)	Δf
1	05-July-19	03:56hrs	On 05th June 2019, at 03:56:20 hrs Blue phase jumper of 220 kV Akal- Bhu Line-I snapped and fallen on 220 kV Bus-I at 400/220 kV Akal station as reported by Rajasthan SLDC. It led to the tripping of 220 kV Akal-Bhu	49.90	49.83	-0.067

		Line-I & II, 220 kV Akal-Dangri-I and 400/220 kV ICT-I & II at Akal station. The fault clearing time as per PMU data was 680 ms and Wind generation loss in Akal station as per SCADA data is 1500 MW. After 2 minutes of incident, 400 KV Akal-Kankani-I & Akal - Ramgarh-II tripped on over voltage as reported and Wind generation loss at Akal station at this second incident was 300 MW as per SCADA data. The FRC has been calculated for the first incident when generation loss was 1500 MW			
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The Hon'ble CERC approved procedure has already been shared with all concerned during previous OCC meetings. FRC observed for each state control area for the events is tabulated below:

States	05-Jul-19 event	Remarks
PUNJAB	55%	
HARYANA	39%	
RAJASTHAN	210%	Event in Rajasthan
DELHI	54%	
UTTAR PRADESH	27%	
UTTARAKHAND	20%	
CHANDIGARH	7%	Small Control area
HIMACHAL PRADESH	-9%	
JAMMU & KASHMIR	10%	
NR	32%	

FRC calculation of ISGS stations based on NRLDC SCADA data is tabulated below:

Generator	05-Jul-19 event	Generator	05-Jul-19 event
Singrauli TPS	23%	Salal HEP	-18%
Rihand-1 TPS	-34%	Tanakpur HEP	-2%
Rihand-2 TPS	-9%	Uri-1 HEP	1%
Rihand-3 TPS	-8%	Uri-2 HEP	Suspected SCADA data
Dadri-1 TPS	55%	Dhauliganga HEP	Suspected SCADA data
Dadri -2 TPS	43%	Dulhasti HEP	-4%
Unchahar TPS	Suspected SCADA data	Sewa-II HEP	Suspected SCADA data
Unchahar stg-4 TPS	-34%	Parbati-3 HEP	Suspected SCADA data
Jhajjar TPS	Suspected SCADA data	Jhakri HEP	Suspected SCADA data

Generator	05-Jul-19 event	Generator	05-Jul-19 event
Dadri GPS	263%	Rampur HEP	Suspected SCADA data
Anta GPS	No generation	Tehri HEP	-12%
Auraiya GPS	No generation	Koteswar HEP	Suspected SCADA data
Narora APS	17%	Karcham HEP	64%
RAPS-B	6%	Malana-2 HEP	Suspected SCADA data
RAPS-C	-8%	Budhil HEP	-3%
Chamera-1 HEP	Suspected SCADA data	Bhakra HEP	-1%
Chamera-2 HEP	4%	Dehar HEP	5%
Chamera-3 HEP	Suspected SCADA data	Pong HEP	-2%
Bairasiul HEP	No generation	Koldam HEP	-4%
		AD Hydro HEP	0%

FRC calculation of major state generators based on NRLDC SCADA data is tabulated below:

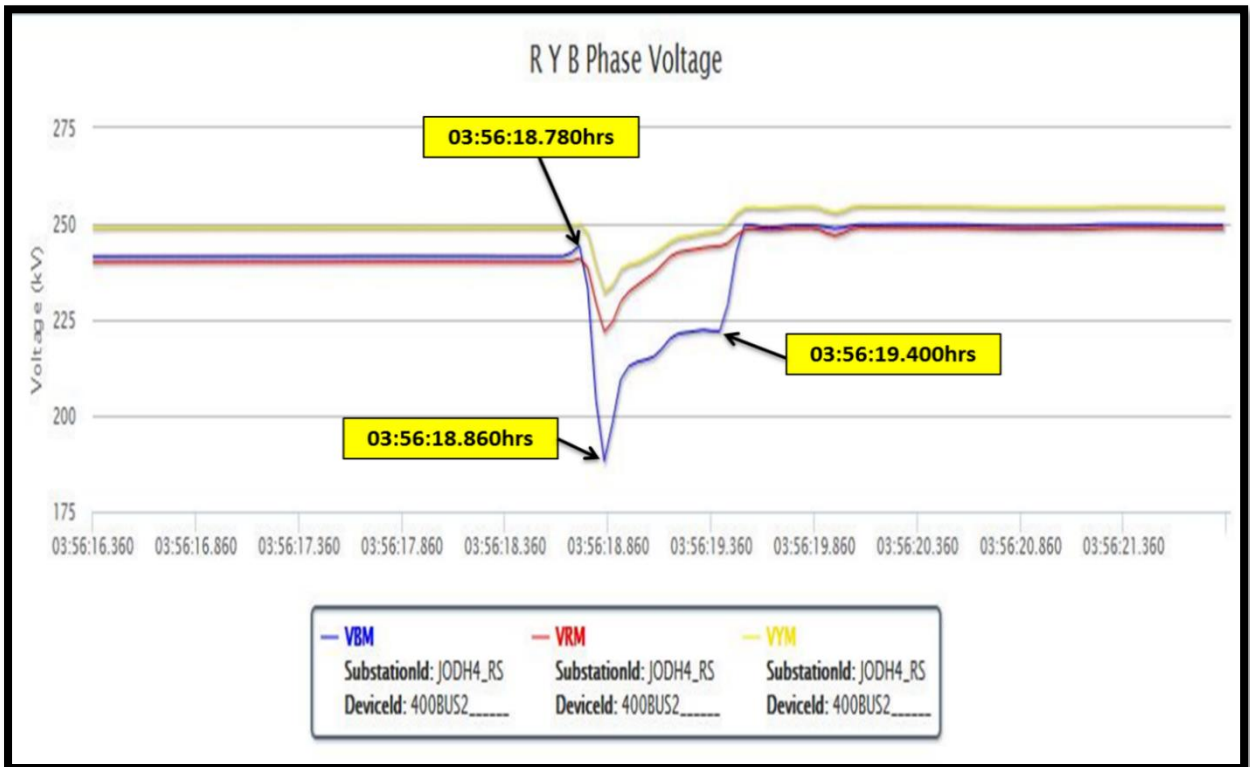
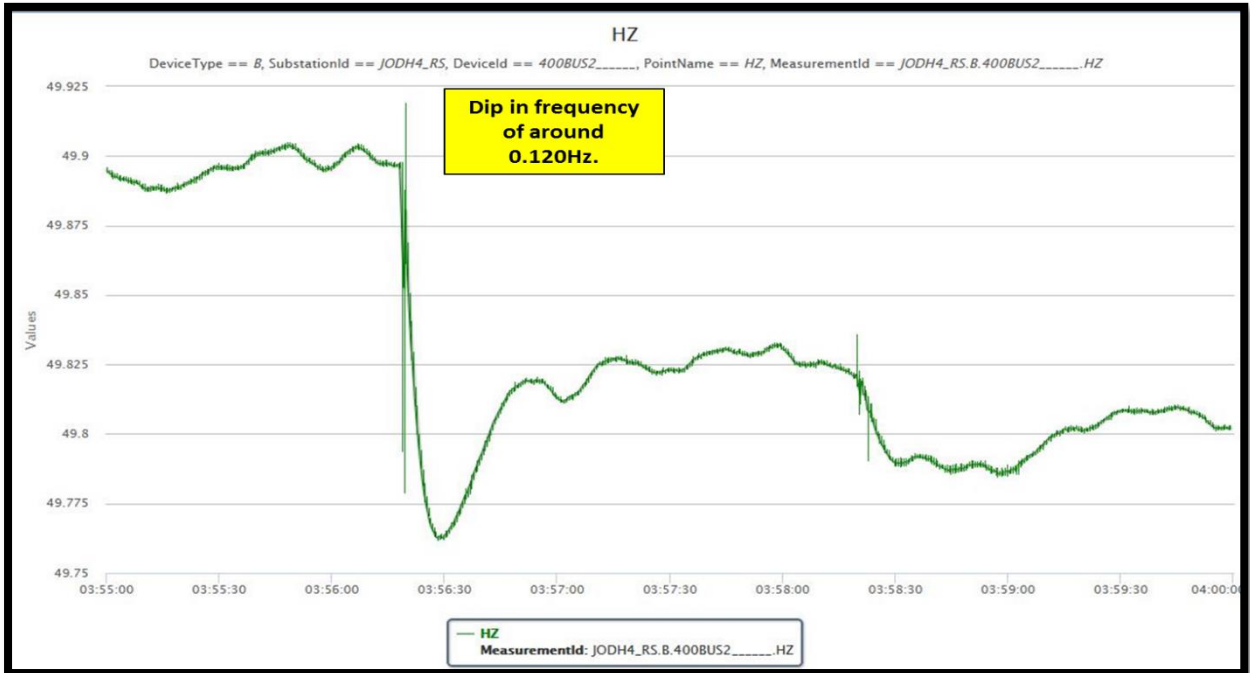
Generator	05-Jul-19 event	Generator	05-Jul-19 event
PUNJAB		UP	
Ropar TPS	98%	Obra TPS	5%
L.Mohabbat TPS	64%	Harduaganj TPS	16%
Rajpura TPS	77%	Paricha TPS	61%
T.Sabo TPS	165%	Rosa TPS	24%
Goindwal Sahib TPS	248%	Anpara TPS	-7%
Ranjit Sagar HEP	11%	Anpara C TPS	0%
Anandpur Sahib HEP	-5%	Anpara D TPS	-21%
HARYANA		Bara TPS	1%
Panipat TPS	-13%	Lalitpur TPS	85%
Khedar TPS	29%	Meja TPS	No generation
Yamuna Nagar TPS	No generation	Vishnuprayag HEP	Suspected SCADA data
CLP Jhajjar TPS	-7%	Alaknanda HEP	58%
Faridabad GPS	No generation	Rihand HEP	-1%

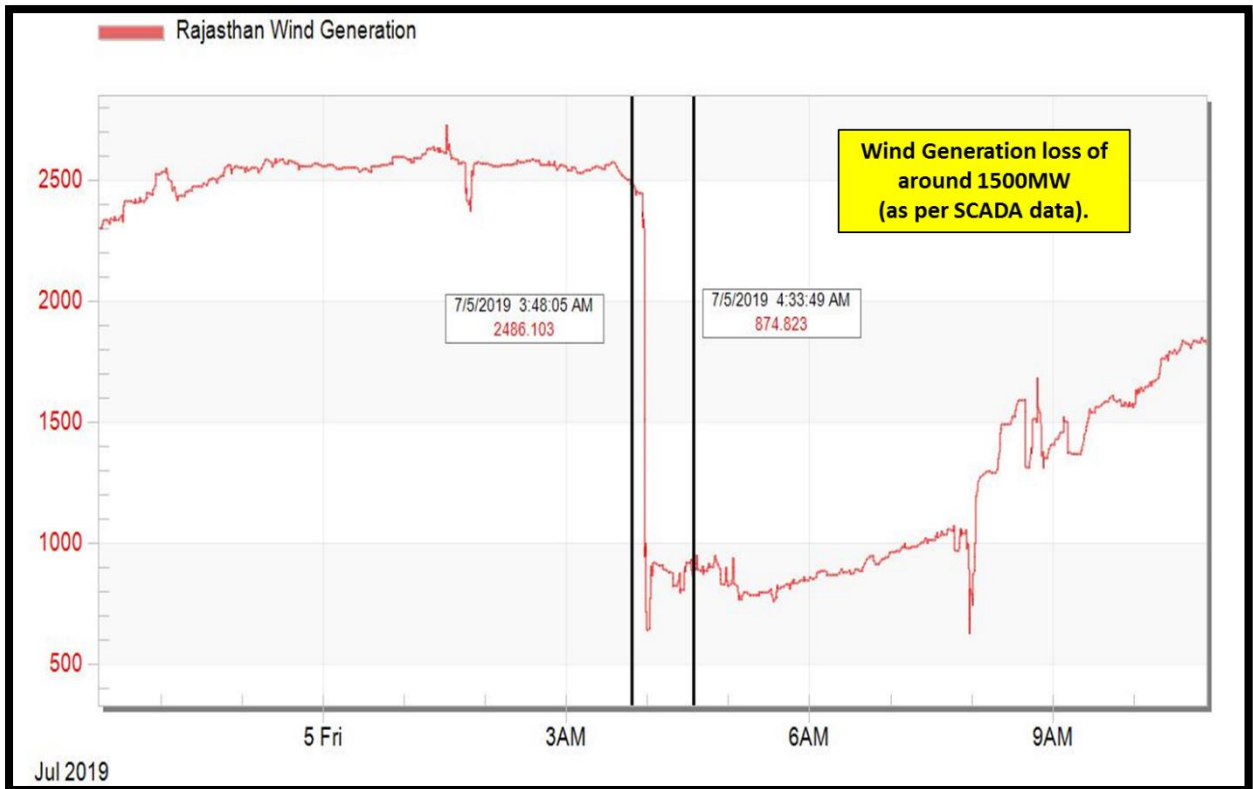
Generator	05-Jul-19 event	Generator	05-Jul-19 event
RAJASTHAN		Obra HEP	10%
Kota TPS	67%	UTTARAKHAND	
Suratgarh TPS	8%	Gamma Infra GPS	0%
Kalisindh TPS	28%	Shravanti GPS	0%
Chhabra TPS	No generation	Ramganga HEP	Suspect SCADA data
Chhabra stg-2 TPS	120%	Chibra HEP	Suspect SCADA data
Kawai TPS	-6%	Khodri HEP	No generation
Dholpur GPS	No generation	Chilla HEP	24%
Mahi-1 HEP	No generation	HP	
Mahi-2 HEP	No generation	Baspa HEP	1%
RPS HEP	No generation	Malana HEP	-3%
JS HEP	49%	Sainj HEP	Suspect SCADA data
DELHI		Larji HEP	10%
Badarpur TPS	No generation	Bhabha HEP	-6%
Bawana GPS	-8%	Giri HEP	No generation
Pragati GPS	-15%	J&K	
		Baglihar-1&2 HEP	-4%
		Lower Jhelum HEP	No generation

In line with the decisions taken during various OCC meetings, the time and date of the FRC events were e-mailed to respective utilities. Constituents may submit the FRC of their control areas for both the events and reason of poor response, if observed.

10. Wind Generation outage in Western Rajasthan during multiple element tripping at 400/220 kV Akal station:

At 03:56hrs of 05th July 2019, Blue phase jumper of 220 Akal (end)-Bhu ckt-1 snapped and grounded. It resulted into multiple element tripping at 400/220 kV Akal station. At the same time 1500MW wind generation occurred in the Western Rajasthan area. PMU plot of frequency was showing frequency dip of around 0.12 Hz. PMU plot and SCADA plot are as below:





It is suspected that cause of large renewable generation tripping is due to unavailability of FRT capabilities in various wind generating stations. These large scale trippings are serious threat for security of the entire grid and also occurred in the past.

Rajasthan representative kindly check and share the details in view of following points:

- Timely clearance of Faults in the System (within mandated time as per Grid Standards regulations)
- Fault Ride Through (FRT) or LVRT capabilities are enabled in the wind turbine generators.

Members may like to discuss.

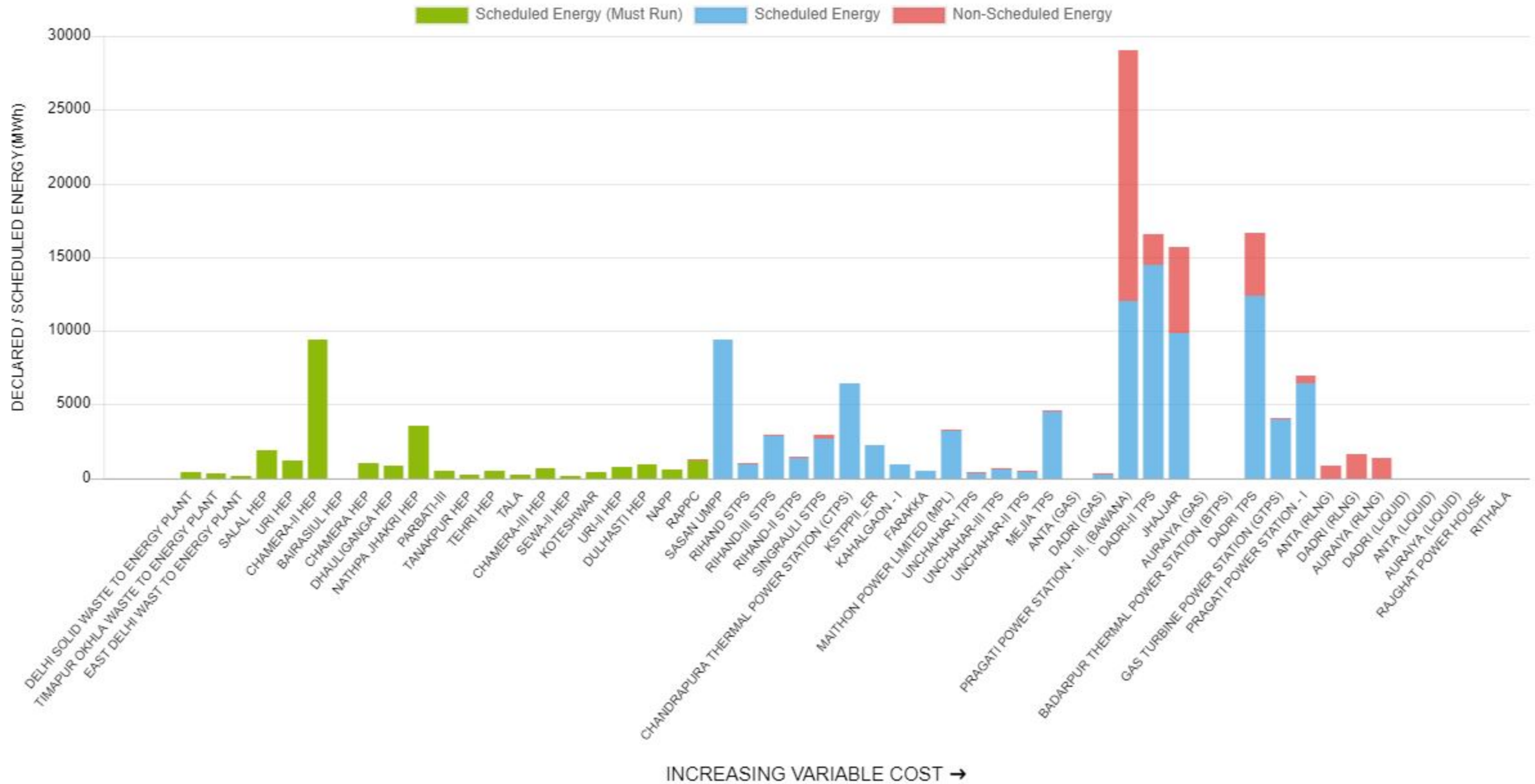
Annexure-I

State / UT		Aug-19 (MU)	Aug-19 (MW)
Chandigarh	Availability	225	410
	Requirement	180	355
	Surplus/Shortfall (MU)	45	55
	Surplus/Shortfall (%)	25.0%	15.5%
Delhi	Availability	4010	7200
	Requirement	3750	6300
	Surplus/Shortfall (MU)	260	900
	Surplus/Shortfall (%)	6.9%	14.3%
Haryana	Availability	6750	12010
	Requirement	6010	10000
	Surplus/Shortfall (MU)	740	2010
	Surplus/Shortfall (%)	12.3%	20.1%
Himachal Pradesh	Availability	1050	1950
	Requirement	910	1490
	Surplus/Shortfall (MU)	140	460
	Surplus/Shortfall (%)	15.4%	30.9%
Jammu & Kashmir	Availability	1510	2430
	Requirement	1620	2990
	Surplus/Shortfall (MU)	-110	-560
	Surplus/Shortfall (%)	-6.8%	-18.7%
Punjab	Availability	7670	11040
	Requirement	7640	12700
	Surplus/Shortfall (MU)	30	-1660
	Surplus/Shortfall (%)	0.4%	-13.1%
Rajasthan	Availability	9240	15940
	Requirement	7540	11500
	Surplus/Shortfall (MU)	1700	4440
	Surplus/Shortfall (%)	22.5%	38.6%
Uttar Pradesh	Availability	14000	20500
	Requirement	12600	21000
	Surplus/Shortfall (MU)	1400	-500
	Surplus/Shortfall (%)	11.1%	-2.4%
Uttarakhand	Availability	1440	2090
	Requirement	1400	2160
	Surplus/Shortfall (MU)	40	-70
	Surplus/Shortfall (%)	2.9%	-3.2%
Total NR	Availability	45895	73570
	Requirement	41650	62100
	Surplus/Shortfall (MU)	4245	11470
	Surplus/Shortfall (%)	10.2%	18.5%

Merit order Summary of Delhi dated 02.07.2019

Station	Capacity Allocated to State (MW)	Plant Capacity (MW)	Type Of Station	Ownership	Variable Cost (Rs/Unit)	Fixed Cost (Rs/Unit)	Total Cost (Rs/Unit)	Declared Capability (MWh)	Schedule (MWh)	Unscheduled Energy (MWh)	Reason for Deviation / Remarks(if any) must run / waste to
EAST DELHI WAST TO ENERGY PLANT		12	Renewable	State Generation			0.00	178	178		0 energy plant
RAJGHAT POWER HOUSE		135	Thermal	State Generation			0.00	0	0	0	
RITHALA		95	Gas	State Generation			0.00	0	0	0	
SALAL HEP	79	690	Hydro	Central ISGS	0.62	0.62	1.24	1897	1896	1	
SASAN UMPP	419	3960	Thermal	Other ISGS	1.18	0.13	1.31	9417	9417	0	
URI HEP	52	480	Hydro	Central ISGS	0.84	0.82	1.66	1235	1234	1	
ANTA (LIQUID)	43	419	Gas	Central ISGS	10.19		10.19	0	0	0	
AURAIYA (LIQUID)	70	663	Gas	Central ISGS	10.31		10.31	0	0	0	
CHAMERA-II HEP	40	300	Hydro	Central ISGS	1.03	1.00	2.03	937	9373		May be typographical error
BAIRASIUL HEP	20	180	Hydro	Central ISGS	1.04	1.02	2.06	0	0	0	
RIHAND-II STPS	119	1000	Thermal	Central ISGS	1.34	0.73	2.07	1425	1377	48	
SINGRAULI STPS	140	2000	Thermal	Central ISGS	1.49	0.67	2.16	2979	2684	295	
TALA	30	1020	Hydro	Other ISGS	2.16	0.00	2.16	271	270	1	
RIHAND STPS	92	1000	Thermal	Central ISGS	1.33	0.88	2.21	1025	962	63	
CHAMERA HEP	42	540	Hydro	Central ISGS	1.17	1.14	2.31	988	987	1	
NATHPA JHAKRI HEP	140	1500	Hydro	Central ISGS	1.25	1.21	2.46	3562	3561	1	
RIHAND-III STPS	124	1000	Thermal	Central ISGS	1.33	1.50	2.83	2984	2855	129	
NAPP	41	440	Nuclear	Central ISGS	3.20	0.00	3.20	613	595	18	
KAHALGAON-II	148	1500	Thermal	Central ISGS	2.16	1.12	3.28	2219	2218	1	
TANAKPUR HEP	12	94	Hydro	Central ISGS	1.69	1.65	3.34	271	270	1	
FARAKKA	21		Thermal	Central ISGS	2.51	0.85	3.36	455	455	0	
KAHALGAON - I	46	840	Thermal	Central ISGS	2.28	1.09	3.37	970	969	1	
CHANDRAPURA THERMAL POWER STATION (CTPS)	300	760	Thermal	Other ISGS	1.98	1.45	3.43	6394	6394	0	
DHAULIGANGA HEP	37	280	Hydro	Central ISGS	1.24	2.74	3.98	854	854	0	
RAPPC	49	440	Nuclear	Central ISGS	4.05	0.00	4.05	1255	1206	49	
DADRI (GAS)	89	830	Gas	Central ISGS	3.55	0.60	4.15	334	219	115	
ANTA (GAS)	43	419	Gas	Central ISGS	3.52	0.73	4.25	12	10	2	
PARBATH-III	65	520	Hydro	Central ISGS	1.58	2.70	4.28	461	460	1	
CHAMERA-III HEP	29	231	Hydro	Central ISGS	2.18	2.10	4.28	692	691	1	
MAITHON POWER LIMITED (MPL)	281	1050	Thermal	Other ISGS	2.81	1.50	4.31	3298	3232	66	
KOTESHWAR	39	400	Hydro	Central ISGS	2.37	1.95	4.32	424	432	8	
UNCHAHAR-II TPS	43	420	Thermal	Central ISGS	3.30	1.04	4.34	513	449	64	
SEWA-II HEP	16	120	Hydro	Central ISGS	2.22	2.14	4.36	189	188	1	
UNCHAHAR-I TPS	22	420	Thermal	Central ISGS	3.27	1.12	4.39	413	365	48	
AURAIYA (GAS)	70	663	Gas	Central ISGS	3.79	0.66	4.45	0	0	0	
TEHRI HEP	62	1000	Hydro	Central ISGS	2.00	2.65	4.65	517	517	0	
UNCHAHAR-III TPS	26	210	Thermal	Central ISGS	3.27	1.40	4.67	633	551	82	
MEJIA TPS	219	1340	Thermal	Other ISGS	3.44	1.25	4.69	4605	4521	84	
BADARPUR THERMAL POWER STATION (BTPS)		750	Thermal	State Generation	3.86	0.83	4.69	0	0	0	
URI-II HEP	32	240	Hydro	Central ISGS	2.43	2.34	4.77	762	762	0	
PRAGATI POWER STATION - III, (BAWANA)		1371		State Generation	3.66	1.11	4.77	29010	12049	16961	
DADRI TPS	692	840	Thermal	Central ISGS	3.91	1.01	4.92	16602	12411	4191	
DADRI-II TPS	692	980	Thermal	Central ISGS	3.70	1.48	5.18	16544	14474	2070	
JHAJJAR	657	1500	Thermal	Central ISGS	3.75	1.67	5.42	15676	9798	5878	
GAS TURBINE POWER STATION (GTPS)		270	Gas	State Generation	4.92	0.66	5.58	4058	3998	60	
DULHASTI HEP	49	390	Hydro	Central ISGS	2.81	2.79	5.60	965	965	0	
PRAGATI POWER STATION - I		330		State Generation	5.14	0.71	5.85	6941	6464	477	
TIMAPUR OKHLA WASTE TO ENERGY PLANT		16	Renewable	State Generation	0.00	6.44	6.44	316	316	0	must run / waste to energy plant
DELHI SOLID WASTE TO ENERGY PLANT		24	Renewable	State Generation	0.00	7.03	7.03	385	385	0	must run / waste to energy plant
ANTA (RLNG)	43	419	Gas	Central ISGS	7.98		7.98	888	0	888	
DADRI (RLNG)	89	830	Gas	Central ISGS	8.46		8.46	1609	0	1609	
AURAIYA (RLNG)	70	663	Gas	Central ISGS	9.65		9.65	1365	0	1365	
DADRI (LIQUID)	89	830	Gas	Central ISGS	9.75		9.75	0	0	0	

PLANTWISE ENERGY SUMMARY



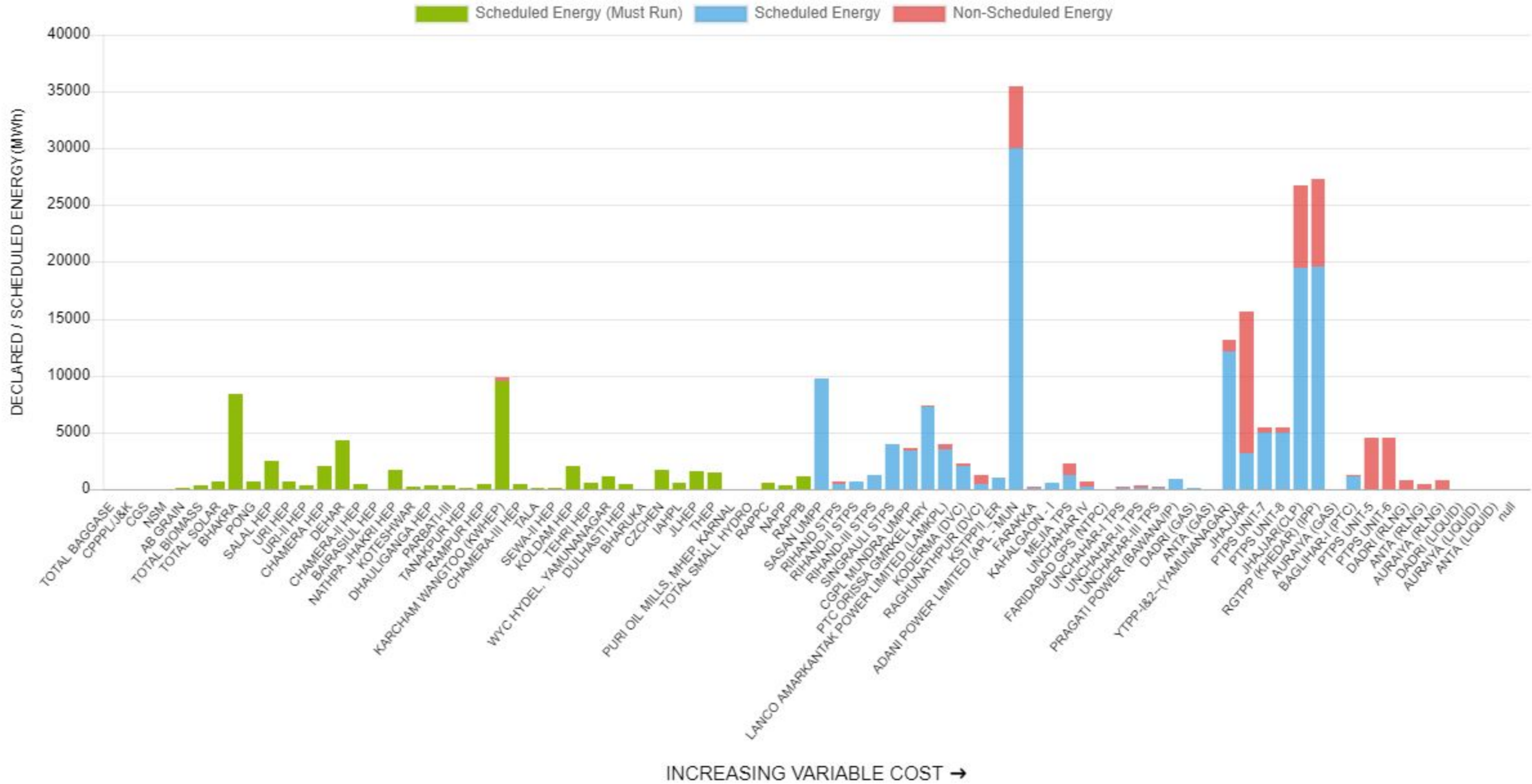
* The above graph shows merit order despatch from stations in order of increasing variable charges.

* Must run plants shown in Green color, includes Renewable, Hydro & Nuclear plants.

Merit order Summary of Haryana dated 02.07.2019

Station	Capacity Allowed to State (MW)	Plant Capacity (MW)	Type Of Station	Ownership	Variable Cost (Rs/Unit)	Fixed Cost (Rs/Unit)	Total Cost (Rs/Unit)	Declared Capability (MWh)	Schedule (MWh)	Unscheduled Energy (MWh)	Reason for Deviation / Remarks (if any)
TOTAL SOLAR	125	125	Renewable	State Generation			0.00	634	634	0	
TOTAL BIOMASS	51		Renewable	State Generation			0.00	380	380	0	
PURI OIL MILLS, MHEP, KARNAL	3	3	Hydro	State Generation			0.00	0	0	0	
TOTAL SMALL HYDRO	73	73	Hydro	State Generation			0.00	0	0	0	
BHAKRA	470	1533	Hydro	Central ISGS	0.43	0.00	0.43	8365	8365	0	
PONG	62	396	Hydro	Central ISGS	0.43	0.00	0.43	714	714	0	
DEHAR	297	990	Hydro	Central ISGS	0.96	0.00	0.96	4242	4242	0	
SALAL HEP	103	690	Hydro	Central ISGS	0.60	0.50	1.10	2511	2511	0	
CHAMERA HEP	84	540	Hydro	Central ISGS	0.91	0.44	1.35	2023	2023	0	
SASAN UMPP	419	3960	Thermal	Other ISGS	1.30	0.17	1.47	9696	9696	0	
URI HEP	26	480	Hydro	Central ISGS	0.83	0.72	1.55	619	619	0	
BAIRASIUL HEP	55	180	Hydro	Central ISGS	1.05	0.54	1.59	0	0	0	
CHAMERA-II HEP	17	300	Hydro	Central ISGS	1.01	0.64	1.65	408	408	0	
NATHPA JHAKRI HEP	63	1500	Hydro	Central ISGS	1.25	0.67	1.92	1645	1645	0	
DADRI (LIQUID)	40	830	Gas	Central ISGS	12.73	0.56	13.29	0	0	0	
AURAIYA (LIQUID)	38	663	Gas	Central ISGS	13.08	0.63	13.71	0	0	0	
ANTA (LIQUID)	23	419	Gas	Central ISGS	13.27	0.70	13.97	0	0	0	
SINGRAULI STPS	186	2000	Thermal	Central ISGS	1.44	0.63	2.07	3972	3972	0	
PARBATHI-III	45	520	Hydro	Central ISGS	1.57	0.62	2.19	324	324	0	
RIHAND STPS	60	1000	Thermal	Central ISGS	1.39	0.83	2.22	666	463	203	
TALA	15	1020	Hydro	Central ISGS	2.23	0.00	2.23	139	139	0	
RIHAND-II STPS	54	1000	Thermal	Central ISGS	1.39	0.85	2.24	645	645	0	
DHAULIGANGA HEP	16	280	Hydro	Central ISGS	1.57	0.79	2.36	379	379	0	
KOTESHWAR	17	400	Hydro	Central ISGS	1.56	0.96	2.52	186	186	0	
RAMPUR HEP	17	412	Hydro	Central ISGS	1.65	1.02	2.67	440	440	0	
WYC HYDEL,											
YAMUNANAGAR	62	62	Hydro	State Generation	2.84	0.00	2.84	1128	1128	0	
RIHAND-III STPS	53	1000	Thermal	Central ISGS	1.40	1.47	2.87	1268	1268	0	
KARCHAM WANGTOO (KWHEP)	200	1000	Hydro	Other ISGS	1.89	1.02	2.91	9808	9503	305	
CGPL MUNDRA UMPP	380	4000	Thermal	Other ISGS	2.02	0.90	2.92	3581	3364	217	
URI-II HEP	13	240	Hydro	Central ISGS	0.83	2.35	3.18	322	322	0	
TANAKPUR HEP	6	94	Hydro	Central ISGS	1.63	1.58	3.21	139	139	0	
RAPPC	22	440	Nuclear	Central ISGS	3.22	0.00	3.22	561	561	0	
FARAKKA	10		Thermal	Central ISGS	2.42	0.85	3.27	247	124	123	
LANCO AMARKANTAK POWER LIMITED											
(LAMKPL)	285	600	Thermal	Other ISGS	2.08	1.20	3.28	3928	3479	449	
BHARUKA	6	6	Hydro	State Generation	3.29	0.00	3.29	31	31	0	
NAPP	25	440	Nuclear	Central ISGS	3.30	0.00	3.30	365	365	0	
ADANI POWER LIMITED											
(APL - MUNDRA) STG-III	1424	1980	Thermal	Other ISGS	2.38	1.01	3.39	35459	30070	5389	
KAHALGAON-II	65	1500	Thermal	Central ISGS	2.31	1.10	3.41	1022	969	53	
KAHALGAON - I	23	840	Thermal	Central ISGS	2.42	1.03	3.45	529	500	29	
PTC ORISSA GMRKEL											
HRY	300		Thermal	Other ISGS	2.04	1.48	3.52	7366	7200	166	
CHAMERA-III HEP	20	231	Hydro	Central ISGS	2.16	1.37	3.53	486	486	0	
SEWA-II HEP	7	120	Hydro	Central ISGS	2.24	1.29	3.53	85	85	0	
RAGHUNATHPUR (DVC)	100	1200	Thermal	Other ISGS	2.24	1.37	3.61	1200	490	710	
KOLDAM HEP	78	800	Hydro	Central ISGS	2.57	1.05	3.62	2053	2053	0	
CHUZACHEN	17	110	Hydro	State Generation	3.74	0.00	3.74	1703	1703	0	
JORETHANG		96	Hydro	State Generation	3.74	0.00	3.74	1546	1546	0	
THEP/HPPC		97	Hydro	State Generation	3.74	0.00	3.74	1456	1456	0	
IAHPL		15	Hydro	State Generation	3.74	0.00	3.74	564	564	0	
FARIDABAD GPS (NTPC)	432	432	Thermal	State Generation	3.02	0.74	3.76	0	0	0	
RAPPB	50	440	Nuclear	Central ISGS	3.79	0.00	3.79	1067	1067	0	
BAGLIHAR-I (PTC)	50	450	Thermal	Other ISGS	3.80	0.00	3.80	1189	1169	20	
KODERMA (DVC)	100	1000	Thermal	Other ISGS	2.13	1.70	3.83	2266	2058	208	
TEHRI HEP	70	1000	Hydro	Central ISGS	2.78	1.12	3.90	599	599	0	
DADRI (GAS)	40	830	Gas	Central ISGS	3.42	0.56	3.98	150	65	85	
UNCHAHAAR-II TPS	21	420	Thermal	Central ISGS	3.13	0.98	4.11	322	132	190	
ANTA (GAS)	23	419	Gas	Central ISGS	3.48	0.70	4.18	6	2	4	
TOTAL BAGGASE	18		Renewable	State Generation	4.18	0.00	4.18	0	0	0	
UNCHAHAAR-I TPS	10	420	Thermal	Central ISGS	3.13	1.06	4.19	190	94	96	
AURAIYA (GAS)	38	663	Gas	Central ISGS	3.63	0.63	4.26	0	0	0	
PRAGATI POWER (BAWANA/IP)	137	330	Gas	Other ISGS	3.21	1.09	4.30	913	913	0	
MEJIA TPS	100	1340	Thermal	Other ISGS	2.83	1.48	4.31	2266	1212	1054	
PTPS UNIT-8	250	250	Thermal	State Generation	3.52	0.88	4.40	5400	4996	404	
PTPS UNIT-7	250	250	Thermal	State Generation	3.52	0.95	4.47	5400	5016	384	
UNCHAHAAR IV	40	500	Thermal	State Generation	2.90	1.59	4.49	682	257	425	
UNCHAHAAR-III TPS	11	210	Thermal	Central ISGS	3.13	1.36	4.49	262	132	130	
RGTPP (KHEDAR) (IPP)	1200	1200	Thermal	State Generation	3.57	0.96	4.53	27360	19611	7749	
JHAJJAR(CLP)	1320	1320	Thermal	State Generation	3.54	1.00	4.54	26724	19514	7210	
YTPP-I&2--											
(YAMUNANAGAR)	600	600	Thermal	State Generation	3.48	1.11	4.59	13104	12079	1025	
DULHASTI HEP	21	390	Hydro	Central ISGS	2.88	1.75	4.63	421	421	0	
PTC APPCC	6623	6623	Renewable	State Generation	4.64	0.00	4.64	0	0	0	
CPPPL/ J & K (RE)	212	212	Renewable	State Generation	4.64	0.00	4.64	0	0	0	
PTPS UNIT-5	210	210	Thermal	State Generation	3.89	1.23	5.12	4560	0	4560	
JHAJJAR	657	1500	Thermal	Central ISGS	3.50	1.65	5.15	15676	3206	12470	
PTPS UNIT-6	210	210	Thermal	State Generation	3.89	1.47	5.36	4560	0	4560	
NARAINGARH SUGAR MILL		400	Renewable	State Generation	6.38	0.63	7.01	0	0	0	
AB GRAIN		10	Renewable	State Generation	8.16	0.00	8.16	67	67	0	
DADRI (RLNG)	40	830	Gas	Central ISGS	8.00	0.56	8.56	725	0	725	
ANTA (RLNG)	23	419	Gas	Central ISGS	8.86	0.70	9.56	484	5	479	
AURAIYA (RLNG)	38	663	Gas	Central ISGS	9.11	0.63	9.74	739	0	739	

PLANTWISE ENERGY SUMMARY



* The above graph shows merit order despatch from stations in order of increasing variable charges.

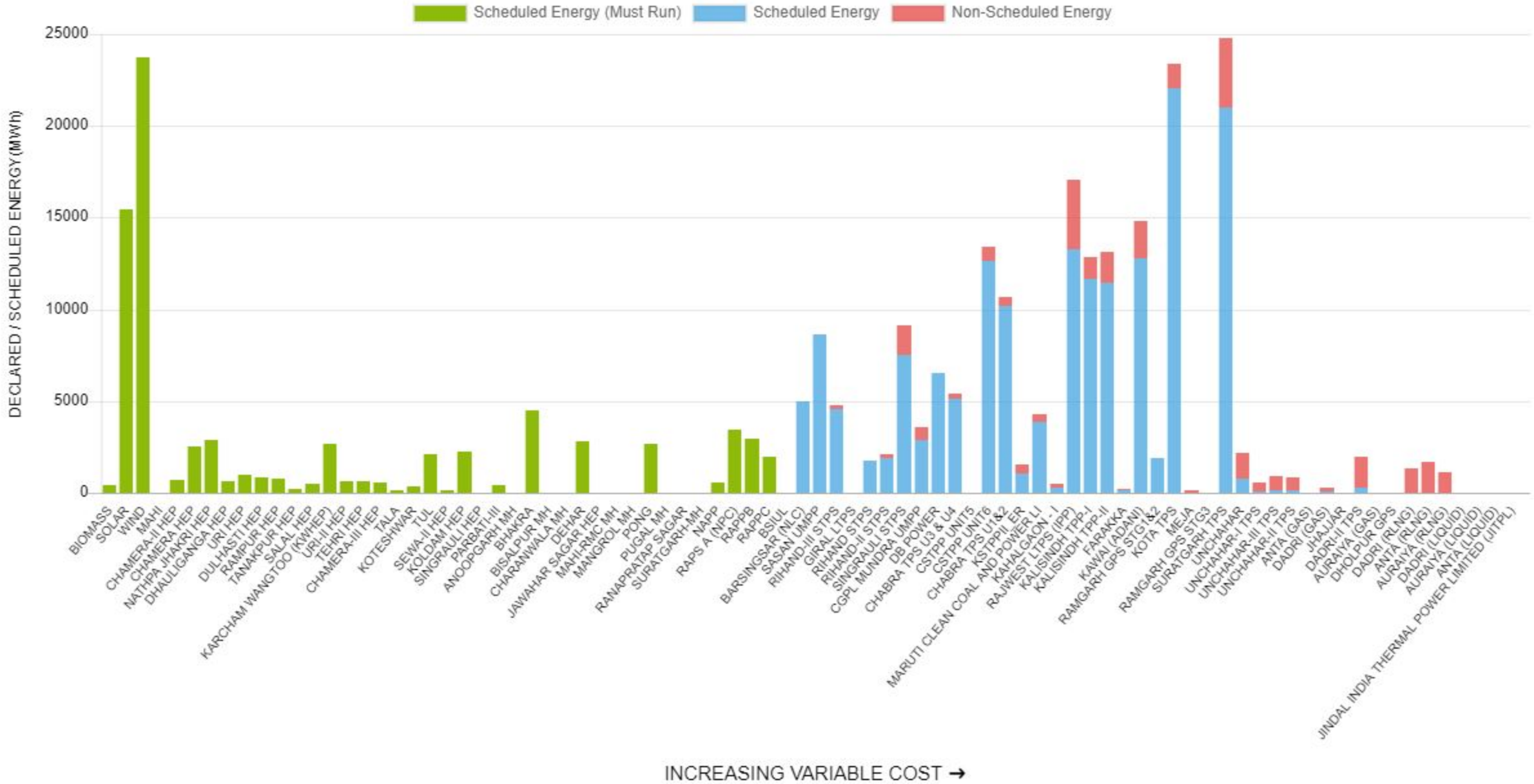
* Must run plants shown in Green color, includes Renewable, Hydro & Nuclear plants.

Merit Order Summary of Rajasthan dated 02.07.19

Station	Capacity Allowed to State (MW)	Plant Capacity (MW)	Type Of Station	Ownership	Variable Cost (Rs/Unit)	Fixed Cost (Rs/Unit)	Total Cost (Rs/Unit)	Declared Capability (MWh)	Schedule (MWh)	Unscheduled Energy (MWh)	Reason for Deviation / Remarks(if any)
BIOMASS	102	102	Renewable	State Generation			0.00	460	460		0
CHARANWALA MH	1	1	Hydro	State Generation			0.00	0	0		0
JAWAHAR SAGAR HEP	50	99	Hydro	State Generation			0.00	0	0		0
PUGAL MH	2	2	Hydro	State Generation			0.00	0	0		0
RANAPRATAP SAGAR SOLAR	86	172	Hydro	State Generation			0.00	0	0		0
WIND	1230	1796	Renewable	State Generation			0.00	15472	15472		0
WIND	4121	4272	Renewable	State Generation			0.00	23766	23766		0
JINDAL INDIA THERMAL POWER LIMITED (JITPL)	52	1200	Thermal	Other ISGS			0.00				0
BHAKRA	242	1533	Hydro	Central ISGS			0.00	4504	4503		1
DEHAR	198	990	Hydro	Central ISGS			0.00	2827	2826		1
PONG	231	396	Hydro	Central ISGS			0.00	2682	2682		0
SASAN UMPP	372	3960	Thermal	Other ISGS	1.31	0.18	1.49	8619	8618		1
DADRI (LIQUID)	82	830	Gas	Central ISGS	12.81	0.60	13.41	0	0		0
ANTA (LIQUID)	88	419	Gas	Central ISGS	13.26	0.75	14.01	0	0		0
AURAIYA (LIQUID)	67	663	Gas	Central ISGS	13.06	1.06	14.12	0	0		0
CHAMERA-II HEP	35	300	Hydro	Central ISGS	1.04	1.04	2.08	696	696		0
RIHAND-II STPS	144	1000	Thermal	Central ISGS	1.35	0.74	2.09	2117	1932		185
BSIUL				State Generation	1.06	1.06	2.12	0	0		0
URI HEP	42	480	Hydro	Central ISGS	1.32	0.85	2.17	1024	1023		1
SINGRAULI STPS	370	2000	Thermal	Central ISGS	1.50	0.69	2.19	9167	7537		1630
TALA	15	1020	Hydro	Other ISGS	2.23	0.00	2.23	139	138		1
RIHAND STPS	132	1000	Thermal	Central ISGS	1.35	0.89	2.24	1796	1768		28
CHAMERA HEP	105	540	Hydro	Central ISGS	1.18	1.18	2.36	2510	2509		1
SALAL HEP	20	690	Hydro	Central ISGS	1.80	0.64	2.44	493	493		0
NATHPA JHAKRI HEP	128	1500	Hydro	Central ISGS	1.25	1.25	2.50	2877	2877		0
DHAULIGANGA HEP	32	280	Hydro	Central ISGS	1.26	1.26	2.52	641	640		1
RIHAND-III STPS	164	1000	Thermal	Central ISGS	1.33	1.52	2.85	4798	4542		256
MEJA	33	660	Thermal	State Generation	2.91		2.91	127	21		106
CGPL MUNDRA UMPP	380	4000	Thermal	Other ISGS	2.01	0.94	2.95	3582	2901		681
GIRAL LTPS	250	250	Thermal	State Generation	1.34	1.86	3.20	0	0		0
KHALGAON-II	101	1500	Thermal	Central ISGS	2.19	1.13	3.32	1587	1073		514
NAPP	45	440	Nuclear	Central ISGS	3.32	0.00	3.32	574	574		0
MAHI	140	140	Hydro	State Generation	0.30	3.03	3.33	0	0		0
RAMPUR HEP	36	412	Hydro	Central ISGS	1.67	1.67	3.34	819	818		1
TANAKPUR HEP	11	94	Hydro	Central ISGS	1.70	1.70	3.40	251	250		1
FARAKKA	10		Thermal	Central ISGS	2.54	0.86	3.40	247	132		115
KHALGAON - I	23	840	Thermal	Central ISGS	2.31	1.10	3.41	529	319		210
BARSINGSAR (NLC)	250	250	Thermal	State Generation	1.10	2.33	3.43	5013	5012		1
KOTA TPS	1240	1240	Thermal	State Generation	2.87	0.58	3.45	23365	22066		1299
RAPS A (NPC)	200	200	Nuclear	State Generation	3.49	0.00	3.49	3480	3480		0
CHABRA TPS U1&2	500	500	Thermal	State Generation	2.16	1.35	3.51	10702	10207		495
RAMGARH GPS STG1&2	111	111	Gas	State Generation	2.86	0.66	3.52	1939	1938		1
KARCHAM WANGTOO (KWHEP)	104	1000	Hydro	Other ISGS	1.81	1.81	3.62	2713	2712		1
RAPPB	139	440	Nuclear	Central ISGS	3.66	0.00	3.66	2963	2963		0
ANOOPGARH MH	9	9	Hydro	State Generation		3.78	3.78	0	0		0
BISALPUR MH	1	1	Hydro	State Generation		3.78	3.78	0	0		0
MAHI-RMC MH	1	1	Hydro	State Generation		3.78	3.78	0	0		0
MANGROL MH	6	6	Hydro	State Generation		3.78	3.78	0	0		0
SURATGARH-MH	4	4	Hydro	State Generation		3.78	3.78	0	0		0
CSTPP UNIT6	660	660	Thermal	State Generation	2.13	1.73	3.86	13440	12655		785
CHABRA TPS U3 & U4	500	500	Thermal	State Generation	2.13	1.74	3.87	5412	5147		265
KAWAI (ADANI)	1200	1320	Thermal	State Generation	2.58	1.33	3.91	14808	12797		2011
SURATGARH TPS	1500	1500	Thermal	State Generation	3.11	0.84	3.95	24758	20984		3774
CSTPP UNITS	660	660	Thermal	State Generation	2.13	1.83	3.96	0	0		0
TEHRI HEP	86	1000	Hydro	Central ISGS	2.02	2.02	4.04	632	632		0
MARUTI CLEAN COAL AND POWER LIMITED (MCCPL)	250	300	Thermal	Other ISGS	2.19	1.87	4.06	4263	3905		358
DADRI (GAS)	82	830	Gas	Central ISGS	3.58	0.60	4.18	283	53		230
RAJWEST LTPS (IPP)	1080	1080	Thermal	State Generation	2.50	1.70	4.20	17100	13310		3790
URI-II HEP	27	240	Hydro	Central ISGS	1.81	2.44	4.25	660	660		0
RAPPC	84	440	Nuclear	Central ISGS	4.25	0.00	4.25	1972	1971		1
DULHASTI HEP	49	390	Hydro	Central ISGS	1.45	2.84	4.29	838	838		0
ANTA (GAS)	88	419	Gas	Central ISGS	3.55	0.75	4.30	22	5		17
KALISINDH TPP-II	600	600	Thermal	State Generation	2.51	1.81	4.32	13105	11439		1666
CHAMERA-III HEP	29	231	Hydro	Central ISGS	2.19	2.19	4.38	607	607		0
UNCHAHAHAR-II TPS	57	420	Thermal	Central ISGS	3.34	1.05	4.39	859	137		722
RAMGARH GPS STG3	160	160	Gas	State Generation	2.96	1.46	4.42	0	0		0
KALISINDH TPP-I	600	600	Thermal	State Generation	2.51	1.93	4.44	12848	11663		1185
UNCHAHAHAR-I TPS	25	420	Thermal	Central ISGS	3.31	1.13	4.44	568	85		483
AURAIYA (GAS)	67	663	Gas	Central ISGS	3.83	0.67	4.50	0	0		0
SEWA-II HEP	15	120	Hydro	Central ISGS	2.43	2.23	4.66	157	157		0
UNCHAHAHAR-III TPS	32	210	Thermal	Central ISGS	3.31	1.41	4.72	939	145		794
KOTESHWAR	38	400	Hydro	Central ISGS	2.39	2.39	4.78	369	369		0
UNCHAHAHAR IV		500	Thermal	Central ISGS	3.12	1.71	4.83	2202	766		1436
TEESTA -III	100		Hydro	State Generation	2.42	2.42	4.84	2088	2088		0
DB POWER	250	1200	Thermal	Other ISGS	2.08	2.97	5.05	6453	6531		-78
KOLDAM HEP	91	800	Hydro	Central ISGS	2.56	2.56	5.12	2246	2245		1
SINGRAULI HEP	2	8	Hydro	State Generation	2.61	2.61	5.22	20	19		1
DADRI-II TPS	50	980	Thermal	Central ISGS	3.73	1.51	5.24	1977	280		1697
JHAJJAR	13	1500	Thermal	Central ISGS	3.59	1.68	5.27	0	0		0
PARBATI-III	65	520	Hydro	Central ISGS	2.83	2.83	5.66	405	404		1
DHOLPUR GPS	330	330	Gas	State Generation	4.98	0.90	5.88	0	0		0
DADRI (RLNG)	82	830	Gas	Central ISGS	8.32	0.60	8.92	1362	0		1362
ANTA (RLNG)	88	419	Gas	Central ISGS	8.40	0.75	9.15	1674	0		1674
AURAIYA (RLNG)	67	663	Gas	Central ISGS	8.82	0.94	9.76	1157	0		1157

OMWH for inter state open access.

PLANTWISE ENERGY SUMMARY



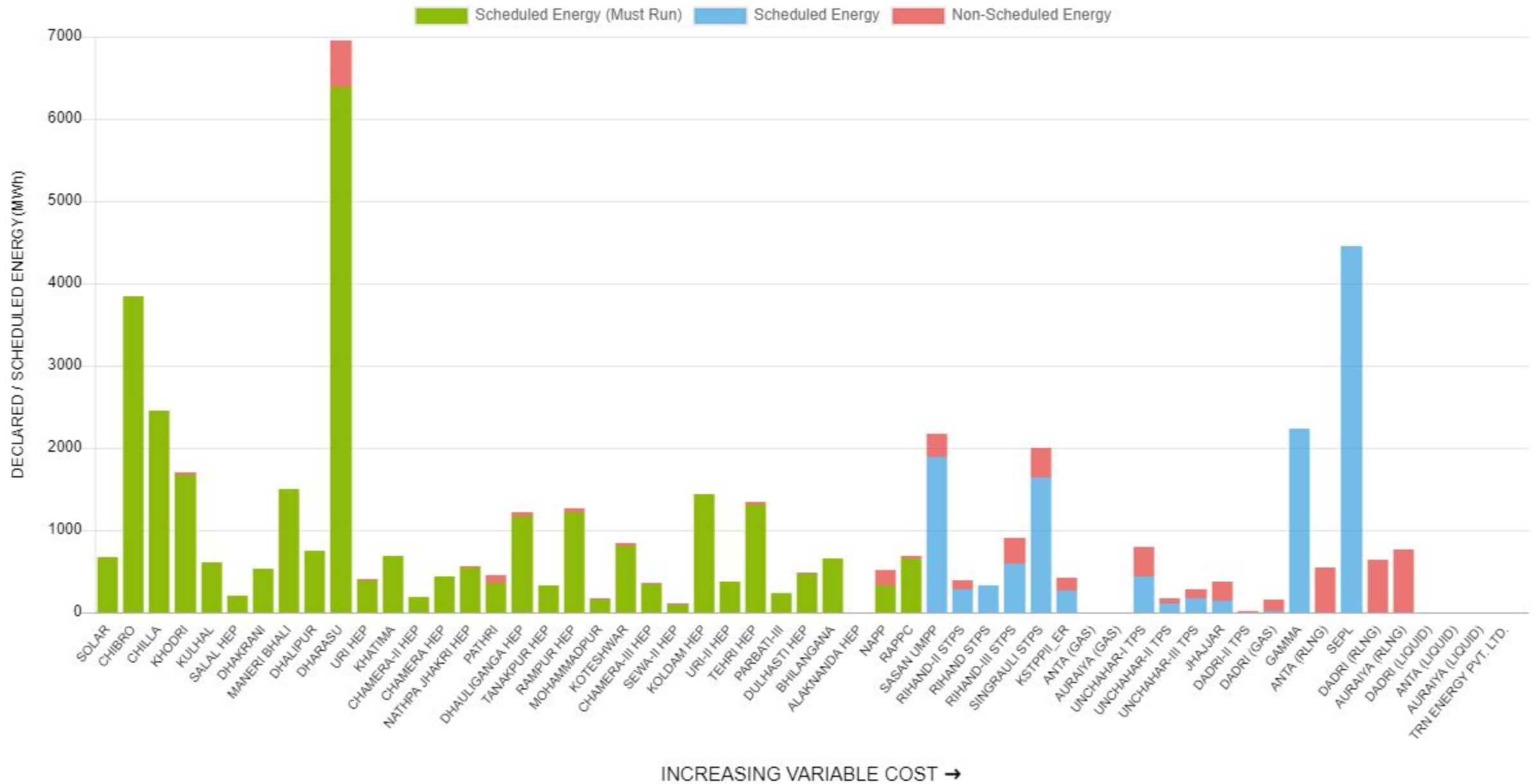
* The above graph shows merit order despatch from stations in order of increasing variable charges.

* Must run plants shown in Green color, includes Renewable, Hydro & Nuclear plants.

Merit order Summary of Uttarakhand dated 02.07.2019

Station	Capacity Allocated to State (MW)	Plant Capacity (MW)	Type Of Station	Ownership	Variable Cost (Rs/Unit)	Fixed Cost (Rs/Unit)	Total Cost (Rs/Unit)	Declared Capability (MWh)	Schedule (MWh)	Unscheduled Energy (MWh)	Reason for Deviation / Remarks(if any)
ALAKNANDA HEP	40	330	Hydro	Other ISGS			0.00				0
TRN ENERGY PVT. LTD.	390	600	Thermal	Other ISGS			0.00				0
CHIBRO	240	240	Hydro	State Generation	0.42	0.22	0.64	3780	3844		-64
KHODRI	120	120	Hydro	State Generation	0.49	0.28	0.77	1702	1664		38
CHILLA	144	144	Hydro	State Generation	0.44	0.35	0.79	2448	2454		-6
KULHAL	30	30	Hydro	State Generation	0.53	0.44	0.97	596	608		-12
SALAL HEP	8	690	Hydro	Central ISGS	0.61	0.54	1.15	202	195		7
MANERI BHALI	90	90	Hydro	State Generation	0.73	0.43	1.16	1488	1496		-8
DHAKRANI	34	34	Hydro	State Generation	0.69	0.49	1.18	480	528		-48
DHALIPUR	51	51	Hydro	State Generation	0.82	0.39	1.21	744	754		-10
SASAN UMPP	93	3960	Thermal	Other ISGS	1.20	0.20	1.40	2172	1896		276
PATHRI	20	20	Hydro	State Generation	1.42		1.42	456	352		104
DHARASU	90	90	Hydro	State Generation	0.83	0.64	1.47	6960	6390		570
KHATIMA	41	41	Hydro	State Generation	0.92	0.56	1.48	648	690		-42
CHAMERA HEP	19	540	Hydro	Central ISGS	1.12	0.52	1.64	424	436		-12
CHAMERA-II HEP	6	300	Hydro	Central ISGS	1.03	0.68	1.71	183	182		1
URI HEP	17	480	Hydro	Central ISGS	0.84	0.91	1.75	398	385		13
MOHAMMADPUR	9	9	Hydro	State Generation	1.92	0.00	1.92	168	151		17
NATHPA JHAKRI HEP	17	1500	Hydro	Central ISGS	1.24	0.76	2.00	559	539		20
RIHAND STPS	42	1000	Thermal	Central ISGS	1.35	0.85	2.20	291	326		-35
RIHAND-II STPS	38	1000	Thermal	Central ISGS	1.34	1.00	2.34	389	275		114
SINGRAULI STPS	101	2000	Thermal	Central ISGS	1.41	1.01	2.42	2006	1640		366
DHAULIGANGA HEP	49	280	Hydro	Central ISGS	1.57	0.88	2.45	1212	1168		44
NAPP	21	440	Nuclear	Central ISGS	2.47		2.47	518	321		197
RAMPUR HEP	47	412	Hydro	Central ISGS	1.68	1.25	2.93	1263	1221		42
RIHAND-III STPS	44	1000	Thermal	Central ISGS	1.36	1.75	3.11	899	592		307
ANTA (GAS)	23	419	Gas	Central ISGS	2.75	0.70	3.45	0	1		-1
KOTESHWAR	74	400	Hydro	Central ISGS	2.04	1.42	3.46	844	813		31
KOLDAM HEP	54	800	Hydro	Central ISGS	2.26	1.20	3.46	1329	1430		-101
RAPPC	21	440	Nuclear	Central ISGS	3.55		3.55	686	653		33
AURAIYA (GAS)	33	663	Gas	Central ISGS	3.01	0.63	3.64	0	0		0
SEWA-II HEP	7	120	Hydro	Central ISGS	2.25	1.40	3.65	114	88		26
CHAMERA-III HEP	13	231	Hydro	Central ISGS	2.21	1.56	3.77	350	338		12
PARBATI-III	30	520	Hydro	Central ISGS	2.85	1.16	4.01	150	225		-75
TANAKPUR HEP	15	94	Hydro	Central ISGS	1.63	2.39	4.02	315	332		-17
DADRI (GAS)	34	830	Gas	Central ISGS	3.53	0.56	4.09	151	8		143
KAHALGAON-II	26	1500	Thermal	Central ISGS	2.44	1.90	4.34	417	262		155
DADRI-II TPS	6	980	Thermal	Central ISGS	3.23	1.16	4.39	10	0		10
BHILANGANA	24	24	Hydro	State Generation	4.42	0.00	4.42	657	660		-3
TEHRI HEP	156	1000	Hydro	Central ISGS	2.81	1.65	4.46	1346	1311		35
UNCHAHAAR-I TPS	34	420	Thermal	Central ISGS	3.10	1.37	4.47	788	428		360
UNCHAHAAR-II TPS	17	420	Thermal	Central ISGS	3.10	1.52	4.62	167	114		53
SEPL	208	208	Gas	State Generation	4.70		4.70	2160	4454		-2294
UNCHAHAAR-III TPS	13	210	Thermal	Central ISGS	3.10	1.67	4.77	286	171		115
DULHASTI HEP	22	390	Hydro	Central ISGS	2.90	1.90	4.80	484	468		16
URI-II HEP	11	240	Hydro	Central ISGS	2.52	2.57	5.09	377	366		11
GAMMA	104	104	Gas	State Generation	3.66	1.47	5.13	2160	2226		-66
ANTA (RLNG)	23	419	Gas	Central ISGS	4.49	0.70	5.19	540	1		539
SOLAR	122	122	Renewable	State Generation	5.78		5.78	672	672		0
JHAJJAR	12	1500	Thermal	Central ISGS	3.22	3.32	6.54	377	144		233
DADRI (RLNG)	34	830	Gas	Central ISGS	6.27	0.56	6.83	638	0		638
AURAIYA (RLNG)	33	663	Gas	Central ISGS	6.70	0.63	7.32	756	0		756
DADRI (LIQUID)	34	830	Gas	Central ISGS	7.62	0.56	8.18	0	0		0
AURAIYA (LIQUID)	33	663	Gas	Central ISGS	7.90	0.63	8.53	0	0		0
ANTA (LIQUID)	23	419	Gas	Central ISGS	7.90	0.70	8.60	0	0		0

PLANTWISE ENERGY SUMMARY



* The above graph shows merit order dispatch from stations in order of increasing variable charges.

* Must run plants shown in Green color, includes Renewable, Hydro & Nuclear plants.



भारत का बिजली
राष्ट्र गौरव

भाखड़ा ब्यास प्रबन्ध बोर्ड



पी एवं सी निदेशालय

एस.एल.डी.सी. कॉम्प्लेक्स 66 के वी. उप केन्द्र इंडस्ट्रीयल एरिया फेस-1, चंडीगढ़
दूरभाष-0172-2652054, फैक्स-0172-2652054

प्रेषक,

निदेशक/ पी एंड सी,
बीबीएमबी, चंडीगढ़ ।

प्रेषिती,

अधीक्षण अभियंता /ऑपरेशन,
एनआरपीसी, नई दिल्ली ।

क्रमांक: 1051-59 /डीपीसी/M-1ए

दिनांक: 26/06/19

विषय:

Rectification of phase nomenclature mismatch between BBMB and other interconnected substation of PGCIL, NTPC, PSTCL, HPSEB.

संदर्भ:

इस कार्यालय का पत्र क्रमांक 974-81/डीपीसी/M-1ए, दिनांक 18.06.19 जो मुख्य महाप्रबंधक(सं.प्र. एवं यू.एल.डी.सी.), पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड, नई दिल्ली को लिखा गया था तथा जिसकी सभी concerned को प्रति भेजी गई थी ।

एनआरपीसी के एजेंडा के संदर्भ में उपरोक्त विषय के संबंध में बीबीएमबी एवं पावर ग्रिड के बीच दिनांक 20.06.2019 को मीटिंग हुई थी । मीटिंग के कार्यवृत्त की प्रति अग्रिम कार्यवाही हेतु संलग्न है ।

यह पत्र मुख्य अभियन्ता/पारेषण प्रणाली, बीबीएमबी, चंडीगढ़ की स्वीकृति उपरांत जारी किया जाता है ।

संलग्न: उपरोक्तानुसार

आर के चंदन
(ई. आर के चंदन)
निदेशक/ पी एंड सी,
बीबीएमबी, चंडीगढ़ ।

प्रतिलिपि:-

1. सदस्य सचिव, एनआरपीसी, नई दिल्ली ।
2. मुख्य अभियन्ता/पारेषण प्रणाली, बीबीएमबी, चंडीगढ़ ।
3. मुख्य अभियन्ता/उत्पादन, बीबीएमबी, नंगल ।
4. मुख्य महाप्रबंधक (सं.प्र. एवं यू.एल.डी.सी.), पावर ग्रिड, नई दिल्ली ।
5. उप मुख्य अभियन्ता/ओ एवं एम, बीबीएमबी, भिवानी ।
6. उप मुख्य अभियन्ता/ओ एवं एम, बीबीएमबी, पानीपत ।
7. निदेशक/विद्युत विनियम, बीबीएमबी, चंडीगढ़ ।
8. अधीक्षण अभियन्ता/देहर पावर हाउस, बीबीएमबी, सलापड़ ।

Minutes of Meeting held between POWERGRID and BBMB at POWERGRID, RHQ, NR-I New Delhi on 20.06.2019

In reference to NRPC agenda for phase nomenclature mismatch of BBMB and interconnected Sub-Stations, a meeting with BBMB executives was held at POWERGRID, RHQ, NR-1, New Delhi on 20.06.2019. Possibilities for phase nomenclature change on Primary and secondary level was discussed and observations are as below:


1. On reviewing of joint committee reports of NRPC, NRLDC, BBMB and POWERGRID dated 27-28 May-2019 for rectification of phase mismatch on primary side at BBMB Bhiwani & Panipat, PSTCL Rajpura and POWERGRID, Panchkulla, phase changes on primary level involve shifting of wave trap structure, LMU, re-routing of co-axial cable, new conductor stringing and hardware requirements. Moreover at some places, it is confirmed that minimum phase to phase and phase to earth Clearance will not be achieved after phase shifting at dead end without shifting of tower/modification in gantry structure etc. The entire work is to be completed in a continuous sequence and shut down of complete/partial generating plants required, Buses in Sub-stations will be isolated for more than two days and restoration of Buses subject to completion of phase matching work at Sub-station which may lead to loss of grid security and any operational error during this period may also lead to grid disturbance.
2. Phase change from **R-Y-B** to **Y-B-R** on secondary level at BBMB system involves change of existing wiring ferruling of CT/PT/Circuit Breaker/Isolator of each bay/Check Synchronizing System etc. from **R-Y-B** to **Y-B-R**. as well as necessary changes in existing **R-Y-B** Phase Identification mark of all the bay equipment, Bus Bars with **Y-B-R** at 400kV Substations Panipat, Bhiwani, Dehar P.H. also, conductor phase identification on each tower of lines connected with these substations. Such changes in already established infrastructure as **R-Y-B** to **Y-B-R** may lead to various problems in the system. After changes, attending of fault or working in the system with changed ferruling pattern of Y, B, R will lead to a permanent problem for working staff / engineers. Also, it would not be possible to ensure that secondary wiring system will be fool proof after lot of above changes that also includes Generating machines at Dehar Power House.
3. The existing system is running with phase nomenclature mismatch since 1979 without any operational and technical problems. Only protection relay fault indications/fault phase at BBMB end and other end of interconnected substation will differ as **R-Y-B** (BBMB) to **Y-B-R** (Grid). However there are some technical issues in all available solutions for rectification of phase nomenclature mismatch in the already established system.

~~31/12/2019~~
20/6/2019

~~20/6/19~~
(Y.K. Dixit) Cond A-2

In view of above as agreed in 142nd OCC meeting , POWERGRID and BBMB are of the view to run the existing system without any change on primary as well as secondary level. BBMB had already circulated the phase mismatch of R-Y-B (BBMB) to Y-B-R (Grid) to all the interconnected Sub-stations vide Memo No. 15-27/DPL/M-1-A Dated 17.01.2018 (Copy attached for reference). The said letter shall once again be circulated among all concerned.

POWERGRID

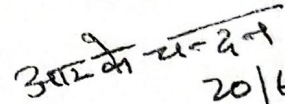


20/6/19

(Y.K.DIXIT)

Chief General Manager (AM & ULDC)

BBMB



20/6/2019

(R.K.CHANDAN)

Director/ P&C

141st OCC meeting:

Members were briefed about the decision of NRPC for conducting the study for 2019-20 at 11/33/66 kV level. All the utilities were requested to timely submit the data for their network for successfully conducting the study.

142nd OCC meeting:

NRPC Secretariat is in the process of getting the proposal from CPRI for the additional scope of work as approved by the 40th NRPC.

Members noted the same.

8. Phase nomenclature mismatch issue with BBMB and interconnected stations

During the discussions held in 34th PSC meeting, it was reported that phase sequence of BBMB at the interconnection with other utilities, do not match. It was observed that it leads to confusing situation while charging of interconnected lines and also in other coordination problem while reporting an issue.

While deliberating it was observed that, the main issue was primarily of the nomenclature of phases at BBMB end

In view of the above BBMB was asked to rectify the nomenclature issue at their end which leads to coordination and other problems while reporting.

138th OCC meeting & 139th OCC meeting: BBMB representative informed that the issue of mismatch of phases is being looked into and would be rectified at the earliest.

140th OCC meeting: The representative of BBMB informed that a committee has been constituted by TS organization of BBMB.

BBMB submitted the report (Annexure –Agenda 8) of the committee providing the details of the prevailing conditions at respective ends of BBMB and other utilities connected to them. The present situation as stated in the report is as given below:

Phase of the grid	Corresponding nomenclature of the phase at BBMB end
R Phase	B Phase
Y Phase	R Phase
B Phase	Y Phase

However, the report of the committee does not mention the action taken or proposed to be taken by BBMB in order to rectify the issue of phase nomenclature mismatch.

142nd OCC meeting:

SE (O), NRPC stated that the findings of the report details only about the prevailing conditions at the interconnection points and does not mention remedial action for rectifying the same.

Representative of BBMB stated that the issue involved was only of the nomenclature of phases which would not lead to any technical problem. He brought up to the sub-committee the various problems which would be faced in order to change the nomenclature (color coding, ferruling etc.) in the already established infrastructure.

Citing the coordination and other operational problems because of this mismatch of nomenclature, BBMB was directed to widely circulate the findings of the report (*Annexure – Agenda 8*) to all their interconnected utilities. BBMB was also directed to display the phase nomenclature of BBMB and their corresponding phases in the grid at their Switchyard and Control Room. Also they were advised that while reporting any issue, the phase nomenclature of the grid and that of BBMB shall be clearly mentioned in order to avoid any misinterpretation.

9. Operation of hydro power projects in peaking mode

POSOCO has carried out operational analysis of various hydro stations in the country and observed that despite 40.6 GW of peaking hydro capacity, only about 33 GW peak generations is carried out on all India basis. According to POSOCO, this is on account of a number of hydro stations, particularly in state sector, which are not being operated in peaking mode. In order to examine the above observation, a sub-committee has been constituted by the MoP under Chairperson, CEA with heads of POSOCO, NHPC, SJVN & THDC as member and Director (H), MoP as the member convener. The sub-committee has held three meetings with the concerned hydro generating stations and concluded that there is scope for about 2000 MW additional power generation from hydro stations during peak hours. Based on the deliberations at the meetings of the Committee, Chairperson, CEA has advised to discuss the above operational analysis & the matter of utilization of hydro stations in peaking mode be discussed at the monthly OCC meetings while discussing operational planning for the month ahead and analyzing the operation in the previous month.

In the meeting all members were advised to go through the report on the <https://posoco.in/hydro-committee-report/> and then submit the comments on the issue in the next OCC meeting.

In the 142nd OCC meeting the NHPC gave their comments as under:

NHPC has already submitted its comment to CEA. It was explained that the Parbati-III Power Station has already given Peak support during monsoon period. However during lean period, Parbati-III is declaring its total energy for the day and scheduling is accordingly being done by NRLDC for one and half hour, each during morning and evening peak as per CERC order considering non availability of inflow of Parbati-II. It was further explained that NRLDC can schedule Parbati-III limited to the total declared energy, without affecting the PAF.

In the 142nd OCC meeting other utilities were once again requested to give their comments on the issue

Follow up issues from previous OCC meetings

Sl. No.	Agenda point	Details	Status
1	Monitoring of schemes funded from PSDF (Agenda by NPC)	The latest status of the schemes for which grant has been sanctioned from PSDF for the schemes in NR. Utilities are requested to expedite implementation of the schemes and submit information of physical as well as financial progress in the prescribed format by first week of every month on regular basis to Member Convener, PSDF Project Monitoring Group (AGM, NLDC and POSOCO) with a copy to NPC Division.	The available status of Schemes Submitted by the entities for funding from PSDF was attached as Annexure-III/1 of the agenda of 160 th OCC meeting. The updated status from Punjab and Delhi was received via e-mail dated 14.06.19 and 17.06.19 respectively. Other states are requested to update the status. All the States and BBMB are requested to update status in respect of Annexure-IV/1 of the Minutes of 160th OCC meeting.
2	Sub-stations likely to be commissioned in next six months.	All the concerned states were requested to submit the details of the downstream network associated specially with POWERGRID substations along with the action plan of their proposed/approved networks.	The updated details of the substations of POWERGRID and their required downstream network is placed at Annexure-V/2 of the agenda note.
3	Progress of installing new capacitors and repair of defective capacitors	Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.	Information received from Uttarakhand (June 2019), Rajasthan (up to June 2019), UP (up to April 2019) & Haryana (up to January 2019). All other states are requested to update.
4.	Healthiness of defence mechanism: Self-certification	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 " <i>All the UFRs are checked and found functional</i> ".	The information of period ending March 2019 received from UP, Haryana, Delhi and Rajasthan. All others are requested to submit information.

Downstream network by State Utilities from ISTS Stations

S. No.	Substation	Downstream network bays	Commissioning status of S/s / Transformer	Planned 220 kV system and Implementation Status
1	400/220 kV, 3x315 MVA Samba	2 nos. bays utilized under ISTS. Balance 4 nos to be utilized	Commissioned (1 st & 2 nd –Mar’13 3 rd –Oct’16) Bays-Mar’13	<ul style="list-style-type: none"> • LILO of 220 kV Bishnha –Hiranagar D/c line. Target completion - Nov, 2019. • 220 kV D/c Samba (PG) – Samba (JKPDD) approved in 1st NRSCT. PDD, J&K to update.
2	400/220kV, 2x315 MVA New Wanpoh	6 Nos. of 220 kV bays to be utilized	Commissioned in Jul’14 Bays-Jul’14	<ul style="list-style-type: none"> • 220 kV New Wanpoh - Mirbazar D/c line. Target completion – March, 2019. • 220 kV Alusteng - New Wanpoh Line. Target completion - March, 2019. <p>PDD, J&K to update.</p>
3	400/220 kV, 2x315 MVA Parbati Pooling Station (Banala)	2 Nos. of 220 kV bays to be utilized.	Commissioned in Dec’17	<ul style="list-style-type: none"> • 220 kV Charor- Banala D/c line (18 km). • Expected by 30.06.2019.
4	400/220 kV, 2x500 MVA Kurukshetra (GIS)	8 nos. of 220 kV bays to be utilized	Commissioned in Mar’17.	<ul style="list-style-type: none"> • LILO of one circuit of Kaul-Pehowa 220 kV D/c line at Bhadson (Kurukshetra) - Commissioned on 07.03.2019 • LILO of one circuit of Kaul- Bastara 220 kV D/c line Bhadson(Kurukshetra) - Work awarded on 12.03.2018. Contractual completion date is 11.102019. • 220kV D/c Bhadson (Kurukshetra) – Salempur with HTLS conductor equivalent to twin moose -

S. No.	Substation	Downstream network bays	Commissioning status of S/s / Transformer	Planned 220 kV system and Implementation Status
				PO issued on 15.10.18. Contract agreement signed on 30.11.2018. Likely date of completion 30.04.2020.
5	400/220 kV, 2x500 MVA Bagpat GIS	8 nos. of 220 kV Downstream lines commissioned. Balance 3 Nos. of 220 kV bays to be utilized.	Commissioned in Mar/Jun'16	<ul style="list-style-type: none"> • Bagpat(PG) - Modipuram-II 220 kV D/c line. • Target completion – under planning. • LILO of 220 kV S/c Muradnagar II –Baghpat (PG) at Baghpat SS. • Completed
6	400/220 kV, 2x315 MVA Saharanpur	All 6 nos. 220 kV bays utilised.	Commissioned in May'16	<ul style="list-style-type: none"> • LILO of Khara-Shamli 220 kV S/C line at SRN(PG). • 220 kV SRN(PG)-Sarasawa D/C Line. • LILO of SRN-Nanauta 220 kV S/C line at SRN(PG). • Completed
7	400/220 kV, 2x315 MVA Dehradun	Out of 6 bays, only two bays used. Balance 4 bays to be utilised.	Commissioned in Jan'17	<ul style="list-style-type: none"> • 220 kV Dehradun-Jhajra line. <p>Target completion: Nov, 2021</p>
8	400/220 kV, 2x315 MVA Sohawal	4 Nos 220 kV bays utilized. 2 Nos 220 kV bays to be utilized.	Commissioned in Jun'12	<ul style="list-style-type: none"> • 220 kV D/C Sohawal (PG) – Gonda • 220 kV D/C Sohawal (PG) – Gonda • Target completion- November, 2019.
9	Shahjahanpur, 2x315 MVA 400/220 kV	Partially utilized. Balance 5 Nos. of 220 kV bays to be utilized.	Commissioned in Jun/Sep'14	<ul style="list-style-type: none"> • 220 kV D/C Shahjahanpur (PG) - Azizpur D/C line. • Target completion –Dec., 2020. • 220 kV D/C Shahjahanpur (PG) - Gola Lakhimpur line. • Target completion – Dec., 2019.

S. No.	Substation	Downstream network bays	Commissioning status of S/s / Transformer	Planned 220 kV system and Implementation Status
10	02 nos. bays at Moga	Partially utilized. Balance 2 nos. of 220kV bays to be utilized.	Commissioned in Jun'15.	<ul style="list-style-type: none"> • Moga–Mehalkalan 220 kV D/c line. • Commissioned on 24.03.2019.
11	Hamirpur 400/220 kV 2x 315 MVA Sub-station (Augmentation by 3x105 MVA ICT)	2 nos. bays utilized under ISTS. Balance 6 nos to be utilized	1st-Dec'13, 2nd – Mar'14 & 3rd Mar'19. 4 bays-Dec'13, 2 bays-Mar'14 2 bays-Mar'19	<ul style="list-style-type: none"> • 220 kV D/C Hamirpur-Dehan line. • Target completion - Apr, 2020.
12	Kaithal 400/220 kV 1x 315 MVA Sub-station	July 2017 (Shifting of transformer from Ballabgarh)	Commissioned	220 kV Kaithal(PG)-Neemwala D/c line - Target completion - 31.01.2020. Work awarded on 08.06.2018. Contractual completion date is 06.01.2020.
13	Sikar 400/220kV, 1x 315 MVA S/s	2 Nos. of 220 kV bays	Commissioned	RVPNL requested to allocate the 220 kV bays for solar / wind developers or utilise for any other purpose. CTU stated that these bays were implemented on the request from RVPNL, however, allocation of these bays to RE developers can be considered in future depending on the stage-II application received at Sikar.
14	Bhiwani 400/220kV S/s	6 nos. of 220kV bays	Commissioned	220kV Bhiwani (PG) - Isherwal (HVPNL) D/c line. Target completion - 31.06.2020. Price bid opened on 27.12.18. Case scrutinized and sent to DS&D for placing in the next HPPC meeting for decision regarding award.

S. No.	Substation	Downstream network bays	Commissioning status of S/s / Transformer	Planned 220 kV system and Implementation Status
				Likely date of award is 30.06.2019. Likely date of completion is 31.12.2020.
15	Jind 400/220kV S/s	6 nos. of 220kV bays	Commissioned	LILO of both circuits of 220kV D/c Narwana – Mund line at Jind (PG). Target completion - 31.06.2020. Price bid opened on 27.12.18. Case scrutinized and sent to DS&D for placing in the next HPPC meeting for decision regarding award. Likely date of award is 30.06.2019. Likely date of completion is 31.12.2020.
16	400/220kV Tughlakabad GIS (6 no of bays utilized out of 8 no of 220kV bays)	4x 500	Commissioned	RK Puram – Tughlakabad (UG Cable) 220kv D/c line. Target completion – 2020-21.
17	400/220kV Kala Amb GIS (TBCB) (6 nos. of 220kV bays)	7x105	Commissioned (Jul'17)	HPSEBL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s. Details for remaining 4 nos. of line bays may be provided. Target completion-2021

Establishment of new 400/220 kV substations in Northern Region

Sl. No.	Name of Substation	MVA Capacity	Expected Schedule	Downstream connectivity furnished by States in 40th SCSPNR
1	400/220kV Dwarka-I GIS (8 nos. of 220kV bays)	4x 500	Sep'19	DTL to update.

2	220/66kV Chandigarh GIS (8 nos. of 66kV bays)	2x 160	Jun'19	Chandigarh to update.
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. (Almora- 2, Jauljivi-2) bays would be used by the lines being constructed by PTCUL.	2x315	Dec'2019	<ul style="list-style-type: none"> • 220kV Almora-Jauljivi line. • DPR by July, 2019. • 220kV Brammah-Jauljivi line • Target completion: 2021
4	400/220kV Sohna Road Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	May'19	<ul style="list-style-type: none"> • LILO of both circuits of 220kV D/c Sector-69 - Roj Ka Meo line at 400kV Sohna Road. • LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road. • NIT to be floated shortly. Case processed for permission of Election Commission of India. • Alternatively, to expedite the evacuation of power, the proposal for execution of work through EPC contractor M/s R S Infra at the rates defined in another contract is under process and deliberated

Annexure-V/2

				<p>in the HVPNL's internal review meeting dt. 24.04.19.</p> <ul style="list-style-type: none">• Target completion: 31.05.2020
5	400/220kV Prithla Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	May' 19	<p>LILO of existing 220kV Palwal-Ranga Rajpur D/c line at Prithla. Work awarded on 22.10.2018. Contractual completion date is 08.02.2020. 220 kV D/c Prithla (400) –Sector-78, Faridabad S/s. Dropped in the HPPC (High Powered Purchase Committee) in meeting dt. 22.01.2019. Work refloated vide NIT dated 25.02.2019. 1st part opened on 27.03.2019 and under evaluation.</p>
6	400/220kV Kadarapur Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	May' 19	<p>NIT floated on 05.03.2019 with due date of submission on 22.04.2019 (opened on 23.04.2019 and under evaluation). Target completion: 31.12.2020</p>

Developer	Name of Project	Sector (State / Central / Private)	State	Region	Unit No.	Unit Capacity (MW)	Date of Commissioning	Age in years	Whether FGD Installed (Y/N)	Whether FGD space available (Y/N)	Whether FGD planned (Y/N)	Feasibility Study Started (Y/N)	Feasibility Study Completed (Y/N)	Tender Specifications Made (Y/N)	NTI Issued (Y/N)	Bids Opened (Y/N)	Bid Opening Date (DD/MM/YYYY)	Bids Awarded (Y/N)	Regulator Petition Cleared (Y/N)	% Progress of FGD Installation	FGD Commissioned (Y/N)	FGD working satisfactorily (Y/N)	FGD Phasing Plan for Implementation (DD/MM/YYYY)	Current Status & remarks	Last updated on
Rosa Power Supply Company Ltd.	ROSA TPP	Private	UP	NR	I	300	12-03-2010	9.34	N	Y	Y	Y	Y	Y	Y	Y	29-03-2019	Y	N	0	N	NA	NA	Pending in UPERC for in-principle approval of capital cost for installation of FGD.	04-06-2019
Rosa Power Supply Company Ltd.	ROSA TPP	Private	UP	NR	II	300	30-06-2010	9.04	N	Y	Y	Y	Y	Y	Y	Y	29-03-2019	Y	N	0	N	NA	NA	Pending in UPERC for in-principle approval of capital cost for installation of FGD.	04-06-2019
Rosa Power Supply Company Ltd.	ROSA TPP	Private	UP	NR	III	300	01-01-2012	7.53	N	Y	Y	Y	Y	Y	Y	Y	29-03-2019	Y	N	0	N	NA	NA	Pending in UPERC for in-principle approval of capital cost for installation of FGD.	04-06-2019
Rosa Power Supply Company Ltd.	ROSA TPP	Private	UP	NR	IV	300	01-04-2012	7.28	N	Y	Y	Y	Y	Y	Y	Y	29-03-2019	Y	N	0	N	NA	NA	Pending in UPERC for in-principle approval of capital cost for installation of FGD.	04-06-2019
Lalitpur Power Generation Company Ltd.	Lalitpur Super Thermal Power Project	Private	UP	NR	I	660	26-03-2016	3.30	N	Y	Y	Y	Y	N	N	N	NA	N	N	0	N	NA	NA	Petition was filed on 16.11.2017 with UPERC for approval for capital cost for installation of FGD and other associated system. UPERC vide their order dt. 18.12.2017 directed LPGLCL to approach CEA to decide specific optimum technology, associated cost and major issues to be faced for installation of different system. CEA suggested technology & associated cost in Feb'19. Again petition filed in UPERC on 21.05.2019 for in-principle approval of capital cost.	04-06-2019
Lalitpur Power Generation Company Ltd.	Lalitpur Super Thermal Power Project	Private	UP	NR	II	660	08-01-2016	3.51	N	Y	Y	Y	Y	N	N	N	NA	N	N	0	N	NA	NA	Petition was filed on 16.11.2017 with UPERC for approval for capital cost for installation of FGD and other associated system. UPERC vide their order dt. 18.12.2017 directed LPGLCL to approach CEA to decide specific optimum technology, associated cost and major issues to be faced for installation of different system. CEA suggested technology & associated cost in Feb'19. Again petition filed in UPERC on 21.05.2019 for in-principle approval of capital cost.	04-06-2019
Lalitpur Power Generation Company Ltd.	Lalitpur Super Thermal Power Project	Private	UP	NR	III	660	01-04-2016	3.28	N	Y	Y	Y	Y	N	N	N	NA	N	N	0	N	NA	NA	Petition was filed on 16.11.2017 with UPERC for approval for capital cost for installation of FGD and other associated system. UPERC vide their order dt. 18.12.2017 directed LPGLCL to approach CEA to decide specific optimum technology, associated cost and major issues to be faced for installation of different system. CEA suggested technology & associated cost in Feb'19. Again petition filed in UPERC on 21.05.2019 for in-principle approval of capital cost.	04-06-2019
Meja Uja Nigam (P) Ltd. (JV of NTPC and URRVUNL)	Meja Thermal Power Project Stage-I	Central	UP	NR	I	660	30-04-2019	0.20	N	Y	Y	Y	Y	Y	Y	Y	20-07-2018	Y	N	Civil work started on 30.05.2019	N	NA	19-06-2021	Chimney - Excavation started on 30.05.2019	04-06-2019
Meja Uja Nigam (P) Ltd. (JV of NTPC and URRVUNL)	Meja Thermal Power Project Stage-I	Central	UP	NR	II	660	-	-	N	Y	Y	Y	Y	Y	Y	Y	20-07-2018	Y	N	Civil work started on 30.05.2019	N	NA	19-12-2021		04-06-2019
Prayagraj Power Generation Company Ltd.	Prayagraj Thermal Power Plant	Private	UP	NR	I	660	29-02-2016	3.37	N	Y	Y	Y	Y	N	N	N	-	N	N	0	N	NA	-	Feasibility report cleared by CEA, Tariff petition being filed to UPERC, Tender specification is under preparation by M/s TCE.	27-04-2019
Prayagraj Power Generation Company Ltd.	Prayagraj Thermal Power Plant	Private	UP	NR	II	660	10-09-2016	2.84	N	Y	Y	Y	Y	N	N	N	-	N	N	0	N	NA	-	Feasibility report cleared by CEA, Tariff petition being filed to UPERC, Tender specification is under preparation by M/s TCE.	28-04-2019
Prayagraj Power Generation Company Ltd.	Prayagraj Thermal Power Plant	Private	UP	NR	III	660	26-05-2017	2.13	N	Y	Y	Y	Y	N	N	N	-	N	N	0	N	NA	-	Feasibility report cleared by CEA, Tariff petition being filed to UPERC, Tender specification is under preparation by M/s TCE.	29-04-2019
Lanco Anpara Power Ltd.	Anpara C	Private	UP	NR	I	600	10-12-2011	7.59	N	Y	Y	Y	N	N	N	N	NA	N	N	0	N	NA	01-08-2022	Alfidavit with petition is filed by LANCO Anpara Power Ltd with UPERC seeking in-principle approval for capital cost to be incurred for the installation of FGD and SCR system. UPERC called for hearing in December 2017, in which LANPL requested the commission to consider the additional capital cost for installation of FGD and SCR be considered under 'change in law' as per the provisions of PPA. UPERC has given an order stating that LANPL to approach CEA to decide specific optimum technology, associated cost in installation of FGD & SCR. UPERC granted liberty to file petition by LANCO Anpara Power Ltd after obtaining approval of CEA on technology & cost related aspects of FGD & SCR. After meetings with Member (Tn), LANPL was asked by CEA to submit feasibility report with options available in the market & technology selected along with cost. TO meet the above, LANPL appointed M/s Black & Veatch as consultant for Air Quality and Control System (AQCS) for preparing the feasibility report. With the present technologies available for reducing the emissions, Wet Lime Stone FGD system for SO2 control is recommended by Black & Veatch. The Feasibility report is under final stage of completion. As soon as the Feasibility Report is final, LANPL will submit the same to CEA for vetting and approval.	04-06-2019

Developer	Name of Project	Sector (State / Central / Private)	State	Region	Unit No.	Unit Capacity (MW)	Date of Commissioning	Age in years	Whether FGD Installed (Y/N)	Whether FGD space available (Y/N)	Whether FGD planned (Y/N)	Feasibility Study Started (Y/N)	Feasibility Study Completed (Y/N)	Tender Specifications Made (Y/N)	NTI Issued (Y/N)	Bids Opened (Y/N)	Bid Opening Date (DD/MM/YYYY)	Bids Awarded (Y/N)	Regulator Petition Cleared (Y/N)	% Progress of FGD Installation	FGD Commissioned (Y/N)	FGD working satisfactorily (Y/N)	FGD Phasing Plan for Implementation (DD/MM/YYYY)	Current Status & remarks	Last updated on
Lanco Anpara Power Ltd	Anpara C	Private	UP	NR	II	600	18-01-2012	7.48	N	Y	Y	Y	N	N	N	N	NA	N	N	0	N	NA	01-06-2022	Affidavit with petition is filed by LANCO Anpara Power Ltd with UPERC seeking in-principle approval for capital cost to be incurred for the installation of FGD and SCR system. UPERC called for hearing in December 2017, in which LANPL requested the commission to consider the additional capital cost for installation of FGD and SCR be considered under 'change in law' as per the provisions of PPA. UPERC has given an order stating that LANPL to approach CEA to decide specific optimum technology, associated cost in installation of FGD & SCR. UPERC granted liberty to file petition by LANCO Anpara Power Ltd after obtaining approval of CEA on technology & cost related aspects of FGD & SCR. After meetings with Member(Tn), LANPL was asked by CEA to submit feasibility report with options available in the market & technology selected along with cost. TO meet the above, LANPL appointed M/s Black & Veatch as consultant for Air Quality and Control System (AQCS) for preparing the feasibility report. With the present technologies available for reducing the emissions, Wet Lime Stone FGD system for SO2 control is recommended by Black & Veatch. The Feasibility report is under final stage of completion. As soon as the Feasibility Report is final, LANPL will submit the same to CEA for vetting and approval.	04-06-2019
NTPC	Singrauli St-1 Units	Central	UP	NR	I	200			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Singrauli St-1 Units	Central	UP	NR	II	200			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Singrauli St-1 Units	Central	UP	NR	III	200			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Singrauli St-1 Units	Central	UP	NR	IV	200			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Singrauli St-1 Units	Central	UP	NR	VI	200			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Singrauli St-2 Units	Central	UP	NR	VI	500			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Singrauli St-2 Units	Central	UP	NR	VII	500			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Rihand St-1 Units	Central	UP	NR	I	500			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Rihand St-1 Units	Central	UP	NR	II	500			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	N	N/A			05-07-2019
NTPC	Rihand St-2 Units	Central	UP	NR	III	500			N	Y	Y	Y	Y	Y	Y	Y		Awarded in Aug 18		Not started	N	N/A			05-07-2019
NTPC	Rihand St-2 Units	Central	UP	NR	IV	500			N	Y	Y	Y	Y	Y	Y	Y		Awarded in Aug 18		Not started	N	N/A			05-07-2019
NTPC	Rihand St-3 Units	Central	UP	NR	V	500			N	Y	Y	Y	Y	Y	Y	Y		Awarded in Aug 18		Not started	N	N/A			05-07-2019
NTPC	Rihand St-3 Units	Central	UP	NR	VI	500			N	Y	Y	Y	Y	Y	Y	Y		Awarded in Aug 18		Not started	N	N/A			05-07-2019
NTPC	Uncharhar St-1 Units	Central	UP	NR	I	210			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	NO	N/A			05-07-2019
NTPC	Uncharhar St-1 Units	Central	UP	NR	II	210			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	NO	N/A			05-07-2019
NTPC	Uncharhar St-2 Units	Central	UP	NR	III	210			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	NO	N/A			05-07-2019
NTPC	Uncharhar St-2 Units	Central	UP	NR	IV	210			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	NO	N/A			05-07-2019
NTPC	Uncharhar St-3 Units	Central	UP	NR	VI	210			N	Y	Y	Y	Y	Y	Y	Y		N		Not started	NO	N/A			05-07-2019
NTPC	Uncharhar St-4 Units	Central	UP	NR	VI	500			N	Y	Y	Y	Y	Y	Y	Y		Awarded in Aug 18		Not started	NO	N/A			05-07-2019
NTPC	Tanda St-1 Units	Central	UP	NR	I, II, III, IV	110			N	N	N	N	N	N	N	N		N/A		Not Feasible	NO	N/A			05-07-2019
NTPC	Tanda St-2 Units	Central	UP	NR	VI	660			N	Y	Y	Y	Y	Y	Y	Y		Awarded in Aug 18		Not started	NO	N/A			05-07-2019
NTPC	Tanda St-2 Units	Central	UP	NR	VI	660			N	Y	Y	Y	Y	Y	Y	Y		Awarded in Aug 18		Not started	NO	N/A			05-07-2019
Punjab State Power Corporation Ltd.	Nabha Power Ltd.	Private	Punjab	NR	I	700	01-02-2014	5.4	N	Y	Y	Y	Y	Y	Y	N	10-09-2019	N	N	Not started	N	N	31-12-2022	RFO floated on 14.05.2018. RFO bid opening on 18.12.2018. PSERC order on NPL petition for 'in-principle' approval under change in law has been challenged before Appellate Tribunal.	09-07-2019
Punjab State Power Corporation Ltd.	Nabha Power Ltd.	Private	Punjab	NR	II	700	10-07-2014	5.0	N	Y	Y	Y	Y	Y	Y	N	10-09-2019	N	N	Not started	N	N	31-12-2022	RFO floated on 14.05.2018. RFO bid opening on 18.12.2018. PSERC order on NPL petition for 'in-principle' approval under change in law has been challenged before Appellate Tribunal.	09-07-2019

NRPC Deliberation

B.43.3 NRPC noted the deliberations held in the TCC.

B.44 OPGW connectivity in Northern region under Fiber Optical expansion project-ULDC Ph-II OPGW package-I(a)**TCC Deliberation**

B.44.1 Representative of BBMB informed that work of OPGW connectivity between Bhakra-Jamalpur was yet to be started. TCC requested POWERGRID to expedite the work.

NRPC Deliberation

B.44.2 NRPC noted the deliberations held in the TCC.

B.45 Installations of AMR meters by Haryana DISCOMs (Agenda by HVPNL)**TCC Deliberation**

B.45.1 Representative of HVPNL informed that Haryana DISCOMs are installing AMR meters in parallel to the existing SEMs at the interface boundaries for which consent from POWERGRID is still awaited. He requested POWERGRID to give consent and allow the shutdowns for installations AMRs in their area of jurisdiction. TCC requested POWERGRID to give the consent at the earliest.

NRPC Deliberation

B.45.2 NRPC noted the deliberations held in the TCC.

B.46 Augmentation of Transformation capacity at Tanakpur**TCC Deliberation**

B.46.1 MS, NRPC briefed the Committee about the following decision taken in the 6th meeting of the Joint Steering Committee (JSC) on Nepal – India Cooperation in Power Sector, held on 24th January, 2019:

“Indian side stated that the existing 50MVA transformer would be replaced with 100MVA transformer by NHPC and the charges of the same would be recovered from NEA as per CERC Regulations. It was also agreed that available spare 220/132kV, 100MVA transformer in the Northern Region of India could be installed at Tanakpur by the end of March, 2019 as an interim arrangement. Necessary action in this regard would be taken by CEA and POWERGRID.”

B.46.2 As the procurement and installation of new transformer would take some time, the possibility of interim arrangement was explored. POWERGRID intimated that there is one spare 220kV/32kV, 100MVA, 3-Ø transformer (manufactured in 2006) available at Sitarganj sub-station of POWERGRID. The matter regarding replacement of 50MVA transformer with 100MVA transformer was discussed in

BSES

BSES Yamuna Power Limited

PMG Office: 2nd Floor, B-Block, Shakti Kiran Building, Karkardooma, New Delhi – 110032
Tel: 39992002, Fax- 011-39992076
CIN.-U40109DL2001PLC111525

Di: 03.07.2019
Ref.No. BYPL/PMG/ 2019-20/1809

To,
Sh. J Bandyopadhyay
Member Secretary
Eastern Regional Power Committee
14, Golf Club Road, Tollygunje
Kolkatta -33

Subject: Regarding shutdown of DVC, MTPS U#7

Ref: i) BYPL letter no: BYPL/PMG/2019-20/1808 dt 01.07.2019
ii) DVC email dt 01.07.2019.
iii) BYPL letter no: BYPL/PMG/2019-20/1805 dt 27.06.2019
iv) DVC email dt 27.06.2019.

Dear Sir,

Your kind attention is invited regarding un-planned shutdown of Mejia-7 in which BYPL share is 111MW availed by DVC w.e.f 00:00 hrs of 02.07.2019 for the period of 35 days. It is not scheduled shutdown as per LGBR of ERPC.

As per Regulation 5.7.4 of IEGC planned shutdown shall be routed through RPC and the annual outage plan for respective Region shall be finalized by RPC Secretariat in consultation with LDC. The same shall be uploaded by RPC on its website. However, planned shutdown of generating unit, particularly 500 MW unit should be avoided during peak summer/winter particularly during the period from 1st June to 30th September and 15th December to 15th January.

The all outage plan should be reviewed by RPC Secretariat on quarterly and monthly basis in co-ordination with all stakeholders. The same was not followed by DVC for its proposed CoH of Mejia-7 for 35 days.

On 27.06 2019, DVC SLDC informed to avail this shutdown at the end of June'2019 and BYPL vide letter dt 27.06 2019 informed to defer shutdown to Nov'19 as Delhi is suffering with severe heat wave. DVC did not respond . On 01.07.2019 at around 5.00 PM it was informed that Mejia-7 shall be under shutdown from 00:00 hrs of 02.07.2019. It is inappropriate on part of DVC to inform for shutdown when arrangement of power from alternate source was not possible. BYPL approached ERLDC/NRLDC/DVC and thereafter DVC agreed to defer the shutdown for one day.



It may kindly be noted that DVC did not avail the shutdown on 14.05.2019 as per LGBR schedule of ERPC, and again did not take the consent of beneficiaries for revised date of shutdown. It is the obligation of the Generator to provide power when it is most needed, i.e during peak summer seasons.

Delhi's electricity demand continued to soar owing to hot and humid weather conditions and the city continued its upward climb on dt 04.07.2019 recording an all-time high of 7,409MW, BYPL required full generation during the above period from all generating plants. Further, you will appreciate we have to maintain the uninterrupted power supply to meet the essential services as well as 24X7.

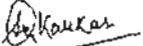
We earnestly request to ERPC

- i) Kindly initiate effective steps to put the machine on bar in view of hot summer seasons in Delhi to avoid unnecessary shortage of power in BYPL area.
- ii) Not to allow unplanned shutdown without consent of beneficiaries as it is difficult to arrange 100 MW power for a month from reliable source.

Thanking You,

Yours faithfully

For BSES Yamuna Power Limited


Sunil Kakkar

Head-Power Management

Cc to

1. Member Secretary : With the request to take up the matter
North Regional Power Committee. With ERPC for deferment of COH
18-A, S Jeet Singh Marg as proposed by DVC to meet the
Katwaria Sarai, New Delhi-16 summer demand in interest of Delhi
Consumer.
2. Executive Director
Delhi SLDC,
33KV Grid Sub-Station Bldg
Minto Road, New Delhi-110002.
3. Chief Engineer.
SLDC, DVC,
(Under Ministry of Power, Govt. of India)
P.O. : Danesh Seikh Lane, Andul Road,
Howrah - 711 109. Fax-033-2688-5094.

WL

BSES

BSES Yamuna Power Limited

PMG Office: 2nd Floor, B-Block, Shakti Kiran Building, Karkardooma, New Delhi - 110032
Tel: 39992002, Fax- 011-39992076
GIN:-U40109DL2001PLC111525

Dt: 01.07.2019

Ref No. BYPL/PMG/2019-20/1808

To,
Sh Subodh Dutta
Executive Director
Commercial Department
Damodar Valley Corporation Ltd.
DVC Tower, VIP Road, Kolkatta-700054.

Ref: i) DVC email dt 01.07.2019.
ii) DVC email dt 27.06.2019.

Subject: Shutdown of MTPS U#7

Dear Sir,

We write this in reference to BYPL letter no BYPL/PMG/2019-20/1805 dt 27.06.2019 regarding deferment of proposed planned shutdown at end of June'2019.

No LGBR report was available on ERPC website till dt 27.06.2019, later on LGBR report was posted in ERPC website having shutdown of Mejia-7 w.e.f 14.05.2019 to 18.06.2019. No consent was taken from BYPL for this shutdown in peak of summer.

On 27.06.2019, DVC SLDC informed to avail this shutdown at the end of June'2019 and on 01.07.2019 at around 5 PM informed that Mejia-7 shall be under shutdown from 00 hrs of 02.07.2019. DVC did not avail the shutdown in 14.05.2019 as per schedule, and again did not take the consent of beneficiaries for revised date of shutdown. It is the obligation of the Generator to provide power when it is most needed, e.g during peak summer seasons.

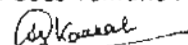
Delhi is currently under severe heat wave conditions and maximum load touched 7241 MW on 1st July'2019. We cannot afford this shutdown under such circumstances. We have to maintain the uninterrupted power supply to meet the essential services as well as 24X7. However, shutdown may lead to power shortage affecting the BYPL consumers in peak summer seasons.

We once again request you to defer the proposed shutdown in Nov'19 to avoid unnecessary shortage of power in BYPL area.

Thanking You,

Yours faithfully

For BSES Yamuna Power Limited


Sunil Kakkur

Head-Power Management

Cc to

1. Member Secretary : With the request to take up the matter
Eastern Regional Power Committee With DVC for deferment of COH
14, Golf Club Road, Tollygunje as proposed by DVC in Nov'19 to
Kolkatta -33 meet the summer
Demand in BYPL area in the interest
Of Delhi Consumers

2. Member Secretary : With the request to take up the matter
North Regional Power Committee. With ERPC for deferment of COH
18-A, S Jeet Singh Marg as proposed by DVC in Nov'19 to
Katwaria Sarai, New Delhi-16 meet the summer
Demand in BYPL area in the interest
Of Delhi Consumers.

3. Executive Director
Delhi SLDC,
33KV Grid Sub-Station Bldg
Minto Road, New Delhi-110002.

4. Chief Engineer.
SLDC, DVC,
(Under Ministry of Power, Govt. of India)
P.O. : Danesh Seikh Lane, Andul Road,
Howrah - 711 109. Fax-033-2688-5094.

RELIANCE

Fw: Confirmation of DVC -MTPS #7 overhauling programme
Sunil Kakkar To: Anurag Kr Sharma, Haridas Maity
Cc: Surya Banerji

02-07-2019 13:52

FYIP

File

sunil kumar kakkar/ सुनील कुमार कक्कर
Head-Power Management/ प्रमुख (ऊर्जा प्रबंधन)
BYPL/ बी. एस. इ. एस. यमुना पावर लिमिटेड, दिल्ली
Mob- 9312147042/(कार्यालय): 39992002

--- Forwarded by Sunil Kakkar/REL/RelianceADA on 02-07-2019 13:51 ---

From: Bypl Powerscheduling/REL/RelianceADA
To: "DTL WEB" <dtldata@yahoo.co.in>, "Delhi Scheduling" <dtlscheduling@gmail.com>
Cc: dvcsldc@gmail.com, Mukesh Dadhich/REL/RelianceADA@INFOCOMM, Sunil Kakkar/REL/RelianceADA@INFOCOMM, anurag.kr.sharma@reliance.com, "BYPL PMG" <pmgbypl@gmail.com>, SLDC DVC <dvcsldc@gmail.com>
Date: 02-07-2019 11:11
Subject: Confirmation of DVC -MTPS #7 overhauling programme

Dear Sir,

As per trailing mail,

Kindly confirm the DC of MTPS#7 for 03 07.2019 so that we may plan accordingly for tomorrow

Regards,

Prashant Agrawal

BYPL Power Scheduling
Shankar Road New Delhi
Ph: 011-39997372.66
Fax-3999-7381

--- Forwarded by Bypl Powerscheduling/REL/RelianceADA on 02-07-2019 09:25 ---

From: SLDC DVC <dvcsldc@gmail.com>
To: KERALA <cesoksy@gmail.com>, SRLDC CROOM <srldccr@posoco.in>, ELECTRICAL TRANSMISSIONDISTRIBUTION <electrical.id@tatasteel.com>, Eridc POSOCO <erldccr@posoco.in>, "SLDC HVPNL LD&PC Panipal" <slsdcharyanacr@gmail.com>, unificdcontrol panchkula <ucrpanchkula19@gmail.com>, NRLDC Power Grid <nrlcds@posoco.in>, Bypl Powerscheduling <Bypl.powerscheduling@relianceada.com>, DTL

WEB <dilscheduling@gmail.com>, DTL WEB <dildata@yahoo.co.in>, Croomidckptcl
<croomidckptcl@yahoo.co.in>
Cc: ALDC MAITHON <aldcmaitthon@gmail.com>, "MR. SANDIP PAL" <sandip.pal@dvc.gov.in>,
<debashis.dey@dvc.gov.in>
Date: 01-07-2019 19:33
Subject: Fwd: Request to Defer Overhauling programme of MTPS U#7

----- Forwarded message -----

From: MTPS Operation <mtps_operation@gmail.com>
Date: Mon, Jul 1, 2019 at 7:30 PM
Subject: Re: Request to Defer Overhauling programme of MTPS U#7
To: SLDC DVC <dvcsldc@gmail.com>
Cc: <bhola.sah@dvc.gov.in>, ashoke.saha <ashoke.saha@dvc.gov.in>, bhables.ghosh <bhables.ghosh@dvc.gov.in>, chandrashekhar.tripathi <chandrashekhar.tripathi@dvc.gov.in>, budhdeo.dhol <budhdeo.dhol@dvc.gov.in>, ALDC MAITHON <aldcmaitthon@gmail.com>, MR. SANDIP PAL <sandip.pal@dvc.gov.in>, <debashis.dey@dvc.gov.in>, Subodh data <subodh.datta@dvc.gov.in>, Subodh Datta <subodh.datta.dvc@gmail.com>, Vinay Mohan Charanpahari <vinay.charanpahari@gmail.com>, <vinay.charanpahari@dvc.gov.in>, discombilling. <discombillingdvc@gmail.com>, <surajit.sarkar@dvc.gov.in>, satyendra.dutta <satyendra.dutta@dvc.gov.in>, Manik Rakshit <manik.rakshit@dvc.gov.in>, Tarun Das <dastarun90@yahoo.in>, DTL WEB <dilscheduling@gmail.com>, samir.haquekhan <samir.haquekhan@dvc.gov.in>, Samir Haqkhan Sir OS&U <shkhandvc@gmail.com>

Dear sir,

With ref. to trailing mail, it is already communicated to SLDC, that S/D programme for Capital Overhauling of MTPS Unit#7 has been deferred to 03/07/2019 00:00 hrs.

Regards.

Shift Charge Engineer
MTPS, DVC
Damodar Valley Corporation
(Ministry of Power)

On Mon, Jul 1, 2019 at 7:07 PM SLDC DVC <dvcsldc@gmail.com> wrote:

----- Forwarded message -----

From: ERLDC Control Room <erldccr@posoco.in>
Date: Mon, Jul 1, 2019 at 7:04 PM
Subject: Request to Defer Overhauling programme of MTPS U#7
To: dvcsldc@gmail.com <dvcsldc@gmail.com>, dvcaldc <dvcaldc@gmail.com>
Cc: D K Jain (डी के जैन) <dk.jain@posoco.in>, Gopal Mitra (गोपाल मित्रा) <gopalmitra@posoco.in>, Surajit Banerjee (सुरजीत बनर्जी) <surajit.banerjee@posoco.in>

Sir,

The intimation of shutdown of MEJAI Unit #7 (500 MW) has come to ERLDC, Kolkata in a very short time, even less than 24 hrs and in such short duration, stakeholder/beneficiaries of said unit will have tough time to arrange alternate source of power. Please note that Delhi is having huge demand and it will be difficult to meet their demand. In this situation same problem will be faced by other stakeholders also.

It is therefore, DVC is requested to defer this shutdown at least for one day so that stakeholders may arrange their power from other sources .

In future, if any shutdown of machines are planned, that must be intimated to ERLDC kolkata as well as stakeholder at least one day in advance.

Your prompt action is solicited.

Regards

SCE ERLDC.

From: Sunil.Kakkar@relianceada.com [mailto:Sunil.Kakkar@relianceada.com]
Sent: 01 July 2019 18:28
To: dvcslc@gmail.com; DTL WEB; DTL WEB; ERLDC Control Room, nrlcso@gmail.com, ALDC MATTHON; MR. SANDIP PAL; ; NRLDC SO; mtps.operation@gmail.com; satyendra.dutta@dvc.gov.in; chandrashekhar.tripathi@dvc.gov.in
Cc: Bypl.Powerscheduling@relianceada.com; Mukesh.Dadhich@relianceada.com; Anuraag.Kt.Sharma@relianceada.com; Kaliraj.Sankaralingam@relianceada.com
Subject: Overhauling programme of MTPS U#7

We have just received this message BYPL has share of 111 MW from Meja #7 and it is not possible to arrange the 111 MW power, when IEX – DAM market closed & Power is not available in IEX- TAM market. BYPL shall be in constrained to perform load shedding throughout 02-Jul-2019.

No consent was given earlier for this shutdown, kindly defer the shut down to 03-Jul-2019 to enable us to arrange the power for 03-Jul-2019

Delhi SLDC is requested to inform to NRLDC & ERLDC to defer for at least one day to avoid shedding in BYPL on 2 July.2019

सादर धन्यवाद

sunil kumar kakkar/ सुनील कुमार कक्कर
Head-Power Management/ प्रमुख (ऊर्जा प्रबंधन)
BYPL/ बी. एस. इ. एस. यमुना पावर लिमिटेड, दिल्ली
Mob- 9312147042/(कार्यालय): 39992002

From: SLDC DVC <dvcsldc@gmail.com>
To: KERALA <sesokisy@gmail.com>, SRLDC CROOM <srldccr@posoco.in>, Croomldckptcl <croomldckptcl@yahoo.co.in>, "SLDC HVPNL LD&PC Panipal" <sldcharyanacr@gmail.com>, unifiedcontrol panchkula <ucropanchkula19@gmail.com>, NRLDC Power Grid <nrlcdso@posoco.in>, ELECTRICAL TRANSMISSIONDISTRIBUTION <electrical.id@tatasteel.com>, Bypl Powerscheduling <Byplpowerscheduling@relianceada.com>, DTL WEB <dtlscheduling@gmail.com>, DTL WEB <dildata@yahoo.co.in>, Erldc POSOCO <erldccr@posoco.in>
Cc: ALDC MAITHON <aldcmaitthon@gmail.com>, "MR. SANDIP PAL" <sandip_pal@dvc.gov.in>, <debashis.dey@dvc.gov.in>
Date: 01-07-2019 16:56
Subject: Fwd: Re: Overhauling programme of MTPS U#7

DEAR SIR,

PLEASE FIND THE TRAILING MAIL FORM MTPS WHEREIN THEY HAVE INFORMED THAT MTPS U#7.MTPS will be shut down at around zero hour of 02 07.19 FOR Overhauling programme of MTPS U#7.MATTER IS FORWARDED FOR KIND INFORMATION PLEASE.

REGARDS,

SCE.SLDC.DVC.HOWRAH

----- Forwarded message -----

From: MTPS Operation <mtps.operation@gmail.com>
Date: Mon, Jul 1, 2019 at 4:34 PM
Subject: Fwd: Re: Overhauling programme of MTPS U#7
To: SLDC DVC <dvcsldc@gmail.com>

Shift Charge Engineer
MTPS
Damodar Valley Corporation
(Ministry of Power)

----- Forwarded message -----

From: SATYENDRANATH DUTTA <satyendra.dutta@dvc.gov.in>
Date: Mon, Jul 1, 2019 at 4:25 PM
Subject: Fwd: Re: Overhauling programme of MTPS U#7
To: <mtps.operation@gmail.com>

----- Original Message -----

Subject: Fwd: Re: Overhauling programme of MTPS U#7

Date: 2019-07-01 16:25

From: SATYENDRANATH DUTTA <satyendra.dutta@dvc.gov.in>

To: sandip.pal@dvc.gov.in

Copy: gouranga.kundu@dvc.gov.in, budhdeo.dhol@dvc.gov.in, Chandrashekhar Tripathi <chandrashekhar.tripathi@dvc.gov.in>

Dear Sir,

With reference to the trailing mail, we are going to lit up the Boiler of U#3, MTPS. U#7, MTPS will be shut down at around zero hour of 02.07.19 after synchronisation of U#3.

Regards

S.N.Dutta

DCE(Opn), U#1-8, MTPS

----- Original Message -----

Subject: Fwd: Re: Overhauling programme of MTPS U#7

Date: 2019-07-01 15:00

From: budhdeo.dhol@dvc.gov.in

To: satyendra.dutta@dvc.gov.in, bijay.bchera@dvc.gov.in,

surajit.sarkar@dvc.gov.in, mokarrab.hossain@dvc.gov.in

Copy: Chandrashekhar Tripathi <chandrashekhar.tripathi@dvc.gov.in>

Dear Sir,

Refer to trailing mail pl intimate to SLDC for lit up of U#3 and and programme of U#7 is also given in the trailing mail.

Regds,

bdhol,

CE(O&M)/MTPS.

----- Original Message -----

Subject: Re: Overhauling programme of MTPS U#7

Date: 2019-07-01 14:38

From: Gouranga Kundu <gouranga.kundu@dvc.gov.in>

To: Chandrashekhar tripathi <chandrashekhar.tripathi@dvc.gov.in>

Copy: subodh.datta@dvc.gov.in, samir.haquekhan@dvc.gov.in, Bnsah117 <bnsah117@gmail.com>, bnsah.117@gmail.com, budhdeo.dhol@dvc.gov.in

Dear Sir,

The subject matter was discussed with ED(commercial) by ED(Opn) to-day. As per discussion, it has been programmed to shut down of MTPS U#7 for overhauling after synchronisation of MTPS U#3. As directed, it is requested for light of MTPS U#3 towards synchronisation of the unit.

--

SNDUTTA

--

Regards,

Shift Charge Engineer,
SLDC, DVC,
(Under Ministry of Power, Govt. of India)
P.O : Danesh Seikh Lane,
31/1, Andul Road, Howrah - 711109.
West Bengal, India.
TEL: 033 (2688-5119/5065/5078), FAX-033-2688-5094.
ORANGE PH. (23260250/2033-2000/2001/2002)
E-mail : dvcslde@gmail.com
Web : <http://portal.dvc.gov.in>

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SLDC

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--

Regards,

Shift Charge Engineer,
SLDC, DVC,
(Under Ministry of Power, Govt. of India)
P O. : Danesh Seikh Lane,
31/1, Andul Road, Howrah - 711109
West Bengal, India
TEL: 033 (2688-5119/5065/5078), FAX-033-2688-5094.
ORANGE PH. (23260250/2033-2000/2001/2002)
E-mail : dvcslcd@gmail.com
Web : <http://portal.dvc.gov.in>

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--

Regards,

Shift Charge Engineer,
SLDC, DVC,
(Under Ministry of Power, Govt. of India)
P O. : Danesh Seikh Lane,
31/1, Andul Road, Howrah - 711109
West Bengal, India.
TEL: 033 (2688-5119/5065/5078), FAX-033-2688-5094.
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BSES

BSES Yamuna Power Limited

PMG Office: 2nd Floor, B-Block, Shakli Kiran Building, Karkardooma, New Delhi - 110032
Tel: 39992002, Fax: 011-39992076
CIN: U40109DL2001PLC111525

Dt: 27.06.2019

Ref.No. BYPL/PMG/ 2019-20/ 1805

To,
Chief Engineer,
SLDC, DVC,
(Under Ministry of Power, Govt. of India)
P.O. : Danesh Seikh Lane, Andul Road,
Howrah - 711 109 Fax-033-2688-5094.

Subject: Shutdown of MTPS U#7 due to COH

Dear Sir,

Your kind attention is invited regarding sudden intimation of shutdown of 500 MW unit of Mejia-7 to be availed by DVC for 35 days by the end of June'2019. BYPL share from unit is 111 MW.

It may kindly be noted that, last year DVC had availed the shutdown of 500 MW Mejia-7 w.e.f 08.07.2018 for 20 days without any prior intimation to BYPL and shutdown was not covered under the LGBR of ERPC during the FY 2018-19 and further it remained under shutdown from 01.09.2018 to 30.10.2018 due to Coal shortage.

As per Regulation 5.7.4 of IEGC, planned shutdown shall be routed through RPC and the annual outage plan for respective Region shall be finalized by RPC Secretariat in consultation with LDC. The same shall be uploaded by RPC on its website. The outage plan shall be reviewed by RPC Secretariat on quarterly and monthly basis in coordination with all stakeholders. The set process has not been followed by DVC for its proposed CoH of Mejia-7 for 35 days.

Moreover, It has been decided in RPC meetings that planned shutdown of generating unit, particularly 500 MW unit should be avoided during peak summer and winter particularly during the period from 1st June to 30th Sep and 15th December to 15th January.

You are kindly aware that due to increase in demand, BYPL requires full generation during the above period from this unit and cannot afford the proposed shutdown. Further, you will appreciate that we have to maintain the 24X7 uninterrupted power supplies.

We request you to initiate effective steps to defer the proposed shutdown in June'19 to avoid unnecessary shortage of power in BYPL area.

Thanking You,

Yours faithfully

For BSES Yamuna Power Limited



Sunil Kakkar

Head-Power Management

Cc to

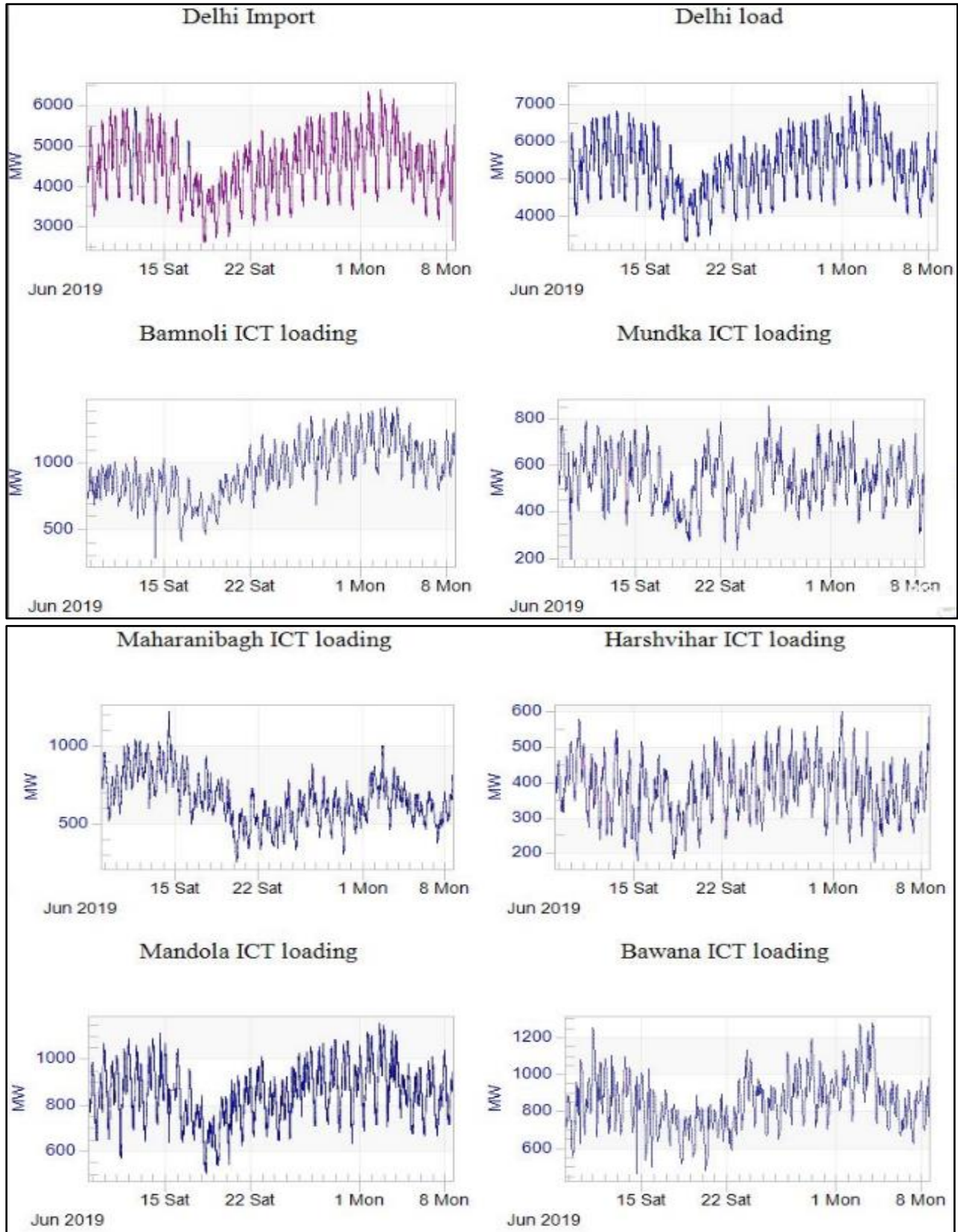
1. **Member Secretary** : With the request to take up the matter
North Regional Power Committee. With ERPC for deferment of COH of
18-A, S Jeet Singh Marg Mejra-7 proposed by DVC in
Katwaria Sarai, New Delhi-16 June'19

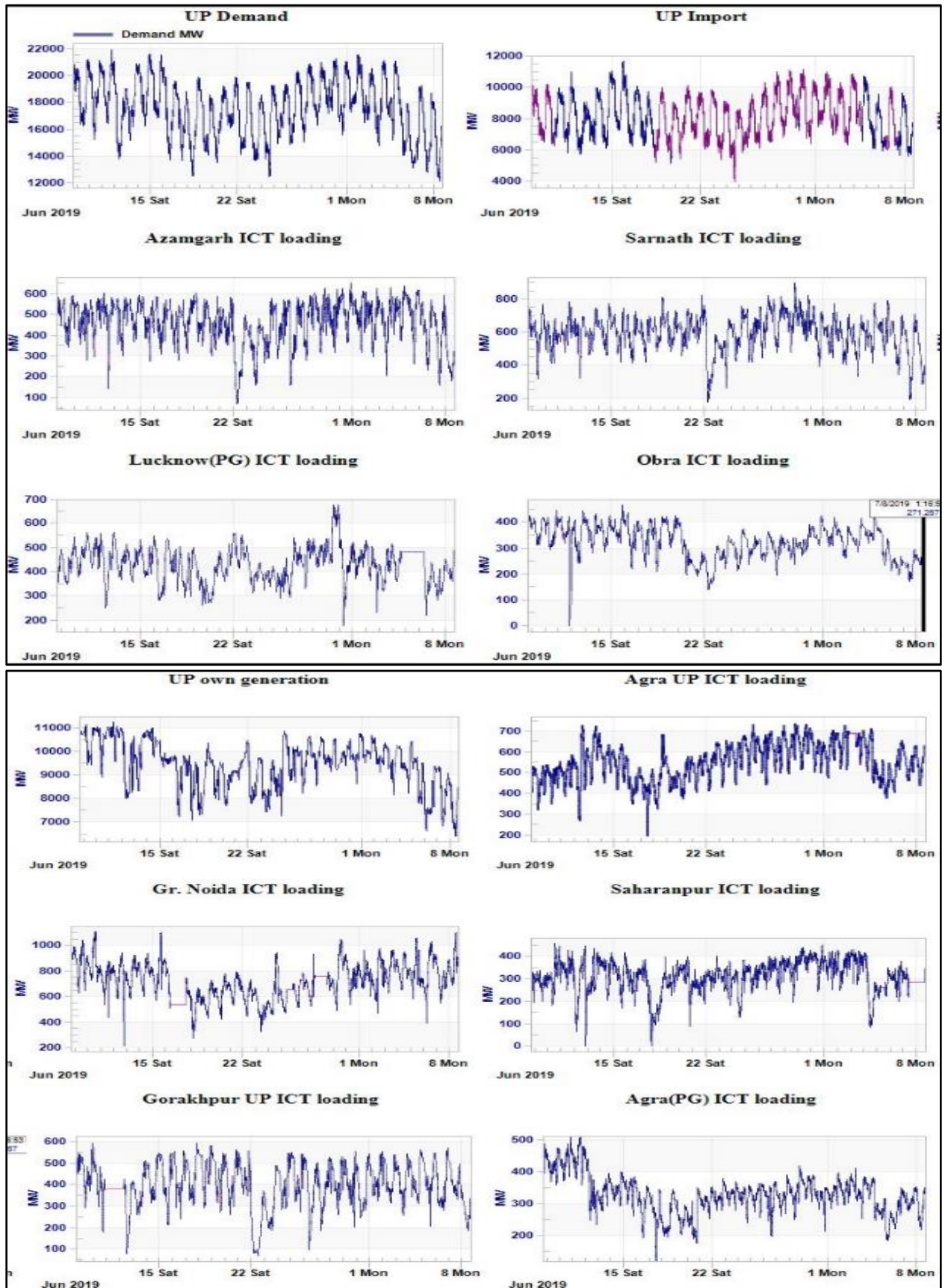
2. **Member Secretary**
Eastern Regional Power Committee
Kolkata.

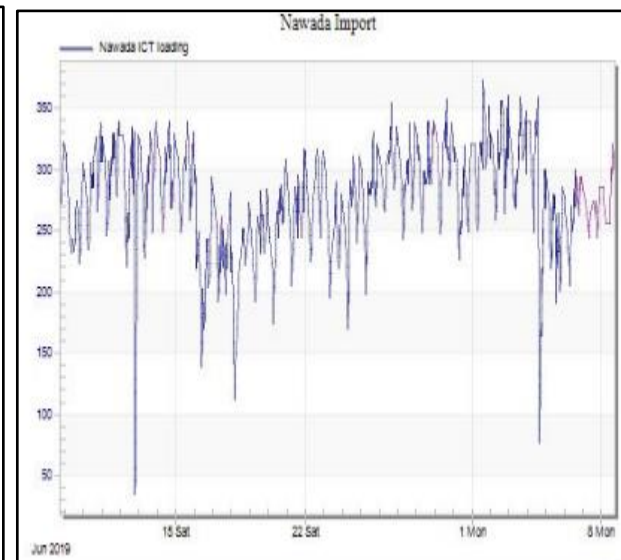
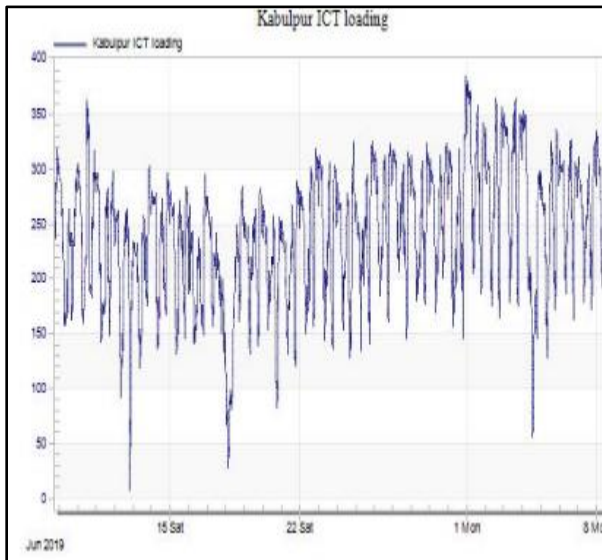
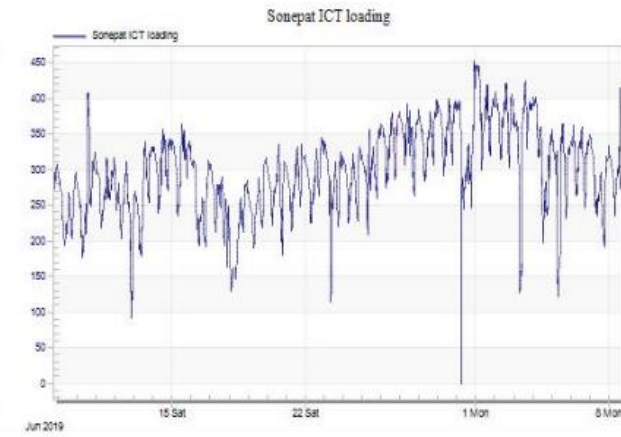
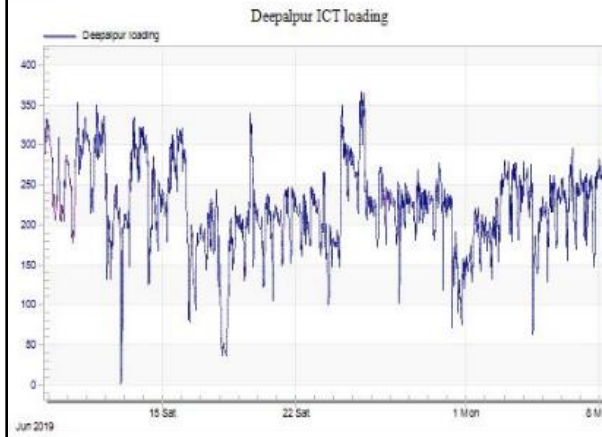
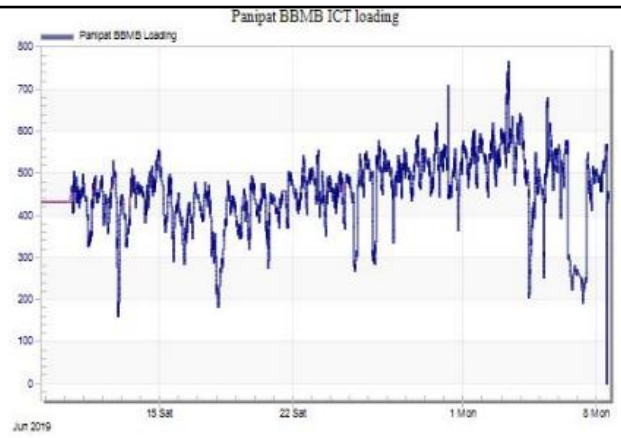
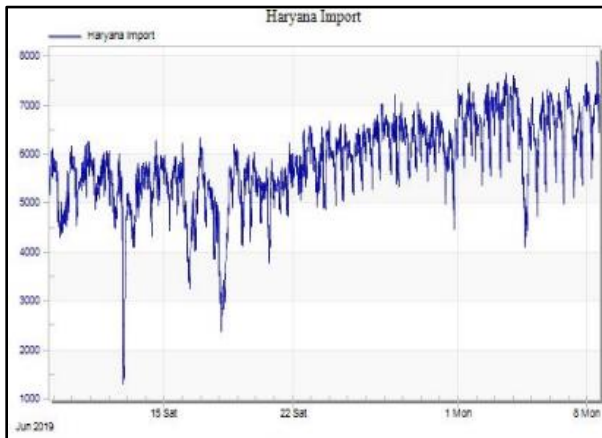
3. **Executive Director**
Delhi SLDC,
33KV Grid Sub-Station Bldg
Minto Road, New Delhi- 110002.

4. **Executive Director**
Commercial Department
Damodar Valley Corporation Ltd
DVC Tower, VIP Road, Kolkata-700054

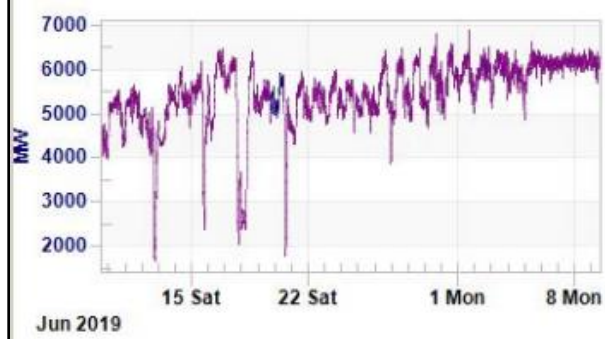
Annexure-IX



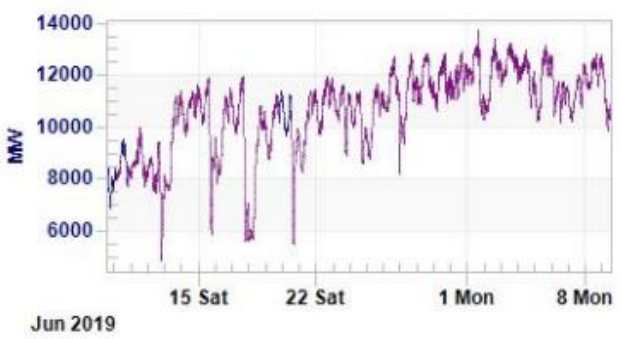




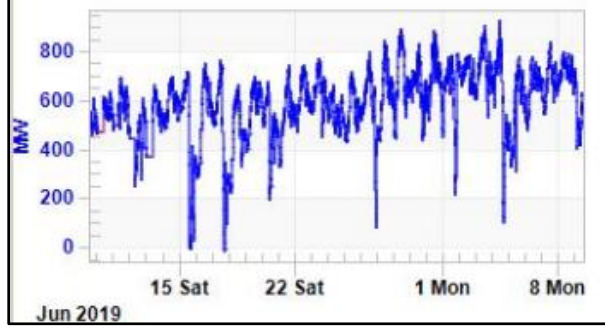
Punjab Import



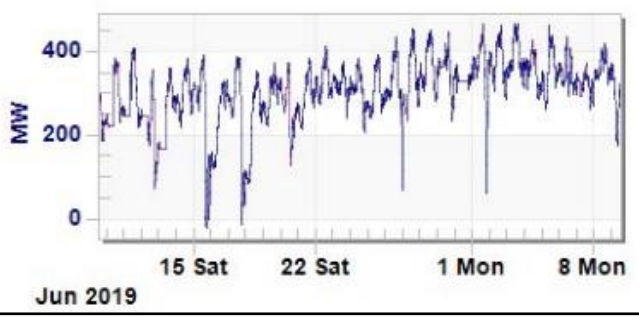
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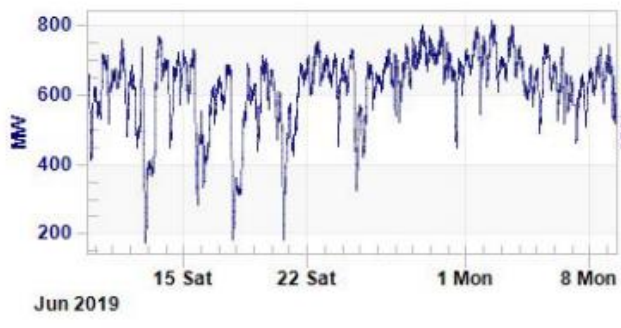
Amritsar ICT load



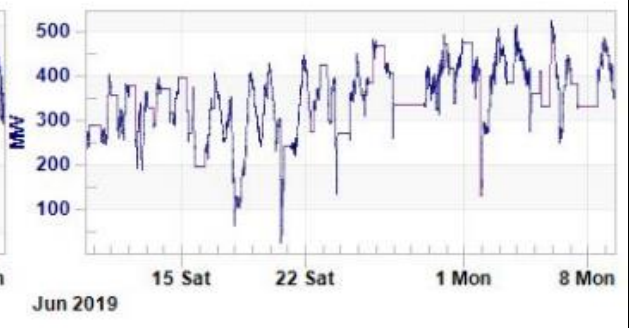
Nakodar ICT load



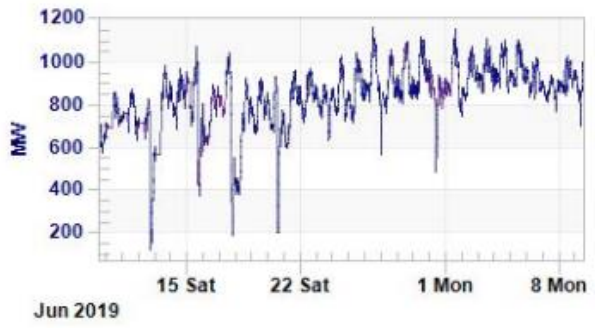
Rajpura ICT load



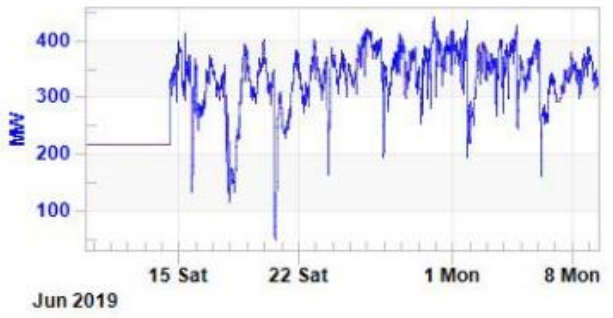
Muktsar ICT load



Ludhiana ICT load



Makhu ICT load



Kishanganga Power Station: Generation Loss due to Transmission Constraint

Date	Energy Loss (MU)	Reason
29-May-18	0.110	1.U#1 (14:51 Hrs-15:55 Hrs) Under Mo Due To Overspeed Relay Operated.Line#1 & 2 (14:51 Hrs. - 15:28 Hrs.) Under Fo Due To Dpr Operated
Total (May 18)	0.110	
23-Jun-18	0.363	U#1, U#2 & U#3 (21:55 Hrs-23:01 Hrs) Under Outage Due To Over Speed Relay Operated(Due To Line Tripping). 4. Line#1(21:55 Hrs-23:01 Hrs) & Line#2 (21:55 Hrs-23:10 Hrs) Under Outage Due To Dt Received From Delina Sub-Station End.
15-Jun-18	0.189	1. U#1 (09:54 Hrs-11:37 Hrs) Under Outage Due To Transmission Line Constarint
9-Jun-18	0.290	5.U#1 (17:43 Hrs. - 20:21 Hrs.) Under Mo Due To Over Speed Relay Operated (Line Constraints). 6. Line#1 (17:43 Hrs.- 20:12 Hrs.) Under Fo Due To Dpr Operated (Zone-I, R-Y Phase). 7. Line#2 (17:43 Hrs.- 22:52 Hrs.) Under Fo Due To Dt Relay Operated.
8-Jun-18	0.165	{U#2 & 3(18:20 Hrs. - 19:05 Hrs.)}Under Mo Due To Over Speed Relay Operated (Line Constraints). 7. Line#1 & 2 (18:20 Hrs.- 19:05 Hrs.) Under Fo Due To Busbar Protection Operated In Delina Substation.
4-Jun-18	0.630	U#1 (14:45 Hrs - 17:36 Hrs) Under Mo Due To Over Speed Relay Operated(Transmission Constraints), U#3 (14:45 Hrs - 17:34 Hrs) Under Mo Due To Over Speed Relay Operated (Transmission Constraints).
24-Jun-18	0.171	U#1, U#2 & U#3 (16:39 Hrs-17:10 Hrs) Under Outage Due To Over Speed Relay Operated(Due To Line Tripping). 3. Line#1 & Line#2 (16:39 Hrs-17:10 Hrs) Under Outage Due To Bus Bar Protection Relay Operated At Delina Sub-Station End & Dt Received At Kishanganga Sub-Station End.
Total (June-18)	1.808	
13-Jul-18	0.070	U#1 [(03:48 Hrs - 04:20 Hrs) Under Outage Due To Transmission Line Constraints & (17:56 Hrs - 18:00 Hrs) Under Outage Due To Grid Disturbance At Delina End
18-Jul-18	0.172	3. U#3 (03:29 Hrs. - 05:03 Hrs.) Under Outage Due To Over Frequency Relay Operated (Line Constraints).
25-Jul-18	0.785	1.{U#1(20:31 Hrs-22:41 Hrs), U#2(20:31Hrs-23:00 Hrs) & U#3(20:31Hrs-23:00 Hrs)} Under Outage Due To Over Frequency Relay Operated (Line Constraints)
26-Jul-18	0.396	1.{U#1(12:31 Hrs-14:25 Hrs) & U#3(12:31 Hrs-14:13 Hrs)} Under Outage Due To Over Frequency Relay Operated
27-Jul-18	0.130	3.{U#1 & U#3 (11:20 Hrs-12:31 Hrs)} Under Outage Due To Tripping Of Line Breakers At Kishanganga End. (Line Disturbance)
Total (Jul-18)	1.553	

Date	Energy Loss (MU)	Reason
13-May-19	0.133	1. U#1 (17:56 Hrs. - 19:09 Hrs.) Under Outage Due To Tripping Of Line-1 & 2 At Delina End (0.133 Mu) Transmission Constraints
26-May-19	0.128	1. U#1 {(17:50 Hrs - 18:35 Hrs) Under Outage Due To Transmission Constraints 4. U#3 (17:50 Hrs - 18:35 Hrs) Transmission Constraints
Total (May-19)	0.261	
10-Jun-19	0.209	4.U# 1 & 2 (23:03 Hrs-Nr)Under Outage Due To Transmission Constraint.
11-Jun-19	0.323	1.U#1 (23:03 Hrs;10 Jun 2019 - 01:45 Hrs) Under Outage Due To Transmission Constraint. 3. U#2(23:03 Hrs ;10 Jun 2019 - 01:11 Hrs) Under Outage Due To Transmission Constraint.
5-Jun-19	0.352	1. {U#1 (12:02 Hrs. - 14:00 Hrs.) & U#2 (12:02 Hrs. - 13:16 Hrs.)} Under Outage Due To Line Constraints 2. {Kishanganga-Delina Line-1 (12:02 Hrs. - 13:16 Hrs.) & Kishanganga-Delina Line-2 (12:02 Hrs. - 13:17 Hrs.)} Under Outage Due To Tripping Of Line Circuit Breaker.
15-Jun-19	0.501	1. {U#1 (14:07 Hrs - 16:04 Hrs) & U#2 (14:07 Hrs - 16:43 Hrs)} Under Outage Due To Transmission Constraints. 3. Line#1 (14:07 Hrs - 14:54 Hrs) Tripped At Delina End (Cb Did Not Open At Kishanganga End). 4. Line#2 (14:07 Hrs - 15:12 Hrs) Tripped At Delina End (Cb Opened At Kishanganga End)
17-Jun-19	0.68	1. U#1 {(16:30 Hrs - 18:05 Hrs), U#2 (16:30 Hrs - 18:27 Hrs) & U#3 (16:30 Hrs - 19:09 Hrs)} Under Outage Due To Tripping Of Both The Lines (Delina-I & Delina-II) Transmission Constraints.. 2. Line#1 & Line#2 (16:30 Hrs - 18:00 Hrs) Under Outage Due To Grid Disturbance And Non-Availability Of Grid Voltage At Kishanganga End From Delina Sub-Station (No Line Breakers Were Tripped At Kishanganga End).
20-Jun-19	0.22	1. U#1 & U#2 (16:41 Hrs - 17:41 Hrs) Under Outage Due To Tripping Of Both The Lines (Transmission Constraints). 2. Line#1 (16:41 Hrs - 17:41 Hrs) Under Outage As Line Discharged From Delina End & Line#2 (16:41 Hrs - 18:37 Hrs) Under Outage Due To Dpr Operated In Zone-1.
21-Jun-19	0.385	1. {U#1 (15:16 Hrs - 17:01 Hrs), U#2 (15:16 Hrs - 16:40 Hrs) & U#3 (15:16 Hrs - 15:37 Hrs)} Under Outage Due To Tripping Of Both The Lines (Transmission Constraints). 3. Line#1 & Line#2 (15:16 Hrs - 15:37 Hrs) Under Outage As Line Tripped From Delina End (Cb Opened At Delina End).
25-Jun-19	0.655	4. {U#1(19:11 Hrs. - 20:49 Hrs.), U#2 (19:11 Hrs. - 21:13 Hrs.) & U#3 (19:11 Hrs. - 21:28 Hrs.)} Under Outage Due To Overspeed Relay Operated (Line Constraints). 5. Line-1 (19:11 Hrs. - 20:06 Hrs.) Under Outage Due To Breaker Tripped At Delina End. 6. Line#2 (19:11 Hrs. - 20:06 Hrs.) Under Outage Due To Breaker Tripped At Kishanganga End (Grid Disturbance).
27-Jun-19	0.249	2.U#2{(17:21 Hrs- 19:13 Hrs) & (20:26 Hrs-22:42 Hrs)} Under Outage Due To Transmission Constraint.
29-Jun-19	2.282	1.{U#1(09:45 Hrs-16:16 Hrs) & U#2(09:45 Hrs-15:57 Hrs)} Under Outage Due To S/D Taken By Pgcil To Rectify Clearance Between Tower No-60 To 61.2.{U#1(21:21 Hrs-23:47 Hrs) & U#2(21:21 Hrs-23:19 Hrs)} Under Outage Due To Over Speed Relay Operated (Transmission Constraints).
Total (June-19)	5.856	
Grand Total	9.588	

Annexure-XI

S. NO.	Element Name	Outage Date	Outage Time	Reason/Remarks
1	220kV Delina(JK)-Kishanganga HEP(NHPC) ckt-1	5-Jun-19	12.02	Tripped from Delina(JK) end. As per PMU, No fault observed.
		10-Jun-19	23.05	Tripped from Delina(JK) end. As per PMU, R-Y fault is observed.
		15-Jun-19	14.07	R-Y fault,15.54km from Kishanganga(NHPC) end. As per PMU, R-Y fault is observed.
		17-Jun-19	16.30	Due to tripping of 220kV Delina(JK)-Zainkote(JK) and Delina(JK)-Amargarh(NRSS29) line. As per PMU, No fault observed.
		20-Jun-19	15.41	Tripped alongwith tripping of 220 kV Delina(JK)-Kishanganga(NHPC) ckt-2. As per PMU, R-Y fault is observed.
		25-Jun-19	19.11	Details awaited. As per PMU, R-Y fault is observed.
		27-Jun-19	17.21	Tripped from Delina end only due to pole discrepancy in 220kV Delina(JK)-Zainkote(JK). As per PMU, No fault observed.
		27-Jun-19	20.26	Tripped from Delina end only due to problem in relay setting at Delina(JK) end. As per PMU, R-Y fault is observed.
2	220kV Delina(JK)-Kishanganga HEP(NHPC) ckt-2	5-Jun-19	12.02	Tripped from Delina(JK) end. As per PMU, No fault observed.
		10-Jun-19	23.05	R-Y fault,15.7km from Kishanganga(NHPC) end. As per PMU, R-Y fault is observed.
		15-Jun-19	14.07	R-Y fault,15.54km from Kishanganga(NHPC) end. As per PMU, R-Y fault is observed.
		17-Jun-19	16.30	Due to tripping of 220kV Delina(JK)-Zainkote(JK) and Delina(JK)-Amargarh(NRSS29) line. As per PMU, No fault observed.
		20-Jun-19	15.41	R-Y fault,15.45km from Kishanganga(NHPC) end. As per PMU, R-Y fault is observed.
		25-Jun-19	19.11	Details awaited. As per PMU, R-Y fault is observed.
		27-Jun-19	17.21	Tripped from Delina end only due to pole discrepancy in 220kV Delina(JK)-Zainkote(JK). As per PMU, No fault observed.
		27-Jun-19	20.26	R-Y fault,15.7km from Kishanganga(NHPC) end. As per PMU, R-Y fault is observed.
3	220kV Kishenpur(PG)-Ramban(JK)	1-Jun-19	15.37	B-N fault ,11.25Km from Ramban(JK) end. As per PMU, B-N fault occurred, no auto-reclosing observed.
		3-Jun-19	17.05	B-N fault ,8Km from Ramban(JK) end. As per PMU, B-N fault occurred, no auto-reclosing observed.
		11-Jun-19	5.04	R-N fault ,1.125Km from Ramban(JK) end. As per PMU, R-N fault occurred, no auto-reclosing observed.
		18-Jun-19	21.11	R-N fault ,1.46Km from Ramban(JK) end. As per PMU, R-N fault occurred, no auto-reclosing observed.
		27-Jun-19	20.10	R-N fault,58.9km from Kishenpur(PG) end.As per PMU, No fault observed.
4	400kV Agra(UP)-Unnao(UP)	6-Jun-19	16.46	Y-B fault, 116.8Km from Unnao(UP) end. As per PMU, Y-B fault is observed.
		19-Jun-19	7.02	B-N fault, 174.6Km from Unnao(UP) end. As per PMU, B-N fault occurred, no auto-reclosing observed.
		21-Jun-19	1.23	B-N fault, 76Km from Unnao(UP) end. As per PMU, B-N fault occurred, no auto-reclosing observed.
		28-Jun-19	1.37	Y-N fault, 61.5Km from Unnao(UP) end. As per PMU, Y-N fault occurred, no auto-reclosing observed.
5	400kV Azamgarh(UP)-Gorakhpur(UP)	15-Jun-19	22.44	B-ph CT of 400kV Azamgarh(UP)-Gorakhpur(UP) blasted at Azamgarh(UP) end. As per PMU, B-N fault occurred, no auto-reclosing observed.
		21-Jun-19	3.59	B-N fault, 61.9km from Gorakhpur(UP) end. As per PMU, No fault observed.
		21-Jun-19	5.07	B-N fault. As per PMU, B-N fault occurred, no auto-reclosing observed.
		22-Jun-19	0.31	R-N fault, 60km from Gorakhpur(UP) end. As per PMU, R-N fault occurred, no auto-reclosing observed.
6	400kV Rewa Road(UP)-Banda(UP) ckt-1	16-Jun-19	15.13	DT received at Banda(UP) end. As per PMU, R-N fault occurred, no auto-reclosing observed.
		24-Jun-19	16.55	Tripped from Banda(UP) end only. As per PMU, R-N fault occurred, no auto-reclosing observed.
		25-Jun-19	15.16	R-N fault, 147.26Km from Banda(UP) end. As per PMU, R-N fault occurred, successful autorecloing is observed.
7	400kV Alwar(Raj)-Hindaun(Raj)	12-Jun-19	17.05	R-N fault. As per PMU, R-N fault occurred, no auto-reclosing observed.
		24-Jun-19	17.34	Y-N fault, 46.80km from Alwar(Raj) end. As per PMU, Y-N fault and unsuccessful auto-reclosing observed.
		26-Jun-19	13.46	R-N fault. As per PMU, R-N fault occurred, no auto-reclosing observed.
8	220kV Amargarh(NRSS29)-Delina(JK) ckt-1	21-Jun-19	15.12	Phase to earth fault. As per PMU, No fault observed.
		25-Jun-19	19.11	Details awaited. As per PMU, R-Y fault is observed.

Annexure-XI

S. NO.	Element Name	Outage Date	Outage Time	Reason/Remarks
	Delina(UP) ckt-1	29-Jun-19	21.23	Y-B fault, 16.73km from Delina(UK) end. As per PMU, Y-B fault is observed.
9	400kV Banda(UP)-Orai(UP) ckt-2	13-Jun-19	14.10	B-N fault, 77.5km from Banda(UP) end. As per PMU, multiple B-N faults are observed.
		16-Jun-19	15.14	R-N fault, 30.5km from Orai(UP) end. As per PMU, multiple R-N faults are observed.
		26-Jun-19	16.33	R-N fault. As per PMU, No fault observed.
10	400kV Bhadla(RRVPNL)- Bikaner(RRVPNL) ckt-2	1-Jun-19	16.24	Y-N fault, 35.01Km from Bikaner(Raj) end. As per PMU, B-N fault occurred, no auto-reclosing observed.
		3-Jun-19	16.53	Y-N fault, 35Km from Bikaner(Raj) end. As per PMU, B-N fault occurred, no auto-reclosing observed.
		18-Jun-19	18.07	R-B fault, 125.7 km from Bhadla(Raj) end. As per PMU, R-N fault followed by Y-N fault is observed.
11	400kV Bhiwadi(PG)-Hisar(PG)	12-Jun-19	18.03	Phase to earth fault. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
		22-Jun-19	10.16	Tripped due R-ph CVT and wave trap of Kaithal-Hisar line#2 blasted at Hisar(PG). As per PMU, R-Y fault is observed.
		28-Jun-19	10.35	B-N fault, 69km from Bhiwadi(PG) end. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
12	765kV G.Noida(UP)-Mainpuri(UP)	6-Jun-19	16.59	R-N fault. As per PMU, R-N fault occurred, no auto-reclosing observed.
		10-Jun-19	11.54	B-N fault, 117.6 km from Mainpuri(UP) end. As per PMU, B-N fault occurred, no auto-reclosing observed.
		11-Jun-19	3.37	B-N fault, 53.7 Km from G.Noida(UP) end. As per PMU, Y-N fault occurred, no auto-reclosing observed.
13	400kV Koldam(NTPC)- Ludhiana(PG) ckt-2	12-Jun-19	19.13	R-N fault, 151km from Ludhiana(PG) end. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
		17-Jun-19	18.10	R-Y fault, 150km from Koldam(NTPC) end. As per PMU, B-N fault followed by R-Y fault is observed.
		30-Jun-19	9.40	Y-B fault, 152km from Koldam(NTPC) end. As per PMU, Y-B fault is observed.

Multiple element tripping for the month of June-2019

S. No.	Region	Name of Elements (Tripped/Manually opened)	Owner/ Agency	Outage		Event (As reported)	Generation Loss(MW)	Load Loss (MW)	Category as per CEA Grid Standards	Energy Unreserved (in MU)	Preliminary Report receipt status			DR/EL receipt status			Detailed Report receipt		Fault Clearance time	
				Date	Time						within 24hrs	after 24hrs	Not Received	within 24hrs	after 24hrs	Not Received	Received	Not Received		
1	NR	1) 220kV AD Hydro(ADHY)-Phojal(HP) 2) 220kV Chhaur(MALN2)-Phojal(HP) 3) 220kV Chhaur(MALN2)-Nalagarh(PG) 4) 50MW Unit#1 at Malana2 5) 50MW Unit#2 at Malana2	AD Hydro, HP & Malana2	1-Jun-19	19:01	220kV Chhaur(MALN2)-Nalagarh(PG) tripped on Y-N fault, 69.2Km from Chhaur(MALN2) end. At the same time, 220kV Chhaur(MALN2)-Phojal(HP) & 220kV AD Hydro(ADHY)-Phojal(HP) also tripped on Y-N fault. Two units of 50MW at Malana2 tripped due to tripping of 220kV lines. As per PMU, Y-N fault with no auto-reclosing is observed. In antecedent conditions, 220kV AD Hydro(ADHY)-Phojal(HP) & 220kV Chhaur(MALN2)-Phojal(HP) carrying 52MW & 92MW respectively.	98		GD-1			Y (Malana2)		Y (AD Hydro), Y(HP)			Y (AD Hydro), Y(HP), Y (Malana2)	Y(Malana2)	80ms	
2	NR	1) 220kV AD Hydro(ADHY)-Nalagrah(PG) 2) 220kV Nalagarh(PG)-Nangal(HP) ckt-1 3) 220kV Nalagarh(PG)-Nangal(HP) ckt-2	POWERGRID, HP & AD Hydro	1-Jun-19	22:07	220kV Nalagarh(PG)-Nangal(HP) ckt-1 & 2 tripped on R-N fault, whereas 220kV AD Hydro(ADHY)-Nalagrah(PG) tripped due to relay mal function at AD Hydro. As per PMU, R-N fault with no auto-reclosing is observed. In antecedent conditions, 220kV Nalagarh(PG)-Nangal(HP) ckt-1 & 2 carrying 131MW each.		260	GD-1	0.18				Y(AD Hydro), Y(HP), Y(PG)			Y(AD Hydro), Y(HP), Y(PG)	Y(PG)	80ms	
3	NR	1) 765kV Anpara C(UP) - Anpara D(UP) 2) 765kV Anpara C(UP)-Unnao(UP)	UP	2-Jun-19	19:24	765kV Anpara C(UP)-Unnao(UP) tripped on R-Y fault due to high winds in the area. At the same time, 765kV Anpara C(UP) - Anpara D(UP) also tripped. As per PMU, B-N fault followed by Y-N fault is observed. In antecedent conditions, 765kV Anpara C(UP) - Anpara D(UP) & 765kV Anpara C(UP)-Unnao(UP) carrying 623MW & 1096MW respectively.			GI-2				Y(UP)			Y(UP)		Y(UP)	80ms & 80ms	
4	NR	1) 315MVA ICT 1 at 400/220kV Obrá TPS(UP) 2) 315MVA ICT 2 at 400/220kV Obrá TPS(UP) 3) 240MVA ICT 3 at 400/220kV Obrá TPS(UP)	UP	2-Jun-19	20:00	315MVA ICT 1 & ICT 2 at 400/220kV Obrá TPS(UP) tripped due to heavy rain. From SCADA data, it seems that 240MVA ICT 3 also tripped on overload after 1min. As per PMU, No fault is observed in the system. In antecedent conditions, 315MVA ICT 1 & ICT 2 carrying 112MW & 108MW respectively.			GI-2					Y(UP)			Y(UP)	Y(UP)	NA	
5	NR	1) 220kV Faridabad(NTPC)-Palla(HVPLN) ckt-1 2) 220kV Faridabad(NTPC)-Palla(HVPLN) ckt-2 3) 220kV Palla(HVPLN)-Palli(HVPLN) ckt-1 4) 220kV Palla(HVPLN)-Palli(HVPLN) ckt-2 5) 220/66kV ICT 1,2& 3 at 220kV Palla(HVPLN)	Haryana & NTPC	3-Jun-19	1:38	Blast in Y-Phase CT (HV Side) of transformer T-7 (3rd ICT) (220/66kV) occurred which in turn lead to the operation of Bus-Bar protection at Palla substation. As per PMU, multiple Y-N faults is observed in the system. In antecedent conditions, 220kV Palla(HVPLN)-Palli(HVPLN) ckt-1 & 2 carrying 32MW each and 220kV Faridabad(NTPC)-Palla(HVPLN) ckt-1 & 2 carrying 45MW each.		100	GD-1	0.11				Y(Har), Y(NTPC)			Y(Har), Y(NTPC)	Y(Har)	80ms	
6	NR	1) 132kV Hiranagar(JK)-Sewa II(NHPC) ckt-1 2) 132kV Hiranagar(JK)-Sewa II(NHPC) ckt-2	J&K, NHPC & POWERGRID	3-Jun-19	21:09	132kV Hiranagar-Sewa II ckt-1 tripped on R-N fault, 62.43km from Sewa-II end. At the same time, 132kV Hiranagar-Sewa II ckt-2 tripped on R-N fault, 63.45km from Sewa-II end. As per PMU, R-N fault with no autoreclosing is observed. In antecedent conditions, 132kV Hiranagar-Sewa II ckt-1 & 2 carrying 32MW each.			GI-2					Y(JK), Y(NHPC), Y(PG)			Y(JK), Y(NHPC), Y(PG)	Y(PG)	80ms	
7	NR	1) 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 2) 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 3) 110MW Unit#1 at 220kV Kishanganga(NHPC) 4) 110MW Unit#2 at 220kV Kishanganga(NHPC)	NHPC, J&K & POWERGRID	5-Jun-19	12:02	220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 tripped from Kishanganga end only and 110MW Unit#1 & #2 tripped due to loss of evacuation path. As per PMU, No fault is observed. In antecedent conditions, Unit#1 & #2 at 220kV Kishanganga(NHPC) generating around 99MW & 57MW respectively.	155		GD-1			Y(NHPC)		Y(JK), Y(PG)			Y(JK), Y(PG), Y(NHPC)	Y(NHPC)	NA	
8	NR	1) 220kV Nawada(HVPLN)-A5(Faridabad) ckt 1 2) 220kV Nawada(HVPLN)-A5(Faridabad) ckt 2 3) 315 MVA ICT-1 at 400/220kV Nawada(HVPLN) 4) 315 MVA ICT-2 at 400/220kV Nawada(HVPLN)	Haryana	7-Jun-19	15:19	While charging 220kV side of ICT-3(newly commissioned) falsely LBB initiated of the breaker which leads to tripping of 220kV feeders along with ICT-1 & 2 on bus-bar protection. As per PMU, Rise in voltage of all three phases is observed. In antecedent conditions, 315 MVA ICT-1 & ICT-2 carrying 179MW & 146MW respectively.		260	GD-1	0.03			Y(Har)				Y(Har)	Y(Har)	NA	
9	NR	1) 220kV Sitarganj(PG)-CB Ganj(UP) 2) 220kV Sitarganj(PG)-Tanakpur(NHPC)	UP, PTCUL, NHPC & POWERGRID	7-Jun-19	15:20	220kV Sitarganj(PG)-CB Ganj(UP) and 220kV Sitarganj(PG)-Tanakpur(NHPC) tripped on Y-N fault. 220kV Sitarganj(PG)-CB Ganj(UP) tripped due to fault in CBGanj(UP)-Badaun(UP) line on Zone-2. As per PMU, Y-N fault with delayed clearance is observed. In antecedent conditions, 220kV Sitarganj(PG)-Tanakpur(NHPC) carrying 110MW.	35		GD-1	0.03		Y(NHPC)		Y(UP), Y(PTCUL), Y(PG)	Y(NHPC)		Y(UP), Y(PTCUL), Y(PG)	Y(PG), Y(UP)	440ms	
10	NR	1) 100MVA ICT 1 at 220/33kV Masjid Moth(DTL) 2) 100MVA ICT 2 at 220/33kV Masjid Moth(DTL) 3) 100MVA ICT 3 at 220/33kV Masjid Moth(DTL)	Delhi	7-Jun-19	16:28	Y phase bushing of 100MVA ICT 2 busted leads to tripping of multiple elements on Over current protection. As per PMU, Voltage dip in all three phases with delayed clearance is observed. As informed by DTL, total antecedent drawal at 220/33kV Masjid Moth(DTL) was around 220MW and load is being met from other sources till the charging of ICTs at 220/33kV Masjid Moth(DTL).		220	GD-1	0.07			Y(Del)				Y(Del)	Y(Del)	1360ms	
11	NR	1) 400kV Lucknow(PG)-Sultanpur(UP) 2) 400kV Anpara(UP)-Obrá(UP)-Sultanpur(UP) 3) 400kV Tanda(NTPC)-Sultanpur(UP) 4) 315 MVA ICT 1 at 400/220kV Sultanpur(UP) 5) 240 MVA ICT 2 at 400/220kV Sultanpur(UP) 6) 315 MVA ICT 3 at 400/220kV Sultanpur(UP)	UP, NTPC & POWERGRID	9-Jun-19	22:55	Bus-Bar protection operated at Sultanpur(UP) due to B-phase CT blast of 400kV Tanda(NTPC)-Sultanpur(UP). As per PMU, B-N fault followed by Y-N fault and R-N fault is observed. In antecedent conditions, 315 MVA ICT 1, 240 MVA ICT 2 & 315 MVA ICT 3 carrying 183MW, 134MW & 187MW respectively.		60	GD-1	0.05			Y(UP)		Y(NTPC), Y(PG)		Y(UP)	Y(NTPC), Y(PG)	Y(UP)	80ms
12	NR	1) 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 2) 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 3) 220kV Delina(JK)-Amargarh(NRSS29) 4) 220kV Delina(JK)-Ziankote(JK) 5) 110MW Unit#1 at 220kV Kishanganga(NHPC) 6) 110MW Unit#2 at 220kV Kishanganga(NHPC)	NHPC, J&K & POWERGRID	10-Jun-19	23:03	220kV Delina(JK)-Kishanganga(NHPC) ckt-2 tripped on R-Y fault, 15.7km from Kishanganga end. At the same time, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 also tripped. 110MW Unit#1 & #2 tripped due to loss of evacuation path. As per PMU, R-Y fault is observed. In antecedent conditions, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 carrying 77MW each.	150	40	GD-1	0.05		Y(NHPC)		Y(JK), Y(PG)	Y(NHPC)			Y(JK), Y(PG)	Y(PG)	80ms

Multiple element tripping for the month of June-2019

S. No.	Region	Name of Elements (Tripped/Manually opened)	Owner/ Agency	Outage		Event (As reported)	Generation Loss(MW)	Load Loss (MW)	Category as per CEA Grid Standards	Energy Unreserved (in MU)	Preliminary Report receipt status			DR/EL receipt status			Detailed Report receipt		Fault Clearance time
				Date	Time						within 24hrs	after 24hrs	Not Received	within 24hrs	after 24hrs	Not Received	Received	Not Received	
13	NR	1) 400kV Alaknanda HEP(UP)-Srinagar(UTT) ckt-2 2) 400kV Alaknanda HEP(UP)-Vishnuprayag ckt-2 3) 400kV Bus 1 at 400kV Alaknanda HEP(UP) 4) 82.5MW Unit#1 at 400kV Alaknanda HEP(UP) 5) 82.5MW Unit#2 at 400kV Alaknanda HEP(UP) 6) 82.5MW Unit#3 at 400kV Alaknanda HEP(UP) 7) 82.5MW Unit#4 at 400kV Alaknanda HEP(UP)	UP, PTCUL	11-Jun-19	18:42	400kV Alaknanda HEP(UP)-Srinagar(UTT) ckt-2 & 400kV Alaknanda HEP(UP)-Vishnuprayag ckt-2 tripped due to DC malfunction. At the same time, 400kV Bus 1 & all units also tripped. As per PMU, voltage dip in all three phases is observed. In antecedent conditions, Unit#1,2,3&4 generating 77MW each.	300		GD-1				Y(UP), Y(PTCUL)			Y(UP), Y(PTCUL)	Y(UP)	NA	
14	NR	1) 315MVA ICT 1 at 400/220kV Obra TPS(UP) 2) 315MVA ICT 2 at 400/220kV Obra TPS(UP) 3) 240MVA ICT 3 at 400/220kV Obra TPS(UP)	UP	11-Jun-19	19:50	315MVA ICT 1, 315MVA ICT 2 & 240MVA ICT 3 at 400/220kV Obra TPS(UP) tripped due to B-phase CT blast at 220kV side of ICT-3. As per PMU, No fault is observed in the system. In antecedent conditions, 315MVA ICT 1, 315MVA ICT 2 & 240MVA ICT 3 carrying 140MW, 135MW & 104MW respectively.		340	GD-1	0.96		Y(UP)			Y(UP)		Y(UP)	NA	
15	NR	1) 400kV Balia(PG)-Patna(PG) ckt-1 2) 400kV Balia(PG)-Patna(PG) ckt-4 3) 400 kV Bus 1 at Balia(PG)	POWERGRID	12-Jun-19	15:11	400kV Balia(PG)-Patna(PG) ckt-1 tripped on B-N fault, 145.3Km from Balia end. At the same time, 400kV Balia(PG)-Patna(PG) ckt-4 tripped on R-N fault, 103.2Km from Balia end. 400 kV Bus 1 at Balia(PG) tripped as Bus bar protection operated due to fault in Main breaker of 400kV Balia(PG)-Patna(PG) ckt-4. As per PMU, R-N fault & B-N fault is observed. In antecedent conditions, 400kV Balia(PG)-Patna(PG) ckt-1 & 4 carrying 137MW & 156MW respectively.			GI-2			Y(PG)			Y(PG)		Y(PG)	280ms & 80ms	
16	NR	1) 400kV Agra(PG)-Sikar(PG) ckt-1 2) 400kV Agra(PG)-Sikar(PG) ckt-2	POWERGRID	12-Jun-19	17:01	400kV Agra(PG)-Sikar(PG) ckt-1 tripped on Y-N fault, 274km from Agra end. At the same time, 400kV Agra(PG)-Sikar(PG) ckt-2 also tripped on Y-N fault, 248km from Agra end. As per PMU, Y-N fault, Y-B fault & R-N fault is observed. In antecedent conditions, 400kV Agra(PG)-Sikar(PG) ckt-1 & 2 carrying 148MW & 154MW respectively.			GI-2			Y(PG)			Y(PG)		Y(PG)	80ms, 80ms & 120ms.	
17	NR	1) 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 2) 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 3) 110MW Unit#1 at 220kV Kishanganga(NHPC) 4) 110MW Unit#2 at 220kV Kishanganga(NHPC)	NHPC, J&K & POWERGRID	15-Jun-19	14:07	220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 tripped on R-Y fault, 15.54km from Kishanganga end. Unit#1 & #2 at 220kV Kishanganga(NHPC) tripped due to loss of evacuation path. As per PMU, R-Y fault is observed. In antecedent conditions, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 carrying 74MW each.	150		GD-1			Y(NHPC)	Y(JK), Y(PG)		Y(NHPC)	Y(JK), Y(PG)	Y(PG)	80ms	
18	NR	1) 400 kV Bus 1 at 400/220kV Banda(UP) 2) 400kV Banda(UP)-Rewa Road(UP) ckt-1 3) 400kV Banda(UP)-Rewa Road(UP) ckt-2 4) 400kV Banda(UP)-Orai(UP) ckt-2 5) 400kV Orai(UP)-Orai 765kV(PG) ckt-2	UP	16-Jun-19	15:13	400kV Banda(UP)-Rewa Road(UP) ckt-2 tripped on R-N fault. 400 kV Bus 1, 400kV Banda(UP)-Rewa Road(UP) ckt-1 & 400kV Banda(UP)-Orai(UP) ckt-2 also tripped. At the same time, 400kV Orai(UP)-Orai 765kV(PG) ckt-2 tripped on R-N fault, 31.2km from Orai(PG) end. As per PMU, two R-N faults are observed in the system. In antecedent conditions, 400kV Banda(UP)-Rewa Road(UP) ckt-1 & 400kV Banda(UP)-Orai(UP) ckt-2 carrying 25MW & 58MW respectively.			GI-2			Y(UP)			Y(UP)		Y(UP)	80ms & 80ms	
19	NR	1) 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 2) 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 3) 220kV Delina(JK)-Amargarh(NRSS29) 4) 220kV Delina(JK)-Ziankote(JK) 5) 110MW Unit#1 at 220kV Kishanganga(NHPC) 6) 110MW Unit#2 at 220kV Kishanganga(NHPC) 6) 110MW Unit#3 at 220kV Kishanganga(NHPC)	NHPC, J&K & POWERGRID	17-Jun-19	16:30	220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 tripped due to tripping of 220kV Delina(JK)-Amargarh(NRSS29) & 220kV Delina(JK)-Ziankote(JK). Unit#1, #2 & #3 at 220kV Kishanganga(NHPC) tripped due to loss of evacuation path. As per PMU, No fault is observed in the system. In antecedent conditions, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 carrying 119MW each.	240		GD-1			Y(JK), Y(PG), Y(NHPC)			Y(JK), Y(PG), Y(NHPC)		Y(JK)	NA	
20	NR	1) 800kV HVDC Champa(PG)-Kurukshetra(PG) pole-1 2) 800kV HVDC Champa(PG)-Kurukshetra(PG) pole-2	POWERGRID	17-Jun-19	16:55	800kV HVDC Champa(PG)-Kurukshetra(PG) Pole-I blocked on Common Neutral Protection(CNAP) Operated at Champa(WR) end and 800kV HVDC Champa(PG)-Kurukshetra(PG) Pole-II due to T- zone Protection operated at Champa(WR) end. As per PMU, Fluctuations are observed in phase voltages. In antecedent conditions, 800kV HVDC Champa(PG)-Kurukshetra(PG) bipole carrying 2000MW.			GI-2			Y(PG)			Y(PG)		Y(PG)	NA	
21	NR	1) 400 kV Bus 1 at 400/220kV Gurgaon(PG) 2) 315 MVA ICT 1 400/220kV Gurgaon(PG) 3) 315 MVA ICT 2 400/220kV Gurgaon(PG) 4) 500 MVA ICT 3 400/220kV Gurgaon(PG) 5) 400kV Gurgaon(PG)-Manesar(PG) ckt-1 6) 400kV Gurgaon(PG)-Ballabgarh(PG) 7) 400kV Gurgaon(PG)-Daultabad (HVPNL) ckt-1	POWERGRID & Haryana	17-Jun-19	17:14	400 kV Bus 1 at 400/220kV Gurgaon(PG) tripped due to mal functioning of 220kV DC contactor of Bus 1 resulting in tripping of 400kV Gurgaon(PG)-Manesar(PG) ckt-1, 400kV Gurgaon(PG)-Ballabgarh(PG), 400kV Gurgaon(PG)-Daultabad(HVPNL) ckt-1, 315 MVA ICT 1, ICT2 & 500 MVA ICT 3 at 400/220kV Gurgaon(PG). As per PMU, Fluctuations are observed in phase voltages. In antecedent conditions, 315 MVA ICT 1, 315 MVA ICT 2 & 500 MVA ICT 3 carrying 161MW, 149MW & 255MW respectively.	550		GD-1	0.38		Y(PG)	Y(Har)		Y(PG)	Y(Har)	Y(PG)	NA	
22	NR	1) 315 MVA ICT 1 at 400/220kV Mathura(UP) 2) 315 MVA ICT 2 at 400/220kV Mathura(UP) 3) 80 MVAR Bus Reactor 1 at 400/220kV Mathura(UP) 4) 400kV Bus 2 at 400/220kV Mathura(UP)	UP	18-Jun-19	16:03	315 MVA ICT 1, ICT 2, 400kV Bus 1 & 80 MVAR Bus Reactor 1 at 400/220kV Mathura(UP) tripped due to fault in D. C. system (Aux supply). As per PMU, No fault is observed in the system. In antecedent conditions, 15 MVA ICT 1 & ICT 2 carrying 108MW & 109MW respectively.	50		GD-1	0.17		Y(UP)			Y(UP)		Y(UP)	NA	
23	NR	1) 60MW Unit#1 at 400kV Uri-II(NHPC) 2) 60MW Unit#2 at 400kV Uri-II(NHPC) 3) 60MW Unit#3 at 400kV Uri-II(NHPC) 4) 60MW Unit#4 at 400kV Uri-II(NHPC)	NHPC & J&K	20-Jun-19	16:35	All running 04(four) units at URI-2 HEP tripped due to fault in 11kV auxiliary supply (Unit Power controller hang due inverter supply failure) leading to generation loss of around 240MW. As per PMU, No fault is observed in the system. In antecedent conditions, all four units at URI-2 HEP generating 60MW each.	240		GD-1			Y(NHPC), Y(JK)			Y(NHPC), Y(JK)		Y(NHPC)	NA	

Multiple element tripping for the month of June-2019

S. No.	Region	Name of Elements (Tripped/Manually opened)	Owner/ Agency	Outage		Event (As reported)	Generation Loss(MW)	Load Loss (MW)	Category as per CEA Grid Standards	Energy Unreserved (in MU)	Preliminary Report receipt status			DR/EL receipt status			Detailed Report receipt		Fault Clearance time
				Date	Time						within 24hrs	after 24hrs	Not Received	within 24hrs	after 24hrs	Not Received	Received	Not Received	
24	NR	1) 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 2) 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 3) 110MW Unit#1 at 220kV Kishanganga(NHPC) 4) 110MW Unit#2 at 220kV Kishanganga(NHPC)	NHPC, J&K & POWERGRID	20-Jun-19	16:41	220kV Delina(JK)-Kishanganga(NHPC) ckt-2 tripped due to R-Y fault, 15.45km from Kishanganga end. At the same time, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 also tripped. Unit#1 & #2 at 220kV Kishanganga(NHPC) tripped due to loss of evacuation path. As per PMU, R-Y fault is observed in the system. In antecedent conditions, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 carrying 96MW each.	200		GD-1			Y(NHPC)	Y(JK), Y(PG)	Y(NHPC)	Y(JK), Y(PG)		Y(PG)	80ms	
25	NR	1) 400kV Hisar(PG)-Kaithal(PG) ckt-1 & 2 2) 400kV Hisar(PG)-Fatehabad(PG) 3) 400kV Hisar(PG)-Bhiwani(BBMB) 4) 400kV Hisar(PG)-Moga(PG) ckt-1, 2 & 3 5) 400kV Hisar(PG)-Bhiwadi(PG) ckt-1, 2 & 3 6) 400kV Hisar(PG)-Bhiwani(PG) ckt-1, 2 & 3 7) 315MVA ICT-1, 2 & 3 at 400/220 kV Hisar (PG)	POWERGRID & BBMB	22-Jun-19	10:16	R-Ph CVT and wave trap of Kaithal- Hisar line#2 blasted at Hisar(PG) substation leading to tripping of all other lines from other end. At the same time, 315 MVA ICT-1, II & III at 400/220kV Hisar(PG) also tripped. As per PMU, R-N fault followed by Y-N fault is observed. In antecedent conditions, 315 MVA ICT-1, II & III carrying 115MW, 116MW & 105MW respectively.		90	GD-1	0.09	Y(PG)	Y(BBMB)	Y(PG)	Y(BBMB)		Y(PG)	560ms & 80ms		
26	NR	1) 400kV Singrauli(NTPC)-Vindhachal BtB(PG) ckt-2 2) 400kV Rihand(NTPC)-Singrauli(NTPC) ckt-2 3) 200MW Unit#5 at 400/220kV Singrauli(NTPC)	NTPC & POWERGRID	22-Jun-19	11:57	400kV Rihand(NTPC)-Singrauli(NTPC) ckt-2 tripped due to R-N fault, 43km from Rihand(NTPC) end (LA blast at Singrauli end). At the same time, 400kV Singrauli(NTPC)-Vindhachal BtB(PG) ckt-2 also tripped on R-N fault, 24.05km from Vindhachal end. As per PMU, Multiple R-N faults are observed in the system. In antecedent conditions, 400kV Singrauli(NTPC)-Vindhachal BtB(PG) ckt-2 & 400kV Rihand(NTPC)-Singrauli(NTPC) ckt-2 carrying 268MW & 155MW respectively. Unit#5 generating 168MW.	170		GD-1			Y(NTPC), Y(PG)		Y(NTPC), Y(PG)		Y(NTPC), Y(PG)	80ms & 120ms		
27	NR	1) 220kV Pappankalan-I(DTL)-Pappankalan-III(DTL) 2) 220kV Pappankalan-I(DTL)-Naraina(DTL) 3) 220kV Bus coupler at Pappankalan-I(DTL) 3) 220kV Bus coupler at Naraina(DTL)	Delhi	23-Jun-19	13:51	Tripping of 220kV Pappankalan-I(DTL)-Pappankalan-III(DTL) and Bus coupler at Pappankalan-I(DTL) & Naraina(DTL) led to supply fail at Naraina(Bus-II), Pappankalan-I(Bus-I), Ridge valley and Trauma Centre. In antecedent conditions, 100MVA ICT 1,2 & 3 at 220kV Naraina(DTL) carrying 49MW, 46MW & 48MW respectively and 160MVA ICT 3 at 220kV Pappankalan-I(DTL) carrying 78MW.		250	GD-1	0.03	Y(Del)		Y(Del)			Y(Del)	NA		
28	NR	1) 220kV Bus I & II at 400/220 kV Bareilly(UP) 2) 315MVA ICT-I, II & III at 400/220 kV Bareilly(UP) 3) 220kV Bareilly(UP)-Dohna(UP) ckt-1 & 2 4) 220kV Bareilly(UP)-CB Ganj(UP) ckt-1 & 2 5) 220kV Bareilly(UP)-Pantnagar(PTCUL) 6) 220kV Bareilly(UP)-Shahjahanpur (UP) 7) 220kV Bareilly(UP)-Pithoragarh (PTCUL) 8) 220kV Bareilly(UP)-Piibhit (UP) ckt-1 & 2 9) 220kV Bareilly(UP)-Dhauliganga (NHPC) 10) 220kV Dhauliganga (NHPC)-Pithoragarh(PG) 11) 70MW Unit-1,2 & 3 at 220 kV Dhauliganga (NHPC)	UP, PTCUL & POWERGRID	24-Jun-19	10:31	due to damage of wave trap of 220kV Bareilly(UP)-CB Ganj(UP) ckt-2 at Bareilly(UP), all 220 kV lines and 315 MVA ICT-I,II & III tripped. At the same time, both 220kV Bareilly(UP)-Dhauliganga(Utt) and 220 kV Dhauliganga(Utt)-Pithoragarh(Utt) tripped and three running unit (70*3) at Dhauliganga tripped on loss of Power evacuation path. As per PMU, R-N fault followed by Y-N fault is observed. In antecedent conditions, 315 MVA ICT-I & II carrying 40MW & 39MW respectively.	210	200	GD-1	0.11		Y(UP), Y(PTCUL), Y(PG)		Y(UP), Y(PTCUL), Y(PG)		Y(UP)	1560ms & 760ms		
29	NR	1) 220 kV Badarpur(NTPC)-Alwar(Raj) 2) 220 kV Badarpur(NTPC)-Ballabgarh(BBMB) ckt-1 3) 220 kV Badarpur(NTPC)-Tughlakabad(PG) ckt-1 4) 220 kV Badarpur(NTPC)-Okhla(DTL) ckt-1 5) 220 kV Badarpur(NTPC)-Sarita Vihar(DTL) ckt-2 6) 220kV Bus coupler at Badarpur(NTPC)	NTPC, Delhi, BBMB, Rajasthan & POWERGRID	24-Jun-19	18:26	R-N fault occurred in 220 kV Badarpur(NTPC)-Alwar(Raj), 51.3km from Badarpur end. The tripping from the protection relay was executed but due to non/delayed quenching of arc in the R phase pole of circuit breaker, the current in R phase existed for more than 200ms, which resulted in the LBB trip initiation to BUSBAR-1. As per PMU, R-N fault with delayed clearance is observed. In antecedent conditions, 220 kV Badarpur(NTPC)-Ballabgarh(BBMB) ckt-1, 220 kV Badarpur(NTPC)-Tughlakabad(PG) ckt-1 & 220 kV Badarpur(NTPC)-Okhla(DTL) ckt-1 carrying 18MW, 21MW & 28MW respectively.			GI-2		Y(Del)	Y(NTPC), Y(PG), Y(BBMB), Y(Raj)	Y(Del)	Y(NTPC), Y(PG), Y(BBMB), Y(Raj)	Y(Del)	280ms			
30	NR	1) 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 2) 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 3) 220kV Delina(JK)-Amargarh(NR529) 4) 220kV Delina(JK)-Ziankote(JK) 5) 110MW Unit#1 at 220kV Kishanganga(NHPC) 6) 110MW Unit#2 at 220kV Kishanganga(NHPC) 7) 110MW Unit#3 at 220kV Kishanganga(NHPC)	NHPC, J&K & POWERGRID	25-Jun-19	19:11	220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 tripped due to tripping of 220kV Delina(JK)-Amargarh(NR529)(tripped on overcurrent protection) & 220kV Delina(JK)-Ziankote(JK), Unit#1, #2 & #3 at 220kV Kishanganga(NHPC) tripped due to loss of evacuation path. As per PMU, R-Y fault is observed in the system. In antecedent conditions, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 carrying 156MW each.	330	70	GD-1	0.03		Y(JK), Y(PG), Y(NHPC)		Y(JK), Y(PG), Y(NHPC)		Y(JK)	80ms		
31	NR	1) 220kV Auraiya(NTPC)-Sikandra(UP) ckt-1 2) 220kV Auraiya(NTPC)-Sikandra(UP) ckt-2 3) 220kV Agra(UP)-Sikandra(UP) ckt-1 4) 220kV Agra(UP)-Sikandra(UP) ckt-2 5) 220kV Agra(PG)-Sikandra(UP)	UP, NTPC & POWERGRID	26-Jun-19	14:07	220kV Auraiya(NTPC)-Sikandra(UP) ckt-1 & 2 tripped due to DT received at Sikandra(UP). At the same time, 220kV Agra(UP)-Sikandra(UP) ckt-1 & 2, 220kV Agra(PG)-Sikandra(UP) also tripped. As per PMU, B-N fault is observed. In antecedent conditions, 220kV Auraiya(NTPC)-Sikandra(UP) ckt-1 & 2, 220kV Agra(UP)-Sikandra(UP) ckt-1 & 2, 220kV Agra(PG)-Sikandra(UP) carrying 33MW, 33MW, 58MW, 55MW & 17MW respectively.	60		GD-1	0.24		Y(UP), Y(NTPC), Y(PG)		Y(UP), Y(NTPC), Y(PG)		Y(UP)	160ms		
32	NR	1) 400kV Orai(UP)-Orai 765(PG) ckt-2 2) 400kV Banda(UP)-Orai(UP) ckt-2 3) 400kV Rewa Road(UP)-Banda(UP) ckt-2	UP	26-Jun-19	16:33	400kV Banda(UP)-Orai(UP) ckt-2 tripped on R-N fault. At the same time, 400kV Orai(UP)-Orai 765(PG) ckt-2 & 400kV Rewa Road(UP)-Banda(UP) ckt-2 also tripped. As per PMU, Multiple R-N fault is observed in the system. In antecedent conditions, 400kV Orai(UP)-Orai 765(PG) ckt-2, 400kV Banda(UP)-Orai(UP) ckt-2 & 400kV Rewa Road(UP)-Banda(UP) ckt-2 carrying 297MW, 38MW & 14MW respectively.			GI-2			Y(UP)		Y(UP)		Y(UP)	80ms		
33	NR	1) 400kV Dadri(NTPC)-Panipat(BBMB) ckt-1 2) 400kV Dadri(NTPC)-Panipat(BBMB) ckt-2	POWERGRID, NTPC & BBMB	27-Jun-19	8:23	400kV Dadri(NTPC)-Panipat(BBMB) ckt-1 tripped on B-N fault, 88.19km from Dadri end. At the same time, 400kV Dadri(NTPC)-Panipat(BBMB) ckt-2 also tripped. In antecedent conditions, 400kV Dadri(NTPC)-Panipat(BBMB) ckt-1 & 2 carrying 104MW each.			GI-2			Y(NTPC), Y(PG), Y(BBMB)		Y(NTPC), Y(PG), Y(BBMB)		Y(PG)	NA		

Multiple element tripping for the month of June-2019

S. No.	Region	Name of Elements (Tripped/Manually opened)	Owner/ Agency	Outage		Event (As reported)	Generation Loss(MW)	Load Loss (MW)	Category as per CEA Grid Standards	Energy Unreserved (in MU)	Preliminary Report receipt status			DR/EL receipt status			Detailed Report receipt		Fault Clearance time	
				Date	Time						within 24hrs	after 24hrs	Not Received	within 24hrs	after 24hrs	Not Received	Received	Not Received		
34	NR	1) 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 2) 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 3) 110MW Unit#2 at 220kV Kishanganga(NHPC)	NHPC, J&K & POWERGRID	27-Jun-19	17:21	220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 tripped from Delina end only due to pole discrepancy in Delina-Ziankote line. Unit#2 at 220kV Kishanganga(NHPC) generating 102MW tripped due to loss of evacuation path. As per PMU, No fault is observed. At 2026Hrs, 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 tripped on R-Y fault, 15.7km from kishanganga end. At the same time, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 also tripped from Delina end only due to problem in relay setting at Delina end. As per PMU, R-Y fault is observed in the system. In antecedent conditions, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 carrying 156MW each. Unit#2 at 220kV Kishanganga(NHPC) generating 110MW tripped due to loss of evacuation path.	110		GD-1				Y(NHPC)	Y(JK), Y(PG)		Y(NHPC)	Y(JK), Y(PG)		Y(JK)	NA & 80ms
35	NR	1) 400kV Bawana(DTL)-Mundka(DTL) ckt-2 2) 400kV Jhajar(APCPL)-Mundka(DTL) ckt-1	Delhi & APCPL	27-Jun-19	17:47	400kV Bawana(DTL)-Mundka(DTL) ckt-2 tripped on R-N fault, 48km from Mundka end. At the same time, 400kV Jhajar(APCPL)-Mundka(DTL) ckt-1 also tripped on Phase to earth fault, 50 Km from Jhajar end. As per PMU, R-N fault with no auto-redosing is observed in the system. In antecedent conditions, 400kV Bawana(DTL)-Mundka(DTL) ckt-2 & 400kV Jhajar(APCPL)-Mundka(DTL) ckt-1 carrying 101MW & 87MW respectively.			GI-2					Y(Del), Y(APCPL)		Y(Del), Y(APCPL)		Y(Del)	80ms	
36	NR	1) 315 MVA ICT 1 at 400/220kV Kishenpur(PG) 2) 315 MVA ICT 2 at 400/220kV Kishenpur(PG) 3) 220kV Kishenpur(PG)-Barn(JK) ckt-1 4) 220kV Kishenpur(PG)-Barn(JK) ckt-2	POWERGRID & J&K	28-Jun-19	15:20	220kV Kishenpur(PG)-Barn(JK) ckt-1 & 2 tripped. At the same time, 315 MVA ICT 1 & 2 tripped due to Mal-operation of Back-Up impedance protection relay. As per PMU, R-Y fault followed by B-N fault with delayed clearance is observed. In antecedent conditions, 315 MVA ICT 1 & 315 MVA ICT 2 carrying 107MW each.		220	GD-1	0.05				Y(PG), Y(JK)		Y(PG), Y(JK)		Y(PG)	1000ms & 680ms	
37	NR	1) 220kV Salal(NHPC)-Jammu(JK) ckt-1 2) 220kV Salal(NHPC)-Jammu(JK) ckt-2 3) 115MW Unit#1 at 220kV Salal(NHPC) 4) 115MW Unit#3 at 220kV Salal(NHPC)	NHPC, POWERGRID & J&K	29-Jun-19	16:44	220kV Salal(NHPC)-Jammu(JK) ckt-2 tripped due to Y Phase CT blast at salal end. At the same time, 220kV Salal(NHPC)-Jammu(JK) ckt-1, 115MW Unit#1 & #3 also tripped. As per PMU, three phase fault is observed in the system. In antecedent conditions, 220kV Salal(NHPC)-Jammu(JK) ckt-1 & 2 carrying 153MW & 136MW respectively.	230	290	GD-1	0.40				Y(NHPC), Y(JK), Y(PG)		Y(NHPC), Y(JK), Y(PG)		Y(NHPC)	120ms	
38	NR	1) 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 2) 220kV Delina(JK)-Kishanganga(NHPC) ckt-2 3) 220kV Delina(JK)-Amargarh(NRSS29) 4) 220kV Delina(JK)-Ziankote(JK) 5) 110MW Unit#1 at 220kV Kishanganga(NHPC) 6) 110MW Unit#2 at 220kV Kishanganga(NHPC)	NHPC, J&K & POWERGRID	29-Jun-19	21:21	220kV Delina(JK)-Amargarh(NRSS29) tripped on Y-B fault, 16.73 km from Delina(JK) end. Unit#1 & #2 at 220kV Kishanganga(NHPC) tripped due to loss of evacuation path. As per PMU, Y-B fault is observed in the system. In antecedent conditions, 220kV Delina(JK)-Kishanganga(NHPC) ckt-1 & 2 carrying 107MW each.	220		GD-1					Y(JK), Y(PG), Y(NHPC)		Y(JK), Y(PG), Y(NHPC)		Y(JK)	80ms	
39	NR	1) 400kV Alaknanda HEP(UP)-Srinagar(UTT) ckt-2 2) 400kV Alaknanda HEP(UP)-Vishnuprayag ckt-2 3) 400kV Alaknanda HEP(UP)-Muzaffarnagar(UP) ckt-2 4) 82.5MW Unit#1 at 400kV Alaknanda HEP(UP) 5) 82.5MW Unit#2 at 400kV Alaknanda HEP(UP) 6) 82.5MW Unit#3 at 400 Alaknanda HEP(UP) 6) 82.5MW Unit#4 at 400 Alaknanda HEP(UP)	UP & PTCUL	30-Jun-19	14:59	400kV Alaknanda HEP(UP)-Muzaffarnagar(UP) ckt-2 tripped on Y-N fault, 13.57km from Alakanada end. At the same time, 400kV Alaknanda HEP(UP)-Vishnuprayag ckt-2, 400kV Alaknanda HEP(UP)-Srinagar(UTT) ckt-2 & all units also tripped. As per PMU, Multiple Y-N faults are observed. In antecedent conditions, Unit#1,2,3&4 generating 85MW each.	350		GD-1					Y(UP), Y(PTCUL)		Y(UP), Y(PTCUL)		Y(UP)	80ms	

Inter-Regional tripping for the month of June-2019

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	Restoration		# 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				Date	Time						
1	Vindhyachal HVDC BtB Block 1	POWERGRID	02-Jun-19	19.39	Nil	Due to DC over current protection trip	NA	02-Jun-19	21.29	NA	NO	NO	Sensitive DC overcurrent protection.	Details of tripping yet to be received. Tripping of HVDC BtB on AC system temporary fault. Sensitive DC overcurrent protection to be looked into in view of relay selectivity.	From PMU, AC system fault observed.
2	Vindhyachal HVDC BtB Block 1	POWERGRID	07-Jun-19	16.34	Nil	Due to external disturbance in western system at VSTPP/NTPC HVDC Block 1	NA	07-Jun-19	17.58	NA	NO	NO	Sensitive DC overcurrent protection.	Details of tripping yet to be received. Tripping of HVDC BtB on AC system temporary fault. Sensitive DC overcurrent protection to be looked into in view of relay selectivity.	From PMU, AC system fault observed.
3	400kV Balia(PG)-Patna(PG)-4	POWERGRID	12-Jun-19	15.11	Nil	R-N fault. Fault distance 145.3 km from Balia. CB stuck resulted in LBB protection operation.	GI-2	12-Jun-19	17.14	YES	YES (After 24hrs)	YES (After 24hrs)		As reported by POWERGRID, rectification of the 413 Bay CB (Ballia Patna-4 Line Main Bay) mechanical issue is under progress. The report to be shared after the rectification.	From PMU and details received from NR end, R-N fault observed. CB stuck resulted in LBB operation.
4	400kV Balia(PG)-Patna(PG)-1	POWERGRID	12-Jun-19	15.11	Nil	B-N fault.	GI-2	13-Jun-19	13.50	NO	YES (After 24hrs)	YES (After 24hrs)	Three phase trip observed in DR. No auto-reclosing observed through DR, PMU data.	Auto-reclosing feature of the line to be checked.	From PMU and details received from NR end, B-N fault observed.
5	400kV Balia(PG)-Biharshariff(PG)-1AA	POWERGRID	12-Jun-19	15.24	Nil	Phase to earth fault. Y-N fault. Fault distance 143 km from Balia. Fault current 3.5 kA	NA	12-Jun-19	18.57	NO	YES (After 24hrs)	YES (After 24hrs)			From PMU and details received from NR end, Y-N fault observed with unsuccessful auto-reclosing.
6	400kV Balia(PG)-Biharshariff(PG)-2AA	POWERGRID	12-Jun-19	15.57	Nil	Phase to earth fault. R-N fault. Fault distance 181.03 km from Balia. Fault current 2.96 kA	NA	13-Jun-19	19.47	NO	YES (After 24hrs)	YES (After 24hrs)			From PMU and details received from NR end, R-N fault observed with unsuccessful auto-reclosing.
7	HVDC Champa-Kurukshetra Pole-1 at Champa	POWERGRID	17-Jun-19	16.55	Nil	Due to operation of Pole-1 blocked on Common Neutral Protection (CNAP)	GI-2	17-Jun-19	19.43	NA	YES	YES		Complete details of tripping yet to be received.	From PMU, no AC system fault observed.
8	HVDC Champa-Kurukshetra Pole-2 at Champa	POWERGRID	17-Jun-19	16.55	Nil	T-zone protection operation	GI-2	17-Jun-19	22.09	NA	YES	YES		Complete details of tripping yet to be received.	From PMU, no AC system fault observed.
9	HVDC Champa-Kurukshetra Pole-1 at Champa	POWERGRID	17-Jun-19	21.14	Nil	Tripped During Master request changeover from Champa to Kurukshetra; software problem reported	NA	17-Jun-19	22.05	NA	NO	NO		Details of tripping yet to be received.	From PMU, no AC system fault observed.
10	HVDC Champa-Kurukshetra Pole-2 at Kurukshetra HVDC	POWERGRID	27-Jun-19	15.13	Nil	Malfunction of WTI sensor of converter transformer	NA	27-Jun-19	17.33	NA	YES	YES	Malfunction of WTI sensor.	The temperature sensor along with complete RTD assembly has been replaced with healthy one.	From PMU, no AC system fault observed.

Inter-Regional tripping for the month of June-2019

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	Restoration		# 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				Date	Time						
11	220kV Modak(RRVNPL)-Bhanpura(MPPTCL)	Rajasthan/MP	08-Jun-19	5.44	Nil	Y-B fault, 66km (from Modak end), Line tripped from Bhanpura end only.	NA	08-Jun-19	7.16	NO	YES (After 24hrs)	NO		Complete details of tripping yet to be received. Non tripping of ckt from Modak end to be looked into.	From PMU, Y-B fault observed.
12	Sasaram HVDC BtB	POWERGRID	21-Jun-19	23.03	Nil	Tripped with BIHARSHARIF line.	NA	22-Jun-19	1.13	NA	NO	NO		Details of tripping yet to be received.	From PMU, no AC system fault observed.
13	220kV Auraiya(NTPC)-Mehgaon(MPPTCL)	NTPC/MP	21-Jun-19	5.18	Nil	B-N fault. 69 kms from Auraiya.	NA	21-Jun-19	13.14	NO	NO	NO	As per PMU data, auto-reclosing didn't occur.	Details of tripping yet to be received. Auto-reclosing at Auraiya end to be put in service at the earliest.	From PMU, B-N fault observed without auto-reclosing.
14	765kV Phagi(RRVNPL)-Gwalior(PG)-1	Rajasthan/POWERGRID	30-Jun-19	16.27	Nil	B-N fault. Fault current 1.98 KA , Distance 284.528 Km from phagi end	NA	30-Jun-19	19.17	NO	NO	NO		Details of tripping yet to be received.	From PMU, B-N fault observed followed by Y-N fault.

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