



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

No. NRPC/OPR/1071 7629-667

Date: 10.07.2017

To: Members of Protection Sub-Committee

Subject: Regarding the action taken on the recommendations of the discussions held in Protection Sub-committee meetings.

Sir,

"The Northern Regional Power Committee (Conduct of Business) Rules, 2006", mandates NRPC for conducting Protection Sub-committee meetings to discuss regularly all power system protection related issues. In pursuance of the same, regular Protection Sub-committee meetings are being held by the NRPC Secretariat.

A consolidated list of the tripping concerning to each utility that has been discussed in the **last four (04) Protection Sub-Committee meetings** along with the recommendations of the committee has been prepared and uploaded on the NRPC website <http://www.nrpc.gov.in>.

It is requested that the status of the action taken on the recommendations of the PSC in the tripping discussed may be furnished **within 15 days**. If the recommendations have not been adhered to, the reason for the same may be informed.

Regards,

(Upendra Kumar)
Superintending Engineer (Operation)

Utilitiwise list of trippings discussed in last 04 PSC meetings (30th, 31st, 32nd & 33rd PSC meeting)

1. Incidents pertaining to Adani power

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	32/B1/B	Multiple Element tripping at 400kV Kawai/Chhabra/Kalisindh generation complex	16.01.2016 at 01:29 Hrs	Rajasthan & Kawai	<p>1. RRVUNL needs to review line protection setting at Chhabra station as 400kV Chhabra-Hindaun line tripped in Z-1 during power swing in the line and 400kV Chhabra-Bhilwara line tripped from Chhabra end on DT receipt from remote end. (Action: RRVUNL; Time Frame: 7days)</p> <p>2. Time synchronization of DR/EL of Chhabra, Kalisindh, Hindaun, Bhilwara and Phagi station needs to be reviewed. (Action: RRVUNL, RRVPNL; Time Frame: 7days)</p> <p>3. Availability of time synchronized digital data of Chhabra, Kalisindh, Hindaun, Bhilwara and Phagi station needs to be ensured. (Action: RRVUNL, RRVPNL, Adani; Time Frame: 7days)</p> <p>4. Protection Audit of Chhabra TPS to be carried out by a team of protection expert from RRVPNL and POWERGRID-Kota.</p> <p>5. RRVPNL/Adani may kindly submit the status of SPS implementation to NRPC/NRLDC. (Action: RRVUNL, RRVPNL, Adani; Time Frame: 7days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					15days)		
2.	31/B1/C	Multiple Element tripping at 400kV Kawai /Chhabra/ Kalisindh generation complex	10.07.2015 at 16:26 Hrs	Adani & Rajasthan	<p>1. RRVUNL to review line protection setting at Chhabra station as lines tripped on F4 (frequency protection) trip from Chhabra station. (Action: RRVUNL; Time Frame: 7 days)</p> <p>2. Time synchronization of DR/EL of Chhabra, Kalisindh, Hindaun, Bhilwara and Phagi station needs to be reviewed. (Action: RRVUNL, RRVUNL, APL; Time Frame: 7 days)</p> <p>3. Availability of time synchronized digital data of Chhabra, Kalisindh, Hindaun, Bhilwara and Phagi station needs to be ensured. (Action: RRVUNL, RRVUNL, APL; Time Frame: 7 days)</p> <p>4. RRVUNL may conduct Protection Audit for 400kV Chhabra TPS and submit the report to RPC/RLDC. (Action: RRVUNL, RRVUNL; Time Frame: 15 days)</p> <p>5. RRVUNL/APL to submit the status of SPS implementation to RPC/RLDC. (Action: RRVUNL, RRVUNL, Adani; Time Frame: 7 days)</p> <p>6. RRVUNL and RRVUNL to furnish the details (DR/EL & Preliminary Report) of the tripping within 24hrs of an event and also furnish the detailed report within 15 days of the event.</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
3.	31/B1/H	Multiple element tripping at 400/220kV Dhanonda station and HVDC Mundra-Mohindergarh Bipole	26.07.2015 at 22:26 Hrs	Adani & Haryana	<p>1. HVPNL to submit the detailed report of the tripping along with action taken report. (Action: HVPNL; Time Frame: 15 days)</p> <p>2. Healthiness of Bus Bar Protection Scheme at Dhanonda station to be ensured. (Action: HVPNL; Time Frame: 15 days)</p> <p>3. Reason for tripping of all main and tie CB in case of bus fault of Bus-1 at 400kV Dhanonda station to be investigated. (Action: HVPNL; Time Frame: 15 days)</p> <p>4. Availability of DR/EL of Dhanonda station to be ensured. (Action: HVPNL; Time Frame: 1 months)</p> <p>5. Availability of digital data of 400/220kV Dhanonda station to be ensured. (Action: HVPNL; Time Frame: 1 months)</p> <p>6. HVPNL is continuously violating the IEGC clause 5.2.r & CEA Grid Standard 5.3 as Detailed report, DR/EL has not been received from them in past also.</p> <p>7. Sensitive base filter setting in each HVDC Bipole needs to be checked and revised accordingly. (Action: ATL, POWERGRID, Time Frame: 3 months)</p>		
4.	31/B1/Y	Multiple Element tripping at 400kV Hissar (PG)	14.12.2015 at 16:54 Hrs	Adani Power &	1. Blocking of HVDC Mundra-Mahendergarh Pole-2 within 60ms of		

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		Station & tripping of ±500kV Mundra-Mohindergarh Pole-2		POWERGRID	fault occurrence may be checked and corrected. (Action: Adani Transmission Ltd ; Time Frame: 1 month)		
5.	30/B1/A	Multiple Element tripping at 765kV Anta Station	03.02.2015 at 10:52 Hrs	APL & Rajasthan	<p>1. Healthiness of ABB make REB-500 Bus Bar Protection to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>2. Availability of DR/EL of Anta station & digital data at 764/400kV Anta station to be ensured. (Action:Rajasthan; Time Frame: 1 months)</p> <p>3. Availability of digital data of 400kV Kawai station to be ensured. (Action: APL-Kawai; Time Frame: 1 months)</p>		

2. Incidents pertaining to BBMB

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B11	Multiple element tripping at 220kV Samaypur (BBMB)	06.09.2016 at 19:44 Hrs and 01.10.2016 at 14:38 Hrs	BBMB, DTL, NTPC, Haryana, POWERGRID	<p>1. For 06th Sep 2016:</p> <p>i. Haryana to ensure better grid connectivity for 220kV Faridabad generation so that in case of outage of both the circuit of 220kV Samaypur-Faridabad, stability of Faridabad generation is intact and generation may remain connected with rest of the grid.(Action: Haryana; Time Frame: within 15days)</p> <p>ii. BBMB to take necessary actions (training to the staff) to minimize the human errors and related tripping. (Action: BBMB; Time Frame: within 30days)</p> <p>iii. BBMB to formulate the procedure for commissioning of bus bar and shifting of elements from one bus to other bus and it needs to be rigorously followed.(Action: BBMB; Time Frame: within 15days)</p> <p>iv. Protection co-ordination between 400/220kV Ballabgarh ICTs tripping and 400kV line tripping needs to be checked and corrected. (Action: POWERGRID, DTL, NTPC; Time Frame: within 15days)</p> <p>v. Station event logger should be available at 220kV Samaypur (BBMB).</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>(Action: BBMB; Time Frame: within 45days)</p> <p>vi. Commissioning of new numerical bus bar protection at 220kV Samaypur (BBMB) needs to be expedited. (Action: BBMB; Time Frame: within 30days)</p> <p>vii. DEF protection setting of 400kV G. Noida end of 400kV Dadri-G. Noida line needs to be reviewed and corrected (Action: UPPTCL; Time Frame: within 7days)</p> <p>2. For 1st Oct 2016:</p> <p>i. Provision to be made in the circuit breakers for giving the tripping command before going into the lockout. (Action: POWERGRID; Time Frame: within 30days)</p> <p>ii. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: All the NR constituents; Time Frame: within 45days)</p> <p>3. BBMB to submit the action taken report on recommendation of NRPC committee report for tripping at 220kV Samaypur station on 9th Jun 2016. (Action: BBMB; Time Frame: within One Month)</p> <p>4. Availability of time synchronized digital data to be ensured. (Action: BBMB; Time Frame: 15days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>5. Time Synchronization of DR/EL needs to be looked into. (Action: BBMB; Time Frame: 15days)</p> <p>6. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: <i>All the NR constituents</i>; Time Frame: within 45days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		
2.	33/B11	Complete outage of 400kV Dehar(BBMB) Station	07.09.2016 at 18:55 Hrs	BBMB, Punjab and POWERGRID	<p>1. Non-availability of SCADA-digital/analog status data to be checked and corrected. (Action: BBMB; Time Frame: 7days)</p> <p>2. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p> <p>3. Centralized Event Logger should be available at each station. (Action: All utilities)</p>		
3.	32/B1/D	Multiple element tripping at 400/220kV Bhiwani(BBMB)	22.01.2016 at 21:21 Hrs	BBMB & POWERGRID	<p>1. Non-availability of SCADA-digital / analog status data to be checked and corrected. (Action: BBMB; Time Frame: 7 days)</p> <p>2. POWERGRID may also submit the DR/EL and detailed report of the line tripping. (Action: POWERGRID; Time</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					Frame: 7 days 3. BBMB may kindly expedite the procurement process for new numerical bus bar protection at 400kV Bhiwani (BBMB). (Action: BBMB)		
4.	31/B1/P	Multiple Element tripping at 220kV Ballabgarh (BBMB) station	12.10.2015 at 21:48 Hrs	BBMB, DTL, NTPC & POWERGRID	1. Numerical Bus Bar Protection to be commissioned at 220kV Samaypur(BBMB) station (Action: BBMB ; Time Frame: 30 days) 2. Z-2 setting of 220kV Ballabgarh-Charkhi Dadri line at Charkhi Dadri end to be checked and corrected. (Action: BBMB ; Time Frame: 30 days) 3. Unsuccessful islanding operation of partial load of south Delhi area with Pragati generation needs to be reviewed and remedial measures to be taken. (Action: DTL ; Time Frame: 30 days) 4. Unsuccessful islanding operation of Faridabad generation needs to be reviewed and remedial measures to be taken (Action: NTPC, HVPNL ; Time Frame: 30 days) 5. Mal-operation of Bucholz protection of 400/220kV ICT-02 of Bammabgarh(PG) needs to be looked into. (Action: BBMB ; Time Frame: 15 days) 6. Centralised Event Logger should be		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>available at 220kV Samaypur(BBMB) station. (Action: BBMB; Time Frame: 30 days)</p> <p>7. Availability of time synchronized digital data to be ensured. (Action: BBMB; Time Frame: 15 days)</p> <p>8. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (Action: All Utilities; Time Frame: 3 months)</p>		
5.	30/B1/E	Multiple element tripping at 400/220kV Panipat(BBMB)	01.03.2015 at 08:41 Hrs	Haryana & BBMB	<p>1. Panipat (BBMB) revised the bus bar scheme with two CT across the bus coupler. (Action: BBMB; Time Frame: 3months)</p> <p>2. Over voltage setting of different outgoing elements from Dadri to be revised as per given below: a. 400kV Dadri-Mandaula ckt-1: 110% with 5 second time delay b. 400kV Dadri-Mandaula ckt-2: 112% with 6second time delay c. 400kV Dadri-Panipat ckt-1: 110% with 5second time delay d. 400kV Dadri-Panipat ckt-2: 110% with 6second time delay</p> <p>3. Availability of DR/EL & time synchronized digital data to be ensured. (Action: BBMB, Haryana; Time Frame: 3months)</p>		

3. Incidents pertaining to DTL

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B4	Multiple elements tripping at 400/220kV Bamnauli (DTL)	04.08.2016 at 12:24hrs	DTL and NTPC	<p>1. DTL may plan level-1 training (internal training) to protection engineers and submit the status report to NRPC/NRLDC (Action: DTL; Time Frame: 15days after completion of Quarter)</p> <p>2. Differential protection setting for 400/220kV ICTs at Bamnauli station needs to be checked and corrected. (Action: DTL; Time Frame: 15days)</p> <p>3. Zero sequence filters should be enabled for ICTs. Same may be checked and corrected at 100MVA ICTS at Papankalan-I&II.(Action: DTL; Time Frame: 15days)</p> <p>4. As decided, A/R facility may be enabled at both end of 220kVMehrauli-Badarpur lines and other 220kV lines not having carrier communication. Line would be auto reclosed from both end in case of transient fault. (Action: DTL; Time Frame: 15days)</p> <p>5. Availability of healthy time synchronized digital data of Bamnauli station to be ensured. (Action: DTL; Time Frame: 15days)</p> <p>6. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General</p>		

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					Recommendation) 7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: Bamnauli ; Time Frame: 90days)		
2.	33/B11	Multiple element tripping at 220kV Samaypur (BBMB)	06.09.2016 at 19:44 Hrs and 01.10.2016 at 14:38 Hrs	BBMB, DTL, NTPC, Haryana, POWERGRID	1. For 06th Sep 2016: i. Haryana to ensure better grid connectivity for 220kV Faridabad generation so that in case of outage of both the circuit of 220kV Samaypur-Faridabad, stability of Faridabad generation is intact and generation may remain connected with rest of the grid.(Action: <i>Haryana</i> ; Time Frame: within 15days) ii. BBMB to take necessary actions (training to the staff) to minimize the human errors and related tripping. (Action: <i>BBMB</i> ; Time Frame: within 30days) iii. BBMB to formulate the procedure for commissioning of bus bar and shifting of elements from one bus to other bus and it needs to be rigorously followed.(Action: <i>BBMB</i> ; Time Frame: within 15days) iv. Protection co-ordination between 400/220kV Ballabgarh ICTs tripping and 400kV line tripping needs to be checked and corrected. (Action: <i>POWERGRID, DTL, NTPC</i> ; Time Frame: within 15days)		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>v. Station event logger should be available at 220kV Samaypur (BBMB). (Action: BBMB; Time Frame: within 45days)</p> <p>vi. Commissioning of new numerical bus bar protection at 220kV Samaypur (BBMB) needs to be expedited. (Action: BBMB; Time Frame: within 30days)</p> <p>vii. DEF protection setting of 400kV G. Noida end of 400kV Dadri-G. Noida line needs to be reviewed and corrected (Action: UPPTCL; Time Frame: within 7days)</p> <p>2. For 1st Oct 2016:</p> <p>i. Provision to be made in the circuit breakers for giving the tripping command before going into the lockout. (Action: POWERGRID; Time Frame: within 30days)</p> <p>ii. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: All the NR constituents; Time Frame: within 45days)</p> <p>3. BBMB to submit the action taken report on recommendation of NRPC committee report for tripping at 220kV Samaypur station on 9th Jun 2016. (Action: BBMB; Time Frame: within One Month)</p> <p>4. Availability of time synchronized</p>		

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					<p>digital data to be ensured. (Action: BBMB; Time Frame: 15days)</p> <p>5. Time Synchronization of DR/EL needs to be looked into. (Action: BBMB; Time Frame: 15days)</p> <p>6. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: <i>All the NR constituents</i>; Time Frame: within 45days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		
3.	32/B1/K	Multiple Element tripping at 400kV Bawana(DTL) & Bawana(CCGT)	12.03.2016 at 17:35 Hrs	DTL & POWERGRID	<p>1. Bawana CCGT/ DTL may kindly submit the detailed report for multiple element tripping considering points for discussion, action taken report and time line for pending recommendations (Action: Bawana CCGT; Time Frame: 15days)</p> <p>2. Availability of healthy time synchronized digital data of Bawana and Bawana CCGT station to be ensured. (Action: DTL; Time Frame: 15days)</p> <p>3. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>	All preventive action already taken by DTL	

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					4. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: Bawana CCGT ; Time Frame: 15days)		
4.	32/B1/X	Multiple Element tripping at 400/220kV Mundka (DTL) station	28.06.2016 at 21:57 Hrs	DTL	1. Availability of standalone automatic downloading facility of DR/EL in all 400/220kV sub-station to be ensured (Action: DTL ; Time Frame: 30days) 2. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)	All the preventive measures already taken by DTL.	
5.	31/B1/P	Multiple Element tripping at 220kV Ballabgarh (BBMB) station	12.10.2015 at 21:48 Hrs	BBMB, DTL, NTPC & POWERGRID	1. Numerical Bus Bar Protection to be commissioned at 220kV Samaypur(BBMB) station (Action: BBMB ; Time Frame: 30 days) 2. Z-2 setting of 220kV Ballabgarh-Charkhi Dadri line at Charkhi Dadri end to be checked and corrected. (Action: BBMB ; Time Frame: 30 days) 3. Unsuccessful islanding operation of partial load of south Delhi area with Pragati generation needs to be reviewed and remedial measures to be taken. (Action: DTL ; Time Frame: 30 days) 4. Unsuccessful islanding operation of Faridabad generation needs to be reviewed and remedial measures to be taken (Action: NTPC, HVPNL ; Time Frame: 30 days)		

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					<p>5. Mal-operation of Bucholz protection of 400/220kV ICT-02 of Bammabgarh(PG) needs to be looked into. (Action: BBMB; Time Frame: 15 days)</p> <p>6. Centralised Event Logger should be available at 220kV Samaypur(BBMB) station. (Action: BBMB; Time Frame: 30 days)</p> <p>7. Availability of time synchronized digital data to be ensured. (Action: BBMB; Time Frame: 15 days)</p> <p>8. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (Action: All Utilities; Time Frame: 3 months)</p>		
6.	31/B1/R	Multiple element tripping at Bawana CCGT	18.11.2015 at 18:27 Hrs	DTL & IPGCL/PPCL	<p>1. Sensitive high set setting of backup earth fault protection of Bawana GT-3&4 to be reviewed. It should be properly coordinated with Z-3 setting of the line distance protection (Action: IPGCL/PPCL; Time Frame: 15 days)</p> <p>2. Availability of healthy time synchronized digital data of Bawana and Bawana CCGT station to be ensured. (Action: DTL; Time Frame: 15 days)</p>	DTL informed that they have taken all the preventive measures	

4. Incidents pertaining to Haryana

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B11	Multiple element tripping at 220kV Samaypur (BBMB)	06.09.2016 at 19:44 Hrs and 01.10.2016 at 14:38 Hrs	BBMB, DTL, NTPC, Haryana, POWERGRID	<p>1. For 06th Sep 2016:</p> <p>i. Haryana to ensure better grid connectivity for 220kV Faridabad generation so that in case of outage of both the circuit of 220kV Samaypur-Faridabad, stability of Faridabad generation is intact and generation may remain connected with rest of the grid.(Action: Haryana; Time Frame: within 15days)</p> <p>ii. BBMB to take necessary actions (training to the staff) to minimize the human errors and related tripping. (Action: BBMB; Time Frame: within 30days)</p> <p>iii. BBMB to formulate the procedure for commissioning of bus bar and shifting of elements from one bus to other bus and it needs to be rigorously followed.(Action: BBMB; Time Frame: within 15days)</p> <p>iv. Protection co-ordination between 400/220kV Ballabgarh ICTs tripping and 400kV line tripping needs to be checked and corrected. (Action: POWERGRID, DTL, NTPC; Time Frame: within 15days)</p> <p>v. Station event logger should be</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>available at 220kV Samaypur (BBMB). (Action: BBMB; Time Frame: within 45days)</p> <p>vi. Commissioning of new numerical bus bar protection at 220kV Samaypur (BBMB) needs to be expedited. (Action: BBMB; Time Frame: within 30days)</p> <p>vii. DEF protection setting of 400kV G. Noida end of 400kV Dadri-G. Noida line needs to be reviewed and corrected (Action: UPPTCL; Time Frame: within 7days)</p> <p>2. For 1st Oct 2016:</p> <p>i. Provision to be made in the circuit breakers for giving the tripping command before going into the lockout. (Action: POWERGRID; Time Frame: within 30days)</p> <p>ii. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: All the NR constituents; Time Frame: within 45days)</p> <p>3. BBMB to submit the action taken report on recommendation of NRPC committee report for tripping at 220kV Samaypur station on 9th Jun 2016. (Action: BBMB; Time Frame: within One Month)</p> <p>4. Availability of time synchronized digital data to be ensured. (Action:</p>		

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					<p>BBMB; Time Frame: 15days)</p> <p>5. Time Synchronization of DR/EL needs to be looked into. (Action: BBMB; Time Frame: 15days)</p> <p>6. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: <i>All the NR constituents</i>; Time Frame: within 45days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		
2.	32/B1/S	Multiple Element tripping at 400kV Daultabad (HVPNL) Station	16.05.2016 at 19:03 Hrs & 17.05.2016 at 09:32 Hrs	HVPNL & POWERGRID	<p>1. Healthiness of Bus Bar Protection Scheme at Daultabad station to be ensured. (Action: Haryana; Time Frame: 15 days)</p> <p>2. Reason of tripping of all main and tie CB in case of bus fault of Bus-1 at 400kV Daultabad station. (Action: Haryana; Time Frame: 15 days)</p> <p>3. Availability of DR/EL and automatic downloading facility for DR at 400/220kV Daultabad station to be ensured. (Action: Haryana; Time Frame: 1 months)</p> <p>4. Availability of digital data of 400/220kV Daultabad station to be ensured. (Action: Haryana; Time Frame: 1 months)</p> <p>5. Haryana is continuously violating the</p>		

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					IEGC clause 5.2.r & CEA Grid Standard 5.3 as Detailed report, DR/EL has not been received from Haryana in past also.		
3.	31/B1/H	Multiple element tripping at 400/220kV Dhanonda station and HVDC Mundra-Mohindergarh Bipole	26.07.2015 at 22:26 Hrs	Adani & Haryana	<p>1. HVPNL to submit the detailed report of the tripping along with action taken report. (Action: HVPNL; Time Frame: 15 days)</p> <p>2. Healthiness of Bus Bar Protection Scheme at Dhanonda station to be ensured. (Action: HVPNL; Time Frame: 15 days)</p> <p>3. Reason for tripping of all main and tie CB in case of bus fault of Bus-1 at 400kV Dhanonda station to be investigated. (Action: HVPNL; Time Frame: 15 days)</p> <p>4. Availability of DR/EL of Dhanonda station to be ensured. (Action: HVPNL; Time Frame: 1 months)</p> <p>5. Availability of digital data of 400/220kV Dhanonda station to be ensured. (Action: HVPNL; Time Frame: 1 months)</p> <p>6. HVPNL is continuously violating the IEGC clause 5.2.r & CEA Grid Standard 5.3 as Detailed report, DR/EL has not been received from them in past also.</p> <p>7. Sensitive base filter setting in each HVDC Bipole needs to be checked and</p>		

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					revised accordingly. (Action: ATL, POWERGRID, Time Frame: 3 months)		
4.	31/B1/M	Multiple Element tripping at 400/220kV Panchkula(PG) Station	11.09.2015 at 18:54 Hrs	POWERGRID, NJPC & Haryana	<p>1. Proper procedure should be followed for operation of isolator opening/ closing during maintenance activity at station. (Action: POWERGRID; Time Frame: 15 days)</p> <p>2. Every utility to issue detailed instructions to take care of the setting of stub protection (enable/disable) according to isolator position. (Action:All Utilities, Time Frame: 30 days)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: POWERGRID; Time Frame: 15 days)</p>	Remedial action already taken by POWERGRID	
5.	31/B1/P	Multiple Element tripping at 220kV Ballabgarh (BBMB) station	12.10.2015 at 21:48 Hrs	BBMB, DTL, NTPC & POWERGRID	<p>1. Numerical Bus Bar Protection to be commissioned at 220kV Samaypur(BBMB) station (Action: BBMB; Time Frame: 30 days)</p> <p>2. Z-2 setting of 220kV Ballabgarh-Charkhi Dadri line at Charkhi Dadri end to be checked and corrected. (Action: BBMB; Time Frame: 30 days)</p> <p>3. Unsuccessful islanding operation of partial load of south Delhi area with Pragati generation needs to be reviewed and remedial measures to be taken. (Action: DTL; Time Frame: 30 days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>4. Unsuccessful islanding operation of Faridabad generation needs to be reviewed and remedial measures to be taken (Action: NTPC, HVPNL; Time Frame: 30 days)</p> <p>5. Mal-operation of Bucholz protection of 400/220kV ICT-02 of Bammabgarh(PG) needs to be looked into. (Action: BBMB; Time Frame: 15 days)</p> <p>6. Centralised Event Logger should be available at 220kV Samaypur(BBMB) station. (Action: BBMB; Time Frame: 30 days)</p> <p>7. Availability of time synchronized digital data to be ensured. (Action: BBMB; Time Frame: 15 days)</p> <p>8. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (Action: All Utilities; Time Frame: 3 months)</p>		
6.	30/B1/B	Multiple Element tripping at 400/220kV Daultabad station	14.02.2015 at 17:15 Hrs	Haryana	<p>1. Healthiness of Bus Bar Protection to be ensured. (Action: Haryana; Time Frame: 15 days)</p> <p>2. Reason of tripping of tie CB of 400kV Daulatabad-Dhanonda-2 needs to be looked into. (Action: Haryana; Time Frame: 15 days)</p> <p>3. Availability of DR/EL of Daultabad station to be ensured. (Action:Haryana; Time Frame: 1 months)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>4. Availability of digital data of 400/220kV Daultabad station to be ensured. (Action: Haryana; Time Frame: 1 months)</p> <p>5. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p> <p>6. Haryana is continuously violating the IEGC clause 5.2.r & CEA Grid Standard 5.3 as Detailed report, DR/EL has not been received from Haryana in past also.</p>		
7.	30/B1/E	Multiple element tripping at 400/220kV Panipat(BBMB)	01.03.2015 at 08:41 Hrs	Haryana & BBMB	<p>1. Panipat (BBMB) revised the bus bar scheme with two CT across the bus coupler. (Action: BBMB; Time Frame: 3months)</p> <p>2. Over voltage setting of different outgoing elements from Dadri to be revised as per given below:</p> <p>a. 400kV Dadri-Mandaula ckt-1: 110% with 5 second time delay</p> <p>b. 400kV Dadri-Mandaula ckt-2: 112% with 6second time delay</p> <p>c. 400kV Dadri-Panipat ckt-1: 110% with 5second time delay</p> <p>d. 400kV Dadri-Panipat ckt-2: 110% with 6second time delay</p> <p>3. Availability of DR/EL & time</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					synchronized digital data to be ensured. (Action: BBMB, Haryana ; Time Frame: 3months)		

5. Incidents pertaining to IPGCL

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	31/B1/R	Multiple element tripping at Bawana CCGT	18.11.2015 at 18:27 Hrs	DTL & IPGCL/PPCL	<p>1. Sensitive high set setting of backup earth fault protection of Bawana GT-3&4 to be reviewed. It should be properly coordinated with Z-3 setting of the line distance protection (Action: IPGCL/PPCL; Time Frame: 15 days)</p> <p>2. Availability of healthy time synchronized digital data of Bawana and Bawana CCGT station to be ensured. (Action: DTL; Time Frame: 15 days)</p>	DTL informed that they have taken all the preventive measures	

6. Incidents pertaining to NHPC

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B5	Multiple Elements tripping at 400/220kV Bareilly (UP)	06.08.2016 at 14:30hrs	UPPTCL, POWERGRID & NHPC	<p>1. Tripping of 220kV Tanakpur-Sitarganj from Sitarganj station needs to be checked. (Action: POWERGRID; Time Frame: 15days)</p> <p>2. Reverse zone setting and over voltage setting (over voltage stage-2 operated) of 400kV Bareilly (UP) end of all 400kV lines needs to be checked and corrected. (Action: POWERGRID; Time Frame: 15days)</p> <p>3. Replacement of static relay of 220kV Shahjahanpur end of 220kVBareilly-Shahjahanpur line to be expedited. (Action: UPPTCL; Time Frame: 30days)</p> <p>4. Low forward power protection setting of Tanakpur HEP needs to be checked and corrected. (Action: NHPC; Time Frame: 15days)</p> <p>5. Healthy and numerical bus bar protection at 400/220kV Bareilly (UP) station to be commissioned as soon as possible. (Action: UPPTCL; Time Frame: 15days)</p> <p>6. Availability of time synchronised DR and standalone EL needs to be ensured at 400/220kV Bareilly (UP). (Action: UPPTCL; Time Frame: 15days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					sub-station to be ensured.(Action: UPPTCL ; Time Frame: 15days)		
2.	33/B9	Multiple Element tripping at 400kV Chamera-1 HEP	27.08.2016 at 07:16 Hrs	NHPC & POWERGRID	<p>1. In antecedent condition lightening was there in that area. 400kV Chamera-1-Jallandhar ckt-1&2 was on the same tower. 400kV Chamera- 1-Jallandhar D/C tripped on operation of distance protection.</p> <p>2. Unit-2 of Chamera-II HEP tripped before the incident due to fault in the excitation system of the unit.</p> <p>3. All three unit of Chamera-1 HEP tripped due to operation of high impedance differential protection of generator.</p> <p>4. PSC expressed concern over tripping of all three units on differential protection for out of zone fault.PSC advised NHPC to review the differential protection setting of Chamera-I HEP.</p> <p>5. Availability of time synchronized digital data to be ensured. (Action: NHPC; Time Frame: 1months)</p>	As reported by NRLDC, NHPC has revised stability voltage setting for differential protection of Chamera-1 HEP units	
3.	32/B1/Q	Complete outage of 220kV Salal HEP	28.04.2016 at 01:17 Hrs	NHPC, POWERGRID & J&K	<p>1. Distance protection should be blocked in case of VT fuse failure and back up over current protection should be automatically enabled. (Action: NHPC; Time Frame: 1months)</p> <p>2. Input from line VT should be taken for distance protection of line to avoid</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>complete station outage in case of wrong setting. (Action: NHPC; Time Frame: 1months)</p> <p>3. NHPC may kindly submit the detailed action taken report on recommendations. (Action: NHPC; Time Frame: 1months)</p> <p>10. Availability of time synchronized digital data to be ensured. (Action: NHPC; Time Frame: 1months)</p> <p>4. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>		
4.	31/B1/K	Multiple Element tripping at 400kV Parbati(Pool) / Banala(PG)	22.08.2015 at 01:48 Hrs	NTPC, NHPC & POWERGRID	<p>1. 400kV Parbati (Pool) to Parbati HEP-II and 400kV Parbati (Pool) to Parbati HEP-III should be on separate bus. (Action: POWERGRID; Time Frame: 15 days)</p> <p>2. Availability of time synchronized digital data to be ensured. (Action: POWERGRID; Time Frame: 15days)</p>		
5.	31/B1/N	Multiple Element tripping at 220kV Dhauliganga station	24.09.2015 at 20:06 Hrs	POWERGRID, NHPC & UPPTCL	<p>1. NHPC to review the line and unit tripping, PSS tuning and submit the detailed report to RPC, RLDC. (Action: NHPC; Time Frame: 15 days)</p> <p>2. SCADA Analog and digital data availability and healthiness of 220kV Dhauliganga HEP, Bareilly (UP) needs to be ensured. (Action: NHPC,</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>UPPTCL; Time Frame: 15 days)</p> <p>3. Availability of time synchronised DR and standalone EL needs to be ensured at 220kV Bareilly (UP). (Action: UPPTCL; Time Frame: 15 days)</p> <p>4. UPPTCL to take corrective action at 220kV Bareilly (UP) to prevent multiple element tripping nearby Bareilly(UP) station. (Action: UPPUCL; Time Frame: 30 days)</p>		
6.	30/B1/F	Kashmir Valley Collapse	02.03.2015 at 05:20 Hrs & 06:50 Hrs	POWERGRID, NHPC, Punjab & PDD J&K	<p>1. Non-auto reclosing of 220kV Sarna-Kishenpur ckt-1 from Kishenpur end to be checked & corrected. (Action: POWERGRID; Time Frame: 7days)</p> <p>2. Setting of reverse zone at 220kV Sarna end of 220kV Sarna-Kishenpur D/C needs to be reviewed. (Action: POWERGRID; Time Frame: 7days)</p> <p>3. NHPC may review the staggering in over frequency setting of Uri-I HEP units. (Action: NHPC; Time Frame: 7days)</p> <p>4. PDD-J&K may review the staggering in over frequency setting of Uri-I HEP units. (Action: PDD-J&K; Time Frame: 15days)</p> <p>5. Planned SPS for Kashmir valley to be expedited. (Action: PDD-J&K)</p> <p>6. Installation of UFR & df/dt relays to be expedited.(Action: PDD-J&K)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
7.	30/B1/P	Multiple Element tripping at 220kV Salal station	01.06.2015 from 21:52 Hrs to 23:15 Hrs	NHPC, POWERGRID & PDD J&K	<p>1. Setting of backup impedance protection of unit-1& 6 also to be checked & corrected. (Action: NHPC; Time Frame: 7days).</p> <p>2. In second incident Setting of generator inadvertent energization protection in unit-1&6 to be changed, time delay of 2-3 second should be incorporated in case of voltage go below 50% of the system voltage. (Action: NHPC; Time Frame: 7days)</p> <p>3. Capacity test of the battery bank of maintenance free battery to be done in one year. (Action: All the NR constituents)</p> <p>4. Automatic changeover of AC supply in the sub-station to be planned & implemented. (Action: NHPC; Time Frame: 45days)</p> <p>5. DR/EL time synchronization to be looked into by NHPC.(Action: NHPC; Time Frame: 15days)</p>		

7. Incidents pertaining to NJPC

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	32/B1/N	Multiple element tripping at 400kV Rampur HEP	31.03.2016 at 04:43 Hrs & 07:55 Hrs	NJPC & POWERGRID	1. Fault Measurement system (automatic detecting module) at Rampur HEP needs to be checked and corrected. (Action: NJPC ; Time Frame: 1months) 2. Availability of time synchronized digital data to be ensured. (Action: NJPC ; Time Frame: 1months)		

8. Incidents pertaining to NPCIL

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	31/B1/O	Multiple Element tripping at 220kV NAPS (NPCIL)	27.09.2015 at 20:17 Hrs	NPCIL & UPPTCL	<p>1. NPCIL to submit the detailed report of the tripping within 7days considering the following points: a. DR system files (.dat, .cfg) be also be sent for better viewing of the incident. b. Delayed clearance of fault. c. Bus bar protection at 220kV NAPS. d. Exact reason of tripping of unit #1, unsuccessful auto transfer of auxiliary. e. Digital data reporting of the incident. (Action: NPCIL; Time Frame: 7 days)</p> <p>2. NAPP to look into the issue of poisoning of nuclear reactor. Further improvement to be expedited. (Action: NPCIL; Time Frame: 2 months)</p> <p>3. Auxiliary changeover scheme of NAPP units needs to be checked and corrected. (Action: NPCIL; Time Frame: 2 months)</p> <p>4. Availability of time synchronized digital data to be ensured. (Action: NPCIL, UPRVUNL; Time Frame: 1 months)</p> <p>5. Availability of DR/EL facility at the 220kV Khurja, Atrauli, Jahagirabad, Khair, Etah etc to ensured. (Action: UPPTCL, UPRVUNL; Time Frame: 3 months)</p>		
2.	30/B1/N	Complete outage of Harduaganj station and	16.04.2015 at 11:15 Hrs	UP & NAPS	1. NAPP may look into the issue of poisoning of nuclear reactor. Further		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
		one unit tripping at NAPS			<p>improvement to be expedited. (Action: NPCIL; Time Frame: 2months)</p> <p>2. Availability of time synchronized digital data to be ensured. (Action: NPCIL, UPRVUNL; Time Frame: 1months)</p> <p>3. Availability of DR/EL facility at the 220kV Harduganj, Khurja, Mainpuri, Atrauli, Jahagirabad, Khair, Etah etc to be ensured. (Action: UPPTCL,UPRVUNL; Time Frame: 3months)</p> <p>4. Availability of bus bar protection at 220kV Harduganj station to be expedited. (Action: UPRVUNL; Time Frame: 1months)</p> <p>5. Overall protection system of 220kV Harduganj & nearby area needs to be checked & corrected& Protection co-ordination also needs to be reviewed. (Action: UPRVUNL; Time Frame: 1months)</p> <p>6. Zone-2 & 3 settings are the associated line from Harduganj to be checked & corrected.(Action: UPRVUNL; Time Frame: 1months)</p> <p>7. Independent third party Protection Audit for 220kV Harduganj station to be done. (Action: UPRVUNL; Time Frame: 2months)</p>		

9. Incidents pertaining to NTPC

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B4	Multiple elements tripping at 400/220kV Bamnauli (DTL)	04.08.2016 at 12:24hrs	DTL and NTPC	<p>1. DTL may plan level-1 training (internal training) to protection engineers and submit the status report to NRPC/NRLDC (Action: DTL; Time Frame: 15days after completion of Quarter)</p> <p>2. Differential protection setting for 400/220kV ICTs at Bamnauli station needs to be checked and corrected. (Action: DTL; Time Frame: 15days)</p> <p>3. Zero sequence filters should be enabled for ICTs. Same may be checked and corrected at 100MVA ICTS at Papankalan-I&II.(Action: DTL; Time Frame: 15days)</p> <p>4. As decided, A/R facility may be enabled at both end of 220kVMehrauli-Badarpur lines and other 220kV lines not having carrier communication. Line would be auto reclosed from both end in case of transient fault. (Action: DTL; Time Frame: 15days)</p> <p>5. Availability of healthy time synchronized digital data of Bamnauli station to be ensured. (Action: DTL; Time Frame: 15days)</p> <p>6. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					Recommendation) 7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: Bamnauli ; Time Frame: 90days)		
2.	33/B11	Multiple element tripping at 220kV Samaypur (BBMB)	06.09.2016 at 19:44 Hrs and 01.10.2016 at 14:38 Hrs	BBMB, DTL, NTPC, Haryana, POWERGRID	1. For 06th Sep 2016: i. Haryana to ensure better grid connectivity for 220kV Faridabad generation so that in case of outage of both the circuit of 220kV Samaypur-Faridabad, stability of Faridabad generation is intact and generation may remain connected with rest of the grid.(Action: <i>Haryana</i> ; Time Frame: within 15days) ii. BBMB to take necessary actions (training to the staff) to minimize the human errors and related tripping. (Action: <i>BBMB</i> ; Time Frame: within 30days) iii. BBMB to formulate the procedure for commissioning of bus bar and shifting of elements from one bus to other bus and it needs to be rigorously followed.(Action: <i>BBMB</i> ; Time Frame: within 15days) iv. Protection co-ordination between 400/220kV Ballabgarh ICTs tripping and 400kV line tripping needs to be checked and corrected. (Action: <i>POWERGRID, DTL, NTPC</i> ; Time Frame: within 15days)		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>v. Station event logger should be available at 220kV Samaypur (BBMB). (Action: BBMB; Time Frame: within 45days)</p> <p>vi. Commissioning of new numerical bus bar protection at 220kV Samaypur (BBMB) needs to be expedited. (Action: BBMB; Time Frame: within 30days)</p> <p>vii. DEF protection setting of 400kV G. Noida end of 400kV Dadri-G. Noida line needs to be reviewed and corrected (Action: UPPTCL; Time Frame: within 7days)</p> <p>2. For 1st Oct 2016:</p> <p>i. Provision to be made in the circuit breakers for giving the tripping command before going into the lockout. (Action: POWERGRID; Time Frame: within 30days)</p> <p>ii. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: All the NR constituents; Time Frame: within 45days)</p> <p>3. BBMB to submit the action taken report on recommendation of NRPC committee report for tripping at 220kV Samaypur station on 9th Jun 2016. (Action: BBMB; Time Frame: within One Month)</p> <p>4. Availability of time synchronized</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					digital data to be ensured. (Action: BBMB ; Time Frame: 15days) 5. Time Synchronization of DR/EL needs to be looked into. (Action: BBMB ; Time Frame: 15days) 6. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: <i>All the NR constituents</i> ; Time Frame: within 45days) 7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent ; Time Frame: 3months)		
3.	31/B1/E	Tripping of all the running units of Koldam HEP	13.07.2015 at 15:15 Hrs; 20.08.2015 at 05:36 Hrs; 24.08.2015 at 05:18 Hrs	NTPC	<i>Protection Sub-committee Recommendations:</i> 1. NTPC to share the changeover logic in case of failure of one auxiliary supply. (Action: NTPC ; Time Frame: 7 days)	Remedial measures already taken by NTPC	
4.	31/B1/K	Multiple Element tripping at 400kV Parbati(Pool) / Banala(PG)	22.08.2015 at 01:48 Hrs	NTPC, NHPC & POWERGRID	1. 400kV Parbati (Pool) to Parbati HEP-II and 400kV Parbati (Pool) to Parbati HEP-III should be on separate bus. (Action: POWERGRID ; Time Frame: 15 days) 2. Availability of time synchronized digital data to be ensured. (Action: POWERGRID ; Time Frame: 15days)		
5.	31/B1/P	Multiple Element tripping at 220kV Ballabgarh (BBMB) station	12.10.2015 at 21:48 Hrs	BBMB, DTL, NTPC & POWERGRID	1. Numerical Bus Bar Protection to be commissioned at 220kV Samaypur(BBMB) station (Action: BBMB ; Time Frame: 30 days)		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>2. Z-2 setting of 220kV Ballabgarh-Charkhi Dadri line at Charkhi Dadri end to be checked and corrected. (Action: BBMB; Time Frame: 30 days)</p> <p>3. Unsuccessful islanding operation of partial load of south Delhi area with Pragati generation needs to be reviewed and remedial measures to be taken. (Action: DTL; Time Frame: 30 days)</p> <p>4. Unsuccessful islanding operation of Faridabad generation needs to be reviewed and remedial measures to be taken (Action: NTPC, HVPNL; Time Frame: 30 days)</p> <p>5. Mal-operation of Bucholz protection of 400/220kV ICT-02 of Bammabgarh(PG) needs to be looked into. (Action: BBMB; Time Frame: 15 days)</p> <p>6. Centralised Event Logger should be available at 220kV Samaypur(BBMB) station. (Action: BBMB; Time Frame: 30 days)</p> <p>7. Availability of time synchronized digital data to be ensured. (Action: BBMB; Time Frame: 15 days)</p> <p>8. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (Action: All Utilities; Time Frame: 3 months)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
6.	30/B1/L	Complete outage of 400/220kV Muradnagar(UP) station	08.04.2015 at 05:36 Hrs	UP & NTPC	<p>1. Healthiness of bus bar protection at 400/220kV Muradnagar end to be checked & corrected. (Action: UPPTCL; Time Frame: 15months)</p> <p>2. Manual checking of VAJC relay (isolator selection switch) in case of isolator operation to be properly monitored. (Action: UPPTCL; Time Frame: 15months)</p> <p>3. Availability of all digital data of Muradnagar sub-station in NR SCADA & its time synchronization needs to be ensured. (Action: UPPTCL; Time Frame: 15months)</p>		
7.	30/B1/M	Complete Outage of 220kV Raebareilly(PG)	10.04.2015 at 13:53 Hrs	POWERGRID, UP & NTPC	<p>1. Healthiness & setting of 220kV bus bar protection scheme at 220kv raebareilly (PG) to be reviewed. (Action: POWERGRID; Time Frame: 15days)</p> <p>2. Sensitive setting of auxiliary contactor of unchahar units to be corrected. It may be coordinated with zone-3 setting of line protection. (Action: NTPC; Time Frame: 15days).</p> <p>3. Availability of digital data to be ensured. (Action: POWERGRID, NTPC; Time Frame: 15days)</p>		

10. Incidents pertaining to PDD J&K

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	32/B1/I	Multiple Element tripping at 220kV Wagoora(PG)	03.03.2016 at 16:34 Hrs	POWERGRID and J&K	<p>1. Operating procedure for work at station (new installation, change in the elements etc) may be available at station and it should be properly followed. (Action: POWERGRID; Time Frame: 7days)</p> <p>2. Operating procedure should also be formulated for one time activity like PMU installation, changes in the element etc. (Action: All NR constituents; Time Frame: 30days)</p> <p>3. POWERGRID may kindly submit the detailed report answering the following points: (Action: POWERGRID; Time Frame: 7days)</p> <p>(i) Availability of Operating procedure for work at station (new installation, change in the elements etc)</p> <p>(ii) Inter tripping delay in ICT tripping at Wagoora(PG).</p> <p>(iii) Whether bus bar protection operated for both 220kV buses at 220kV Wagoora (PG).</p> <p>(iv) Redundancy in supply source for bus bar protection.</p>		
2.	32/B1/Q	Complete outage of 220kV Salal HEP	28.04.2016 at 01:17 Hrs	NHPC, POWERGRID & J&K	<p>1. Distance protection should be blocked in case of VT fuse failure and back up over current protection should</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>be automatically enabled. (Action: NHPC; Time Frame: 1months)</p> <p>2. Input from line VT should be taken for distance protection of line to avoid complete station outage in case of wrong setting. (Action: NHPC; Time Frame: 1months)</p> <p>3. NHPC may kindly submit the detailed action taken report on recommendations. (Action: NHPC; Time Frame: 1months)</p> <p>10. Availability of time synchronized digital data to be ensured. (Action: NHPC; Time Frame: 1months)</p> <p>4. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>		
3.	30/B1/F	Kashmir Valley Collapse	02.03.2015 at 05:20 Hrs & 06:50 Hrs	POWERGRID, NHPC, Punjab & PDD J&K	<p>1. Non-auto reclosing of 220kV Sarna-Kishenpur ckt-1 from Kishenpur end to be checked & corrected. (Action: POWERGRID; Time Frame: 7days)</p> <p>2. Setting of reverse zone at 220kV Sarna end of 220kV Sarna-Kishenpur D/C needs to be reviewed. (Action: POWERGRID; Time Frame: 7days)</p> <p>3. NHPC may review the staggering in over frequency setting of Uri-I HEP units. (Action: NHPC; Time Frame:</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>7days) 4. PDD-J&K may review the staggering in over frequency setting of Uri-I HEP units. (Action: PDD-J&K; Time Frame: 15days) 5. Planned SPS for Kashmir valley to be expedited. (Action: PDD-J&K) 6. Installation of UFR & df/dt relays to be expedited.(Action: PDD-J&K)</p>		
4.	30/B1/P	Multiple Element tripping at 220kV Salal station	01.06.2015 from 21:52 Hrs to 23:15 Hrs	NHPC, POWERGRID & PDD J&K	<p>1. Setting of backup impedance protection of unit-1& 6 also to be checked & corrected. (Action: NHPC; Time Frame: 7days).</p> <p>2. In second incident Setting of generator inadvertent energization protection in unit-1&6 to be changed, time delay of 2-3 second should be incorporated in case of voltage go below 50% of the system voltage. (Action: NHPC; Time Frame: 7days)</p> <p>3. Capacity test of the battery bank of maintenance free battery to be done in one year. (Action: All the NR constituents)</p> <p>4. Automatic changeover of AC supply in the sub-station to be planned & implemented. (Action: NHPC; Time Frame: 45days)</p> <p>5. DR/EL time synchronization to be looked into by NHPC.(Action: NHPC; Time Frame: 15days)</p>		

11. Incidents pertaining to POWERGRID

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B3	Multiple element tripping at 765/400kV Kanpur	27.07.2016 at 12:37hrs & 25.11.2016 at 16:57hrs	POWERGRID	<p>1. Event on 27th July 2016:</p> <p>a. The phenomenon of tripping of 765kV Kanpur-Varanasi ckt-1&2 and 765kV Kanpur-Jhatikara ckts due to erratic behaviour of PLCC panel due to DC relaying source mixing needs further discussion. POWERGRID may discuss this tripping with other transmission utilities and PLCC vendor to avoid recurrence of such tripping.</p> <p>b. POWERGRID may submit the report to NRPC/NRLDC. (Action: POWERGRID; Time Frame: 15days)</p> <p>c. Time synchronization of DR of 765kV Kanpur(PG) end needs to be checked and corrected. (Action: POWERGRID; Time Frame: 15days)</p> <p>2. Event on 25th Nov 2016:</p> <p>a. Proper procedure needs to be followed to prevent wrong protection setting at the time of commissioning. All the protection setting should be vetted through central control centre of the utility to prevent mal-tripping. (Action: All Utilities)</p> <p>b. Availability of time synchronised digital data needs to be ensured. (Action: POWERGRID; Time Frame: 15days)</p>		
2.	33/B5	Multiple Elements	06.08.2016 at	UPPTCL,	1. Tripping of 220kV Tanakpur-		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
		tripping at 400/220kV Bareilly (UP)	14:30hrs	POWERGRID & NHPC	<p>Sitarganj from Sitarganj station needs to be checked. (Action: POWERGRID; Time Frame: 15days)</p> <p>2. Reverse zone setting and over voltage setting (over voltage stage-2 operated) of 400kV Bareilly (UP) end of all 400kV lines needs to be checked and corrected. (Action: POWERGRID; Time Frame: 15days)</p> <p>3. Replacement of static relay of 220kV Shahjahanpur end of 220kVBareilly-Shahjahanpur line to be expedited. (Action: UPPTCL; Time Frame: 30days)</p> <p>4. Low forward power protection setting of Tanakpur HEP needs to be checked and corrected. (Action: NHPC; Time Frame: 15days)</p> <p>5. Healthy and numerical bus bar protection at 400/220kV Bareilly (UP) station to be commissioned as soon as possible. (Action: UPPTCL; Time Frame: 15days)</p> <p>6. Availability of time synchronised DR and standalone EL needs to be ensured at 400/220kV Bareilly (UP). (Action: UPPTCL; Time Frame: 15days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured.(Action: UPPTCL; Time Frame: 15days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
3.	33/B9	Multiple Element tripping at 400kV Chamera-1 HEP	27.08.2016 at 07:16 Hrs	NHPC & POWERGRID	<p>1. In antecedent condition lightening was there in that area. 400kV Chamera-1-Jallandhar ckt-1&2 was on the same tower. 400kV Chamera- 1-Jallandhar D/C tripped on operation of distance protection.</p> <p>2. Unit-2 of Chamera-II HEP tripped before the incident due to fault in the excitation system of the unit.</p> <p>3. All three unit of Chamera-1 HEP tripped due to operation of high impedance differential protection of generator.</p> <p>4. PSC expressed concern over tripping of all three units on differential protection for out of zone fault.PSC advised NHPC to review the differential protection setting of Chamera-I HEP.</p> <p>5. Availability of time synchronized digital data to be ensured. (Action: NHPC; Time Frame: 1months)</p>	As reported by NRLDC, NHPC has revised stability voltage setting for differential protection of Chamera-1 HEP units	
4.	33/B11	Multiple element tripping at 220kV Samaypur (BBMB)	06.09.2016 at 19:44 Hrs and 01.10.2016 at 14:38 Hrs	BBMB, DTL, NTPC, Haryana, POWERGRID	<p>1. For 06th Sep 2016:</p> <p>i. Haryana to ensure better grid connectivity for 220kV Faridabad generation so that in case of outage of both the circuit of 220kV Samaypur-Faridabad, stability of Faridabad generation is intact and generation may remain connected with rest of the grid.(Action: <i>Haryana</i>; Time Frame: within 15days)</p> <p>ii. BBMB to take necessary actions</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>(training to the staff) to minimize the human errors and related tripping. (Action: BBMB; Time Frame: within 30days)</p> <p>iii. BBMB to formulate the procedure for commissioning of bus bar and shifting of elements from one bus to other bus and it needs to be rigorously followed.(Action: BBMB; Time Frame: within 15days)</p> <p>iv. Protection co-ordination between 400/220kV Ballabgarh ICTs tripping and 400kV line tripping needs to be checked and corrected. (Action: POWERGRID, DTL, NTPC; Time Frame: within 15days)</p> <p>v. Station event logger should be available at 220kV Samaypur (BBMB). (Action: BBMB; Time Frame: within 45days)</p> <p>vi. Commissioning of new numerical bus bar protection at 220kV Samaypur (BBMB) needs to be expedited. (Action: BBMB; Time Frame: within 30days)</p> <p>vii. DEF protection setting of 400kV G. Noida end of 400kV Dadri-G. Noida line needs to be reviewed and corrected (Action: UPPTCL; Time Frame: within 7days)</p> <p>2. For 1st Oct 2016:</p> <p>i. Provision to be made in the circuit</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>breakers for giving the tripping command before going into the lockout. (Action: POWERGRID; Time Frame: within 30days)</p> <p>ii. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: All the NR constituents; Time Frame: within 45days)</p> <p>3. BBMB to submit the action taken report on recommendation of NRPC committee report for tripping at 220kV Samaypur station on 9th Jun 2016. (Action: BBMB; Time Frame: within One Month)</p> <p>4. Availability of time synchronized digital data to be ensured. (Action: BBMB; Time Frame: 15days)</p> <p>5. Time Synchronization of DR/EL needs to be looked into. (Action: BBMB; Time Frame: 15days)</p> <p>6. Logging/alarming of lockout signal of CB to get attended as soon as one occurs.(Action: All the NR constituents; Time Frame: within 45days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		
5.	33/B11	Complete outage of	07.09.2016 at	BBMB, Punjab	1. Non-availability of SCADA-		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
		400kV Dehar(BBMB) Station	18:55 Hrs	and POWERGRID	digital/analog status data to be checked and corrected. (Action: BBMB ; Time Frame: 7days) 2. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent ; Time Frame: 3months) 3. Centralized Event Logger should be available at each station. (Action: All utilities)		
6.	33/B12	Multiple Element tripping at 400kV Mau station	04.10.2016 at 11:20 Hrs	UPPTCL and POWERGRID	1. Healthy numerical bus bar Protection at 400/220kV Mau station needs to be ensured.(Action: UPPTCL ; Time Frame: 1months) 2. Till the commissioning of 400/220kV Bus Bar Protection, reverse zone time delay setting of all 400kV and 220kV lines can be changed to 160 ms according to approved alternative. 3. Directionality features of directional earth fault protection setting in all outgoing lines of 400kV Mau station needs to be reviewed. 4. Z-3 setting of 400kV Azamgarh end of 400kV Azamgarh-Mau line needs to be reviewed and corrected as per Ramakrishna Committee report.(Action: UPPTCL ; Time Frame: 7days) 5. Directional earth fault protection setting of 400kVSarnath end of		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>400kVAnpara-Sarnath line needs to be reviewed and corrected. (Action: UPPTCL; Time Frame: 15days)</p> <p>6. Z-2 setting of 400kVBalia end of 400kVBalia-Mau ckt-1 & 2 needs to be reviewed and corrected as per Ramakrishna Committee report.(Action: POWERGRID; Time Frame: 7days)</p> <p>7. Main and back up protection setting for 400kV Mau end of 400kV Mau-Anpara line needs to be checked and corrected. (Action: UPPTCL; Time Frame: 7days)</p> <p>8. UPPTCL to submit the status of station event logger for all 400/220kV station. (Action: UPPTCL; Time Frame: 1months)</p> <p>9. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 7days)</p> <p>10. Availability of DR (Disturbance recorder)/EL (Event logger) to all the 400&220kV element at 400/220kVMau (UP) station to be ensured. (Action: UPPTCL; Time Frame:45days)</p> <p>11. Availability of automatic download facility of DR & standalone EL at 400/220kVMau (UP) to be ensured. (Action: UPPTCL; Time Frame:45days)</p>		
7.	32/B1/C	Multiple Element tripping	18.01.2016 at	POWERGRID	1. Information about three phase		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
		at 400/220kV Moga	06:07 Hrs		tripping from Hissar end of 400kV Hissar-Moga ckt-2 & three phase auto reclosing in 400kV Hissar-Moga ckt-2 to be checked, corrected. (Action: POWERGRID ; Time Frame: 7days) 2. Non-availability of SCADA-digital/analog status data to be checked and corrected. (Action: POWERGRID ; Time Frame: 7days) 3. POWERGRID may kindly submit the detailed report considering the above points to RPC/RLDC. (Action: POWERGRID ; Time Frame: 15days)		
8.	32/B1/D	Multiple element tripping at 400/220kV Bhiwani(BBMB)	22.01.2016 at 21:21 Hrs	BBMB & POWERGRID	1. Non-availability of SCADA-digital / analog status data to be checked and corrected. (Action: BBMB ; Time Frame: 7days) 2. POWERGRID may also submit the DR/EL and detailed report of the line tripping. (Action: POWERGRID ; Time Frame: 7days) 3. BBMB may kindly expedite the procurement process for new numerical bus bar protection at 400kV Bhiwani (BBMB). (Action: BBMB)		
9.	32/B1/E	Multiple element tripping at 400/220kV Kanpur(PG) station	30.01.2016 at 05:35 Hrs	POWERGRID	Non-availability of SCADA-digital/analog status data to be checked and corrected. (Action:	Remedial action already taken by POWERGRID	

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					BBMB; Time Frame: 7days)		
10.	32/B1/I	Multiple Element tripping at 220kV Wagoora(PG)	03.03.2016 at 16:34 Hrs	POWERGRID and J&K	<p>1. Operating procedure for work at station (new installation, change in the elements etc) may be available at station and it should be properly followed. (Action: POWERGRID; Time Frame: 7days)</p> <p>2. Operating procedure should also be formulated for one time activity like PMU installation, changes in the element etc. (Action: All NR constituents; Time Frame: 30days)</p> <p>3. POWERGRID may kindly submit the detailed report answering the following points: (Action: POWERGRID; Time Frame: 7days)</p> <p>(i) Availability of Operating procedure for work at station (new installation, change in the elements etc)</p> <p>(ii) Inter tripping delay in ICT tripping at Wagoora(PG).</p> <p>(iii) Whether bus bar protection operated for both 220kV buses at 220kV Wagoora (PG).</p> <p>(iv) Redundancy in supply source for bus bar protection.</p>		
11.	32/B1/J	Multiple Element tripping at 400kV Bareilly(UP)	06.03.2016 at 14:30 Hrs	UPPTCL and POWERGRID	<p>1. UPPTCL to inform the RPC/RLDC about "Reason of opening and closing of breaker at Bareilly(UP) end for</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>400kV Bareilly (UP)-Bareilly (PG) DC: Line should be tripped in reverse zone within 500ms” (Action: UPPTCL; Time Frame: 15days)</p> <p>2. Availability of healthy and reliable DC system as protection system dependent on DC supply. Changeover logic from charger to battery should have regularly checked. (Action: UPPTCL)</p> <p>3. Availability of time synchronised DR and standalone EL needs to be ensured at 400/220kV Bareilly (UP). (Action: UPPTCL; Time Frame: 15days)</p> <p>4. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: UPPTCL; Time Frame: 15days)</p>		
12.	32/B1/K	Multiple Element tripping at 400kV Bawana(DTL) & Bawana(CCGT)	12.03.2016 at 17:35 Hrs	DTL & POWERGRID	<p>1. Bawana CCGT/ DTL may kindly submit the detailed report for multiple element tripping considering points for discussion, action taken report and time line for pending recommendations (Action: Bawana CCGT; Time Frame: 15days)</p> <p>2. Availability of healthy time synchronized digital data of Bawana and Bawana CCGT station to be ensured. (Action: DTL; Time Frame:</p>	All preventive action already taken by DTL	

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>15days)</p> <p>3. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p> <p>4. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: Bawana CCGT; Time Frame: 15days)</p>		
13.	32/B1/L	Complete outage of 400/220kV Lucknow(PG) Station	13.03.2016 at 09:22 Hrs	UPPTCL & POWERGRID	<p>1. Is there any SPS enabled for tripping of unit at Rosa TPS for tripping of Lucknow-Rosa line. Also confirm the status of Rosa unit tripping along with reason of tripping (Action: UPPTCL, Rosa TPS; Time Frame: 15days)</p> <p>2. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>	All preventive action already taken by UPPTCL & POWERGRID	
14.	32/B1/N	Multiple element tripping at 400kV Rampur HEP	31.03.2016 at 04:43 Hrs & 07:55 Hrs	NJPC & POWERGRID	<p>1. Fault Measurement system (automatic detecting module) at Rampur HEP needs to be checked and corrected. (Action: NJPC; Time Frame: 1months)</p> <p>2. Availability of time synchronized digital data to be ensured. (Action: NJPC; Time Frame: 1months)</p>		
15.	32/B1/Q	Complete outage of 220kV Salal HEP	28.04.2016 at 01:17 Hrs	NHPC, POWERGRID	<p>1. Distance protection should be blocked in case of VT fuse failure and</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
				& J&K	<p>back up over current protection should be automatically enabled. (Action: NHPC; Time Frame: 1months)</p> <p>2. Input from line VT should be taken for distance protection of line to avoid complete station outage in case of wrong setting. (Action: NHPC; Time Frame: 1months)</p> <p>3. NHPC may kindly submit the detailed action taken report on recommendations. (Action: NHPC; Time Frame: 1months)</p> <p>10. Availability of time synchronized digital data to be ensured. (Action: NHPC; Time Frame: 1months)</p> <p>4. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>		
16.	32/B1/S	Multiple Element tripping at 400kV Daultabad (HVPNL) Station	16.05.2016 at 19:03 Hrs & 17.05.2016 at 09:32 Hrs	HVPNL & POWERGRID	<p>1. Healthiness of Bus Bar Protection Scheme at Daultabad station to be ensured. (Action: Haryana; Time Frame: 15 days)</p> <p>2. Reason of tripping of all main and tie CB in case of bus fault of Bus-1 at 400kV Daultabad station. (Action: Haryana; Time Frame: 15 days)</p> <p>3. Availability of DR/EL and automatic downloading facility for DR at 400/220kV Daultabad station to be</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>ensured. (Action: Haryana; Time Frame: 1 months)</p> <p>4. Availability of digital data of 400/220kV Daultabad station to be ensured. (Action: Haryana; Time Frame: 1 months)</p> <p>5. Haryana is continuously violating the IEGC clause 5.2.r & CEA Grid Standard 5.3 as Detailed report, DR/EL has not been received from Haryana in past also.</p>		
17.	32/B1/T	Multiple element tripping at 400/220kV Bhiwadi (PG)	25.05.2016 at 16:36 Hrs	POWERGRID & Rajasthan	<p>1. Healthiness of bus bar protection needs to be ensured at 220kV Bhiwadi (PG). (Action: POWERGRID-NR1; Time Frame: 15days)</p> <p>2. Proper procedure should have followed during changing of element so that such type of blocking of bus bar protection could be prevented. (Action: POWERGRID-NR1; Time Frame: 15days)</p> <p>3. Operating procedure should also be formulated for one time activity like PMU installation, changes in the element etc (Action: All the NR Constituent;))</p> <p>4. Rajasthan may kindly check the Z-2, Z-3 timing in 220kV Khushkhera-Bhiwadi ckt-1&2 and also check the digital data status for 220kV Khushkhera-Bhiwadi DC, Khushkhera-</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Neemrana ckt and Bhiwadi-Bhiwadi ckt. (Action: Rajasthan; Time Frame: 15days)</p> <p>5. Availability of time synchronized digital data to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>6. Availability of time synchronized DR/EL needs to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		
18.	31/B1/A	Tripping of 400kV Balia-Bhiwadi Bipole	05.07.2015 at 06:54 Hrs	POWERGRID	<p>1. POWERGRID may explore the alternative measures to prevent bipole tripping in case of absence of earth electrode. (Action: POWERGRID; Time Frame: 3 months)</p> <p>2. Availability of digital data of HVDC Balia-Bhiwadi Bipole station to be ensured. (Action: POWERGRID; Time Frame: 1 months)</p> <p>3. Frequent Patrolling of earth electrode of HVDC Balia-Bhiwadi Bipole to be planned for prevention of theft of earth electrode. (Action: POWERGRID; Time Frame: 1 months)</p>		
19.	31/B1/D	Multiple Element tripping at 400/220kV Kashipur	12.07.2015 at 07:11 Hrs	Uttarakhand & POWERGRID	1. PTCUL to review Bus bar/LBB protection setting at Kashipur. (Action:		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Uttarakhand; Time Frame: 7 days)</p> <p>2. PTCUL to review the protection setting and bus bar/LBB protection scheme at Kashipur sub-station and submit the report within 30 days (Action: PTCUL; Time Frame: 30 days)</p> <p>3. End to end testing for 400kV Kashipur-Bareilly(PG) line to be conducted and the report be submitted to NRPC/NRLDC. (Action: PTCUL, POWERGRID; Time Frame: 15 days)</p> <p>4. Availability of time synchronized digital data of Kashipur station needs to be ensured. (Action: PTCUL; Time Frame: 7 days)</p> <p>5. PTCUL to furnish the details (DR/EL & Preliminary Report) of the tripping within 24 hrs of the event and also furnish the detailed report within 15 days of the event. (Action: PTCUL, Time Frame: Immediate)</p>		
20.	31/B1/K	Multiple Element tripping at 400kV Parbati(Pool) / Banala(PG)	22.08.2015 at 01:48 Hrs	NTPC, NHPC & POWERGRID	<p>1. 400kV Parbati (Pool) to Parbati HEP-II and 400kV Parbati (Pool) to Parbati HEP-III should be on separate bus. (Action: POWERGRID; Time Frame: 15 days)</p> <p>2. Availability of time synchronized digital data to be ensured. (Action: POWERGRID; Time Frame: 15days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
21.	31/B1/L	Complete Outage of Parbati(Pool)/Banala(PG)	29.08.2015 at 17:32 Hrs	POWERGRID, Punjab & JPVL	<p>1. 400kV Parbati (Pool) to Parbati HEP-II and 400kV Parbati (Pool) to Parbati HEP-III should be on separate bus. (Action: POWERGRID; Time Frame: 15 days)</p> <p>2. Carrier communication and DT signal to be reviewed for Bus bar protection operation in 500kV Parbati(Pool)-Koldam line as DT received at Koldam end. (Action: POWERGRID; Time Frame: 7 days)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: POWERGRID; Time Frame: 15 days)</p>	Remedial action already taken by POWERGRID	
22.	31/B1/M	Multiple Element tripping at 400/220kV Panchkula(PG) Station	11.09.2015 at 18:54 Hrs	POWERGRID, NJPC & Haryana	<p>1. Proper procedure should be followed for operation of isolator opening/closing during maintenance activity at station. (Action: POWERGRID; Time Frame: 15 days)</p> <p>2. Every utility to issue detailed instructions to take care of the setting of stub protection (enable/disable) according to isolator position. (Action:All Utilities, Time Frame: 30 days)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: POWERGRID; Time Frame: 15 days)</p>	Remedial action already taken by POWERGRID	
23.	31/B1/N	Multiple Element tripping at 220kV Dhauliganga station	24.09.2015 at 20:06 Hrs	POWERGRID, NHPC & UPPTCL	1. NHPC to review the line and unit tripping, PSS tuning and submit the detailed report to RPC, RLDC. (Action:		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>NHPC; Time Frame: 15 days)</p> <p>2. SCADA Analog and digital data availability and healthiness of 220kV Dhauliganga HEP, Bareilly (UP) needs to be ensured. (Action: NHPC, UPPTCL; Time Frame: 15 days)</p> <p>3. Availability of time synchronised DR and standalone EL needs to be ensured at 220kV Bareilly (UP). (Action: UPPTCL; Time Frame: 15 days)</p> <p>4. UPPTCL to take corrective action at 220kV Bareilly (UP) to prevent multiple element tripping nearby Bareilly(UP) station. (Action: UPPUCL; Time Frame: 30 days)</p>		
24.	31/B1/P	Multiple Element tripping at 220kV Ballabgarh (BBMB) station	12.10.2015 at 21:48 Hrs	BBMB, DTL, NTPC & POWERGRID	<p>1. Numerical Bus Bar Protection to be commissioned at 220kV Samaypur(BBMB) station (Action: BBMB; Time Frame: 30 days)</p> <p>2. Z-2 setting of 220kV Ballabgarh-Charkhi Dadri line at Charkhi Dadri end to be checked and corrected. (Action: BBMB; Time Frame: 30 days)</p> <p>3. Unsuccessful islanding operation of partial load of south Delhi area with Pragati generation needs to be reviewed and remedial measures to be taken. (Action: DTL; Time Frame: 30 days)</p> <p>4. Unsuccessful islanding operation of Faridabad generation needs to be</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>reviewed and remedial measures to be taken (Action: NTPC, HVPNL; Time Frame: 30 days)</p> <p>5. Mal-operation of Bucholz protection of 400/220kV ICT-02 of Bammabgarh(PG) needs to be looked into. (Action: BBMB; Time Frame: 15 days)</p> <p>6. Centralised Event Logger should be available at 220kV Samaypur(BBMB) station. (Action: BBMB; Time Frame: 30 days)</p> <p>7. Availability of time synchronized digital data to be ensured. (Action: BBMB; Time Frame: 15 days)</p> <p>8. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (Action: All Utilities; Time Frame: 3 months)</p>		
25.	31/B1/T	Multiple element tripping at 400kV Mainpuri (PG)	22.11.2015 at 18:25 Hrs	POWERGRID & UP	<p>1. POWERGRID to check the SCADA SoE for following points and submit report within 15 days:</p> <p>a. Opening of 400kV Mainpuri-Fatehpur(end) ckt1 tie CB closed after ~ 650ms of opening of main CB and again opened after ~100ms.</p> <p>b. Revival of 400kV Mainpuri-Ballabagrh ckt-1 within a minute of tripping. (SoE, SCADA data). (Action: POWERGRID, Time Frame: 15 days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					2. Availability of healthy digital data of 400kV Mainpuri station to be ensured. (Action: POWERGRID ; Time Frame: 15 days)		
26.	31/B1/W	Complete outage of 65kV Jhatikara (PG) along with all four 765/400kV ICTs	11.12.2015 at 10:51 Hrs	POWERGRID	Utilities may kindly follow proper procedure for prevention of such human error during testing and commissioning of new elements in the existing stations. (Action: General Recommendations)	Remedial action has already been taken by POWERGRID.	
27.	31/B1/X	Multiple element tripping at 400kV Kurukshetra (PG)	12.12.2015 at 02:42 Hrs	POWERGRID, Punjab & JPVL	1. Over voltage setting of 400kV elements connected at 400/220kV Kurukshetra station should be voltage and time graded. (Action: POWERGRID ; Time Frame: 1 month) 2. Voltage measurement error in Y-phase CVT of 400kV Kurukshetra-Nakodar ckt and Kurukshetra-Jalandhar ckt needs to be checked and remedial action to be taken. (Action: POWERGRID ; Time Frame: 1 month)		
64.	31/B1/Y	Multiple Element tripping at 400kV Hissar (PG) Station & tripping of ±500kV Mundra-Mohindergarh Pole-2	14.12.2015 at 16:54 Hrs	Adani Power & POWERGRID	1. Blocking of HVDC Mundra-Mahendergarh Pole-2 within 60ms of fault occurrence may be checked and corrected. (Action: Adani Transmission Ltd ; Time Frame: 1 month)		
28.	30/B1/D	Tripping of HVDC Balia-Bhiwadi Bipole	18.02.2015 at 10:51 Hrs & 19.02.2015 at	POWERGRID	1. POWERGRID may furnish the complete scheme & modification in the scheme for UPS changeover. (Action:		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
			12:11 Hrs		<p>POWERGRID; Time Frame: 7 days)</p> <p>2. POWERGRID may furnish the detailed investigation report in case of tripping on 19th Feb 2015, considering the simultaneous failure of both communication channels. (Action: POWERGRID; Time Frame: 7days)</p> <p>3. Availability of digital data of HVDC Balia-Bhiwadi Bipole station to be ensured. (Action: POWERGRID; Time Frame: 1 months)</p>		
29.	30/B1/F	Kashmir Valley Collapse	02.03.2015 at 05:20 Hrs & 06:50 Hrs	POWERGRID, NHPC, Punjab & PDD J&K	<p>1. Non-auto reclosing of 220kV Sarna-Kishenpur ckt-1 from Kishenpur end to be checked & corrected. (Action: POWERGRID; Time Frame: 7days)</p> <p>2. Setting of reverse zone at 220kV Sarna end of 220kV Sarna-Kishenpur D/C needs to be reviewed. (Action: POWERGRID; Time Frame: 7days)</p> <p>3. NHPC may review the staggering in over frequency setting of Uri-I HEP units. (Action: NHPC; Time Frame: 7days)</p> <p>4. PDD-J&K may review the staggering in over frequency setting of Uri-I HEP units. (Action: PDD-J&K; Time Frame: 15days)</p> <p>5. Planned SPS for Kashmir valley to be expedited. (Action: PDD-J&K)</p> <p>6. Installation of UFR & df/dt relays to</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					be expedited.(Action: PDD-J&K)		
30.	30/B1/G	Multiple Element tripping at 400/220kV Bassi(PG) station	05.03.2015 at 11:15 Hrs	POWERGRID & Rajasthan	<p>1. PRD mal-operation of 400/220kV ICT-3 at Bassi (PG) end to be checked & corrected. (Action: POWERGRID; Time Frame: 1month)</p> <p>2. Availability of time synchronized digital data to be ensured. (Action: POWERGRID; Time Frame: 1month)</p>		
31.	30/B1/J	Complete Outage of 400kV Bareilly(UP) station	21.03.2015 at 08:59 Hrs	UP & POWERGRID	<p>1. Availability of new numerical bus bar protection to be ensured. (Action: UPPTCL; Time Frame: 2months)</p> <p>2. Distance zones setting of 400kV Bareilly-Unnao line to be reviewed according to Ramakrishna committee task force recommendations. (Action: UPPTCL; Time Frame: 7days)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 7days)</p> <p>4. Availability of DR (Disturbance recorder)/EL (Event logger) to all the 400&220kV element at 400/220kV Bareilly(UP) station to be ensured. (Action: UPPTCL; Time Frame:45days)</p> <p>5. Availability of automatic download facility of DR & standalone EL to be ensured. (Action: UPPTCL; Time Frame:45days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
32.	30/B1/K	Complete Outage of 400/220kV Sultanpur Station	01.04.2015 at 22:22 Hrs	UP & POWERGRID	<p>1. Availability & Healthiness of bus bar protection scheme at 400kV Sultanpur station to be ensured. (Action: UPPTCL; Time Frame: 1months)</p> <p>2. Reason of delayed clearance of fault couldn't conclude due to non-availability of complete DR/EL & time synchronized digital data.</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 7days)</p> <p>4. Availability of DR (Disturbance recorder)/EL (Event logger) to all the 400&220kV element at 400/220kV Sultanpur (UP) station to be ensured. (Action: UPPTCL; Time Frame:45days)</p> <p>5. Availability of automatic download facility of DR & standalone EL at 400kV Sultanpur (UP) to be ensured. (Action: UPPTCL; Time Frame:45days)</p>		
33.	30/B1/M	Complete Outage of 220kV Raebareilly(PG)	10.04.2015 at 13:53 Hrs	POWERGRID, UP & NTPC	<p>1. Healthiness & setting of 220kV bus bar protection scheme at 220kv raebareilly (PG) to be reviewed. (Action: POWERGRID; Time Frame: 15days)</p> <p>2. Sensitive setting of auxiliary contactor of unchar units to be corrected. It may be coordinated with zone-3 setting of line protection.</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					(Action: NTPC ; Time Frame: 15days). 3. Availability of digital data to be ensured. (Action: POWERGRID, NTPC ; Time Frame: 15days)		
34.	30/B1/Q	Multiple Element tripping at 400/220kV Bhiwadi(PG) and 500kV Balia-Bhiwadi Bipole	29.04.2015 at 16:42 Hrs	POWERGRID & Rajasthan	1. Digital data availability needs to be ensured. (Action: POWERGRID, Rajasthan ; Time Frame: 15days) 2. Sensitive setting of Negative sequence over current protection setting for Bipole to be checked & corrected. (Action: POWERGRID, Rajasthan ; Time Frame: 15days)		
35.	30/B1/P	Multiple Element tripping at 220kV Salal station	01.06.2015 from 21:52 Hrs to 23:15 Hrs	NHPC, POWERGRID & PDD J&K	1. Setting of backup impedance protection of unit-1& 6 also to be checked & corrected. (Action: NHPC ; Time Frame: 7days). 2. In second incident Setting of generator inadvertent energization protection in unit-1&6 to be changed, time delay of 2-3 second should be incorporated in case of voltage go below 50% of the system voltage. (Action: NHPC ; Time Frame: 7days) 3. Capacity test of the battery bank of maintenance free battery to be done in one year. (Action: All the NR constituents) 4. Automatic changeover of AC supply in the sub-station to be planned & implemented. (Action: NHPC ; Time		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					Frame: 45days) 5. DR/EL time synchronization to be looked into by NHPC.(Action: NHPC ; Time Frame: 15days)		

12. Incidents pertaining to PTCUL

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B7	Multiple element tripping at 400/220kV Kashipur	20.08.2016 at 17:07 Hrs	PTCUL	<p>1. Availability of time synchronized digital data of Kashipur station needs to be ensured. (Action: PTCUL; Time Frame: 7days)</p> <p>2. STU (Uttarakhand) should furnish the details (DR/EL & Preliminary Report) of the tripping within 24hrs of the event directly to RPC/RLDC for tripping in future and also furnish the detailed report within 15 days of the event.</p>		
2.	31/B1/D	Multiple Element tripping at 400/220kV Kashipur	12.07.2015 at 07:11 Hrs	Uttarakhand & POWERGRID	<p>1. PTCUL to review Bus bar/LBB protection setting at Kashipur. (Action: Uttarakhand; Time Frame: 7 days)</p> <p>2. PTCUL to review the protection setting and bus bar/LBB protection scheme at Kashipur sub-station and submit the report within 30 days (Action: PTCUL; Time Frame: 30 days)</p> <p>3. End to end testing for 400kV Kashipur-Bareilly(PG) line to be conducted and the report be submitted to NRPC/NRLDC. (Action: PTCUL, POWERGRID; Time Frame: 15 days)</p> <p>4. Availability of time synchronized digital data of Kashipur station needs to be ensured. (Action: PTCUL; Time Frame: 7 days)</p> <p>5. PTCUL to furnish the details (DR/EL & Preliminary Report) of the tripping</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					within 24 hrs of the event and also furnish the detailed report within 15 days of the event. (Action: PTCUL , Time Frame: Immediate)		

13. Incidents pertaining to Punjab

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B11	Complete outage of 400kV Dehar(BBMB) Station	07.09.2016 at 18:55 Hrs	BBMB, Punjab and POWERGRID	<p>1. Non-availability of SCADA-digital/analog status data to be checked and corrected. (Action: BBMB; Time Frame: 7days)</p> <p>2. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p> <p>3. Centralized Event Logger should be available at each station. (Action: All utilities)</p>		
2.	33/B13	Complete outage of 400kVRajpura TPS	08.12.2016 at 03:08 Hrs	Punjab	<p>1. Auto reclosing at Rajpura TPS end of 400kVRajpura-Nakodar both circuit needs to be checked and corrected. Auto reclosure should be put in the service and in healthy condition. PSTCL to take up with generating plant and send the compliance report to NRPC Sectt. and NRLDC(Action: Punjab; Time Frame: 15days)</p> <p>2. Distance protection setting, carrier protection and auto reclosing facility in 400kV Nakodar-Rajpura TPS ckt-1&2 needs to be checked and corrected. (Action: Punjab; Time Frame: 15days)</p> <p>3. Confirm timeline for implementation of Pilot Project for automatic DR downloading facility at one 400/220kV station. (Action: Punjab; Time Frame:</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>15 months)</p> <p>4. Availability of digital and analog data of 400/220kV Nakodar, Rajpura TPS, Dhuri station to be ensured. (Action: POWERGRID; Time Frame: 1 months)</p> <p>5. A/R facility may be enabled at all 220kV lines without carrier communication also, so that line could be auto reclosed from both end separately. (General Recommendations)</p> <p>6. Centralised Event Logger should be available at each station. (General Recommendations)</p>		
3.	32/B1/A	Multiple element tripping at 400/220kV Nakodar	07.01.2016 at 05:59 Hrs	Punjab	<p>1 High Set for backup overcurrent protection for 400/220kV ICTs at Nakodar end to be reviewed (Action: Punjab; Time Frame: 15 days)</p> <p>2. Protection settings for 400kV Bus Reactor at Nakodar end to be checked corrected and reported to NRPC and NRLDC. (Action: Punjab; Time Frame: 15 days)</p> <p>3. Distance protection setting, carrier protection and auto reclosing facility in 400kV Nakodar-Moga line needs to be checked and corrected. (Action: Punjab; Time Frame: 15 days)</p> <p>4. Confirm timeline for implementation of Pilot Project for automatic DR downloading facility at one 400/220kV</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>station. (Action: Punjab; Time Frame: 15 months)</p> <p>5. Availability of digital and analog data of 400/220kV Nakodar station to be ensured. (Action: POWERGRID; Time Frame: 1 months)</p> <p>6. High set setting for ICTs should have 50-100ms time delay for prevention of tripping during transient fault feeding. (General Recommendations)</p>		
4.	32/B1/G	Multiple Element tripping at 220kV Sarna (Punjab)	19.02.2016 at 08:11 Hrs	Punjab	<p>1. STU/SLDC may kindly take data from all the station within its control area and send the final report to RLDC/RPC. (Action: All the NR Constituent)</p> <p>2. Punjab may kindly submit the detailed report of the tripping considering the discussed points to RPC/ RLDC. (Action: Punjab; Time Frame: 7days)</p> <p>3. Availability of healthy numerical bus bar protection at 220kV Sarna (Punjab) to be ensured. (Action: Punjab; Time Frame: 30days)</p> <p>4. Auto reclosure facility should be enabled in all 220kV lines at 220kV Sarna station and other 220kV stations in Punjab. (Action: Punjab; Time Frame: 15days)</p> <p>5. Availability of DR/EL at 220kV Sarna station to be ensured. (Action: Punjab;</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Time Frame: 1 months)</p> <p>6. Availability of digital data of 220kV Sarna, RSD and Wadala Granthian station to be ensured. (Action: Punjab; Time Frame: 1 months)</p> <p>7. Availability of digital data of 220kV Hiranagar, Udampur station to be ensured. (Action: J&K; Time Frame: 1 months)</p> <p>8. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p> <p>9. Punjab is continuously violating the IEGC clause 5.2.r & CEA Grid Standard 5.3 as Detailed report, DR/EL has not been received from Punjab in past also.</p>		
5.	31/B1/B	Multiple Element tripping at 400/220kV Makhu (Punjab) station	06.07.2015 at 04:49 Hrs	Punjab	<p>1. Availability of time synchronized digital data of 400/220kV Makhu station to be ensured. (Action: PSTCL; Time Frame: 1 months)</p> <p>2. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3 months)</p> <p>3. PSTCL to improve the reporting of DR/EL and submission of detailed</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>report to RPC/RLDC. (Action: PSTCL, Time Frame: Immediate)</p> <p>4. There may be some default setting in the relay which is not required after commissioning and testing of the relay. Same should be checked by utilities as preventive measures. (Action: All the NR Constituent, Time Frame: Immediate)</p>		
6.	31/B1/L	Complete Outage of Parbati(Pool)/Banala(PG)	29.08.2015 at 17:32 Hrs	POWERGRID, Punjab & JPVL	<p>1. 400kV Parbati (Pool) to Parbati HEP-II and 400kV Parbati (Pool) to Parbati HEP-III should be on separate bus. (Action: POWERGRID; Time Frame: 15 days)</p> <p>2. Carrier communication and DT signal to be reviewed for Bus bar protection operation in 500kV Parbati(Pool)-Koldam line as DT received at Koldam end. (Action: POWERGRID; Time Frame: 7 days)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: POWERGRID; Time Frame: 15 days)</p>	Remedial action already taken by POWERGRID	
7.	31/B1/S	Complete outage of 220kV Ablowal (PSTCL)	20.11.2015 at 11:57 Hrs	Punjab	<p>1. Availability of healthy numerical bus bar protection at 220kV Ablowal (Punjab) to be ensured. (Action: PSTCL; Time Frame: 30 days)</p> <p>2. Reason of opening of Tie CB of Nakodar-2(future line) to be investigated. (Swapping of digital signal or problem in the tripping logic of distance protection). (Action: PSTCL;</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					Time Frame: 7days 3. Availability of DR/EL at 220kV Ablowal station to be ensured. (Action: PSTCL ; Time Frame: 30 days) 4. Availability of digital data of 400kV 220kV Ablowal station to be ensured. (Action: PSTCL ; Time Frame: 30 days) 5. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent ; Time Frame: 3 months)		
8.	31/B1/V	Multiple Element tripping at 400kV Makhu Station	07.12.2015 at 06:21 Hrs	Punjab	1. PSTCL to submit the detailed report of the event within 7 days. (Action: PSTCL , Time Frame: 7 days) 2. Punjab to review the O/V setting of 400kV Makhu-Nakodar ckt-2 and 400kV Makhu-Mukatsar ckt-1. (Action: PSTCL , Time Frame: 15 days) 3. Availability of time synchronized digital data of 400/220kV Makhu station to be ensured. (Action: PSTCL ; Time Frame: 1 month) 4. PSTCL to improve the reporting of DR/EL and submission of detailed report to RPC/RLDC. (Action: PSTCL ; Time Frame: Immediate)		
9.	31/B1/X	Multiple element tripping at 400kV Kurukshetra (PG)	12.12.2015 at 02:42 Hrs	POWERGRID, Punjab & JPVL	1. Over voltage setting of 400kV elements connected at 400/220kV Kurukshetra station should be voltage		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					and time graded. (Action: POWERGRID ; Time Frame: 1 month) 2. Voltage measurement error in Y-phase CVT of 400kV Kurukshetra-Nakodar ckt and Kurukshetra-Jalandhar ckt needs to be checked and remedial action to be taken. (Action: POWERGRID ; Time Frame: 1 month)		
10.	30/B1/F	Kashmir Valley Collapse	02.03.2015 at 05:20 Hrs & 06:50 Hrs	POWERGRID, NHPC, Punjab & PDD J&K	1. Non-auto reclosing of 220kV Sarna-Kishenpur ckt-1 from Kishenpur end to be checked & corrected. (Action: POWERGRID ; Time Frame: 7days) 2. Setting of reverse zone at 220kV Sarna end of 220kV Sarna-Kishenpur D/C needs to be reviewed. (Action: POWERGRID ; Time Frame: 7days) 3. NHPC may review the staggering in over frequency setting of Uri-I HEP units. (Action: NHPC ; Time Frame: 7days) 4. PDD-J&K may review the staggering in over frequency setting of Uri-I HEP units. (Action: PDD-J&K ; Time Frame: 15days) 5. Planned SPS for Kashmir valley to be expedited. (Action: PDD-J&K) 6. Installation of UFR & df/dt relays to be expedited.(Action: PDD-J&K)		

14. Incidents pertaining to Rajasthan

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B1	Multiple Element tripping at 400/220kV Barmer Station and Wind generation tripping	05.07.2016 at 09:41hrs	RVPN	<p>1. Rajasthan/RRVNL should submit the detailed investigation report of the incident within 15 days considering the following points:</p> <ul style="list-style-type: none"> ➤ Reason of delayed Clearance of fault? ➤ Sequence of Event? ➤ Healthiness of bus bar protection at 220kV side of 400/220kV Barmer station? ➤ Reason of outage of other 220kV bus at 400/220kV Barmer station? ➤ Over voltage Stag-1 and Stage-2 setting for 400kV Akal-Barmer, Barmer-Rajwest and Akal-Jodhpur needs to be shared and reviewed. ➤ Tripping of 400kV Barmer-Akal and Barmer-Rajwest line from remote end on which protection? ➤ It seems in many 400 and 220kV elements tripping, line hanging from one end. Inter tripping for 400kV and 220kV tripped elements to be looked into. ➤ Protection Co-ordination between 400kV lines and 400/220kV ICTs at Barmer station? ➤ Multiple times tripping observed at 400/220kV Akal and Barmer station and it resulted into complete outage of 		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>wind generation.</p> <ul style="list-style-type: none"> ➤Actual wind generation outage due to evacuation problem or stalling of wind generation?? ➤Status of availability of Fault Ride Through (FRT) or Low Voltage Ride Through (LVRT) capability of wind generation (Generator wise details) ➤Non-availability of time synchronized digital data of Rajasthan ➤DR time synchronization problem for 400kV Akal-Barmer line and 220kV Akal-Dhaurimana line? ➤Preventive measures taken by Rajasthan for wind generation tripping during fault. ➤During incident of 22nd Aug 2016, reason of multiple element tripping, reason of bus bar protection operation, sequence of tripping etc needs to be looked into ➤Some of the wind generations tripping dates are: 24-June 2014, 15-Jan 2015, 22-May 2015, 28-July 2015, 19-Aug 2015 and 20-Aug 2015, 10-Feb 2016, 11-Mar 2016, 02-Apr 2016, 05-Jul 2016 etc. <p>Multiple times outage of wind generation needs to be looked into</p> <p>2. Availability and healthiness of 220kV bus bar protection at 400/220kVBarmer station to be</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>checked and corrected. (Action: Rajasthan; Time Frame: 15days)</p> <p>3. As per NRPC philosophy over current protection setting should be disabled in all 400kV lines and if it needs to be enabled then implementation would be with prior approval of NRPC. Over current setting at 400kV Barmer, Akal and Jodhpur station for 400kV lines needs to be reviewed and corrected.(Action: Rajasthan; Time Frame: 7days)</p> <p>4. Availability of time synchronized digital data to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>5. Rajasthan to submit the generator details claimed to have LVRT facility in its generator (Action: Rajasthan; Time Frame: 7days)</p> <p>6. Status of dynamic voltage compensation in case of wind generation Installation in Rajasthan. (Action: Rajasthan; Time Frame: 30days)</p> <p>7. Time Synchronization of DR/EL to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>8. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					9. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station (Action: All utilities)		
2.	33/B6	Multiple element tripping at 400/220kVRajwest	09.08.2016 at 23:52hrs & 01.09.2016 at 19:19hrs	RVPN & RAJWEST	<p>1. Rajasthan/RRVPNL should submit the detailed investigation report of the incident within 15days considering the following points:</p> <p>➤ Event on 9th Aug 2016:</p> <ul style="list-style-type: none"> • Grading of over voltage settings at same station, parallel lines, and same corridor lines to be looked into in view of repeated tripping on over voltage affecting generation. • Actual problem in PLCC of 400kV Jodhpur-Merta as mentioned in Jodhpur report. Current status of the same. • Over current settings of 220kVBarmer-Dhaurimana ckt. Information about over current tripping enabled in other 220kV and above ckts in general for all the constituents. • Over current setting in 400kVBarmer-Akal and Barmer-Rajwest line and nearby area? (As per NRPC philosophy, over current protection setting should not be enable) • Time synchronization of digital SCADA data at Rajwest. • Availability of analog data of Rajwest, 		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Akal, Jodhpur, Barmer area?</p> <ul style="list-style-type: none"> • New Bus Reactor Proposal in Rajwest, Jodhpur, Akal, Barmer area • Availability of DR/EL of the tripped elements <p>➤ Event on 01st Sep 2016:</p> <ul style="list-style-type: none"> • Antecedent connectivity at 400kVRajwest station • Exact location of fault. • Status of 220kV element tripping at 400/220kVRajwest station? • Exact sequence of protection operated vis-à-vis sequence of protection should have operated ideally. • Tripping of 400kVRajwest-Barmer captured in SCADA SoE data. • Time synchronization of digital SCADA data at Rajwest. • Availability of DR/EL of the tripped elements. <p>2. Availability and healthiness of 220kV bus bar protection at 400/220kVBarmer station to be checked and corrected. (Action: Rajasthan; Time Frame: 15days)</p> <p>3. As per NRPC philosophy over current protection setting should be disabled in all 400kV lines and if it needs to be enabled than implementation would be with prior</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>approval of NRPC. Over current setting at 400kV Barmer, Akal and Jodhpur station for 400kV lines needs to be reviewed and corrected. (Action: Rajasthan; Time Frame: 7days)</p> <p>4. Availability of time synchronized digital data to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>5. Time Synchronization of DR/EL needs to be looked into. (Action: Rajasthan; Time Frame: 15days)</p> <p>6. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p> <p>7. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station (Action: All utilities)</p>		
3.	33/B8	Multiple times multiple element tripping at 400/220kV Jodhpur Station in the month of Aug 2016	August 2016	RVPNL	<p>1. Regarding Tripping at Jodhpur on 03rd Aug 2016 PSC suggested following action:</p> <p>a. Protection Setting:</p> <p>➤ The usual practice followed for over-voltage setting at 400kV is 110-113% with 5-8sec delay. Further, for parallel circuits or multiple circuits emanating from the same substation, staggering of the overvoltage settings of different circuits is being adopted to avoid</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>simultaneous multiple outages. Keeping in view the above aspects, the over voltage settings may be reviewed.</p> <p>b. Others:</p> <ul style="list-style-type: none"> ➤ From PMU data of Bassi, the voltage at Bassi reached up to 104% of rated voltage only. The antecedent voltage at Jodhpur, Rajwest and Merta to be confirmed and shared. ➤ Reason for outage of 400kV Jodhpur-Akal to be shared. ➤ Reason for non-availability of SCADA SoE data of Merta, Rajwest and analog MW data for 400kV Jodhpur-Rajwest D/C at the time of tripping to be identified and shared. ➤ Exact sequence of tripping to be ascertained and shared. ➤ The chronic overvoltage problem in Jodhpur area needs to be arrested to avoid any contingencies and reliable operation of the system. ➤ Tripping details viz. Preliminary report, detailed report, DR/EL is to be provided. <p>2. Regarding Tripping at Jodhpur on 10th Aug 2016 PSC suggested following action:</p> <p>a. Protection Setting:</p> <ul style="list-style-type: none"> ➤ The protection setting of over voltage to be reviewed to avoid simultaneous multiple outages and revised settings 		

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					<p>be shared.</p> <p>b. Others:</p> <ul style="list-style-type: none"> ➤ From PMU data of Bassi, the voltage at Bassi reached up to 104% of rated voltage only. The antecedent voltage at Jodhpur, Rajwest, Merta and Kankroli to be confirmed and shared. ➤ Reason for outage of 400kV Jodhpur-Merta-1 and 400kV Jodhpur- Akal to be shared. ➤ Reason for non-availability of SCADA SoE data of RVPNL and Kankroli(PG) stations at the time of tripping to be identified and shared. ➤ Exact sequence of tripping to be ascertained and shared. ➤ Tripping details viz. Preliminary report, detailed report, DR/EL is to be provided. <p>3. Regarding Tripping at Jodhpur on 22nd Aug 2016 PSC suggested following action:</p> <p>a. Protection Setting:</p> <ul style="list-style-type: none"> ➤ The over voltage settings may be reviewed and shared. <p>b. Others:</p> <ul style="list-style-type: none"> ➤ From PMU data of Bassi, the voltage at Bassi reached up to 104% of rated voltage only. The antecedent voltage at Jodhpur, Rajwest, Merta and Kankroli to be confirmed and shared. ➤ Reason for outage of 400kV Jodhpur- 		

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					<p>Merta-1 and 400kV Jodhpur- Akal to be shared.</p> <ul style="list-style-type: none"> ➤ Exact location of CT burst at Barmer to be shared. ➤ Reason for tripping of 220kV Barmer circuits to be shared. ➤ Reason for non-availability of SCADA SoE data of RVPNL and Kankroli(PG) stations at the time of tripping to be identified and shared. ➤ Exact sequence of tripping to be ascertained and shared. ➤ The chronic overvoltage problem in Jodhpur area needs to be arrested to avoid any contingencies and reliable operation of the system. Therefore, the remedial measures are to be taken in this regard and shared. ➤ Tripping details viz. Preliminary report, detailed report, DR/EL are to be provided <p>4. Regarding Tripping at Jodhpur on 28th Aug 2016 PSC suggested following action:</p> <p>a. Protection Setting:</p> <ul style="list-style-type: none"> ➤ The over voltage settings may be reviewed. <p>b. Others:</p> <ul style="list-style-type: none"> ➤ From PMU data of Bassi, the voltage at Bassi reached up to 105% of rated voltage only. The antecedent voltage at Jodhpur, Rajwest and Kankroli to be 		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>confirmed and shared.</p> <ul style="list-style-type: none"> ➤ Reason for non-availability of SCADA SoE data of Jodhpur, Merta and Kankroli stations and analog MW data for 400kV Jodhpur- Rajwest D/Cat the time of tripping to be identified and shared. ➤ Exact sequence of tripping to be ascertained and shared. ➤ The chronic overvoltage problem in Jodhpur area needs to be arrested to avoid any contingencies and reliable operation of the system. Therefore, the remedial measures are to be taken in this regard and shared. ➤ Tripping details viz. Preliminary report, detailed report, DR/EL are to be provided <p>PSC advised RRVPNL to submit report on action taken as suggested above within 15 days.</p>		
4.	32/B1/B	Multiple Element tripping at 400kV Kawai/Chhabra/Kalisindh generation complex	16.01.2016 at 01:29 Hrs	Rajasthan & Kawai	<ol style="list-style-type: none"> 1. RRVUNL needs to review line protection setting at Chhabra station as 400kV Chhabra-Hindaun line tripped in Z-1 during power swing in the line and 400kV Chhabra-Bhilwara line tripped from Chhabra end on DT receipt from remote end. (Action: RRVUNL; Time Frame: 7days) 2. Time synchronization of DR/EL of Chhabra, Kalisindh, Hindaun, Bhilwara 		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>and Phagi station needs to be reviewed. (Action: RRVPNL, RRVUNL; Time Frame: 7days)</p> <p>3. Availability of time synchronized digital data of Chhabra, Kalisindh, Hindaun, Bhilwara and Phagi station needs to be ensured. (Action: RRVPNL, RRVUNL, Adani; Time Frame: 7days)</p> <p>4. Protection Audit of Chabra TPS to be carried out by a team of protection expert from RRVPNL and POWERGRID-Kota.</p> <p>5. RRVPNL/Adani may kindly submit the status of SPS implementation to NRPC/NRLDC. (Action: RRVPNL, RRVUNL, Adani; Time Frame: 15days)</p>		
5.	32/B1/F	Multiple Element tripping at 400/220kV Akal, Amarsagar Station and Wind generation tripping	10.02.2016 at 12:08 Hrs; 11.03.2016 at 00:27 Hrs; 02.04.2016 at 13:47 Hrs	Rajasthan	<p>1. Rajasthan may kindly submit the detailed investigation report of the incident within 15days considering the following points: For 11th Mar 2016:</p> <p>i. Antecedent connectivity at 220/132kV Amarsagar station.</p> <p>ii. Name of the tripped elements??</p> <p>iii. Exact location of fault?</p> <p>iv. In case of bus fault at 220kV Amarsagar station, reason of delayed clearance of fault??</p> <p>v. Reason of non-operation of bus bar</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>protection at 220kV Amarsagar station.</p> <p>vi. Actual wind generation outage due evacuation problem or stalling of wind generation??</p> <p>vii. DR/EL and detailed report are still awaited from Rajasthan</p> <p><u>For 02nd Apr 2016:</u></p> <p>i. Multiple protection failure needs to be looked into. (Distance protection, Breaker opening, LBB protection etc)</p> <p>ii. Protection co-ordination between ICT"s and 220kV element at Akal station.</p> <p>iii. Reason of multiple 220kV element tripping at 400/220kV Akal station.</p> <p>iv. Non-availability of Analog and digital data needs to be looked into.</p> <p>v. Time synchronization of DR/EL needs to be looked into.</p> <p>Some of the wind generations tripping dates are: 24-June 2014, 15-Jan 2015, 22-May 2015, 28-July 2015, 19-June 2015 and 20-June 2015. Multiple times outage of wind generation needs to be looked into</p> <p>2. Availability of time synchronized digital data to be ensured. (Action:</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Rajasthan; Time Frame: 15days)</p> <p>3. W.r.t. the wind generation tripping of 24.06.2014, the aspect of tripping of wind generation from angle of the absence Fault Ride through (FRT) or Low Voltage Ride through (LVRT) has asked from Rajasthan. No information in this regard received at RLDC. Rajasthan may kindly submit the generator details claimed to have LVRT facility in its generator (Action: Rajasthan; Time Frame: 7days)</p> <p>4. Status of dynamic voltage compensation in case of wind generation installation in Rajasthan. (Action: Rajasthan; Time Frame: 30days)</p> <p>5. Time Synchronization of DR/EL needs to be looked into. (Action: Rajasthan; Time Frame: 15days)</p> <p>6. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		
6.	32/B1/H	Tripping of multiple units at 400kV Kalisindh TPS (Rajasthan)	28.02.2016 at 17:26 Hrs	Rajasthan	1. RRVUNL to review the reason of surge in the UPS supply. (Action: RRVUNL; Time Frame: 30days)		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>2. Availability of time synchronized digital data of Kalisindh station needs to be ensured. (Action: RRVUNL; Time Frame: 7days)</p> <p>3. Rajasthan to furnish the details (DR/EL & Preliminary Report) of the tripping within 24hrs of the event and also furnish the detailed report within 15days of the event for all the tripping incidents.</p>		
7.	32/B1/T	Multiple element tripping at 400/220kV Bhiwadi (PG)	25.05.2016 at 16:36 Hrs	POWERGRID & Rajasthan	<p>1. Healthiness of bus bar protection needs to be ensured at 220kV Bhiwadi (PG). (Action: POWERGRID-NR1; Time Frame: 15days)</p> <p>2. Proper procedure should have followed during changing of element so that such type of blocking of bus bar protection could be prevented. (Action: POWERGRID-NR1; Time Frame: 15days)</p> <p>3. Operating procedure should also be formulated for one time activity like PMU installation, changes in the element etc (Action: All the NR Constituent;))</p> <p>4. Rajasthan may kindly check the Z-2, Z-3 timing in 220kV Khushkhera-Bhiwadi ckt-1&2 and also check the digital data status for 220kV Khushkhera-Bhiwadi DC, Khushkhera-</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Neemrana ckt and Bhiwadi-Bhiwadi ckt. (Action: Rajasthan; Time Frame: 15days)</p> <p>5. Availability of time synchronized digital data to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>6. Availability of time synchronized DR/EL needs to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		
8.	31/B1/C	Multiple Element tripping at 400kV Kawai /Chhabra/ Kalisindh generation complex	10.07.2015 at 16:26 Hrs	Adani & Rajasthan	<p>1. RRVUNL to review line protection setting at Chhabra station as lines tripped on F4 (frequency protection) trip from Chhabra station. (Action: RRVUNL; Time Frame: 7 days)</p> <p>2. Time synchronization of DR/EL of Chhabra, Kalisindh, Hindaun, Bhilwara and Phagi station needs to be reviewed. (Action: RRVUNL, RRVUNL, APL; Time Frame: 7 days)</p> <p>3. Availability of time synchronized digital data of Chhabra, Kalisindh, Hindaun, Bhilwara and Phagi station needs to be ensured. (Action: RRVUNL, RRVUNL, APL; Time Frame: 7 days)</p> <p>4. RRVUNL may conduct Protection</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Audit for 400kV Chhabra TPS and submit the report to RPC/RLDC. (Action: RRVPNL, RRVUNL; Time Frame: 15 days)</p> <p>5. RRVPNL/APL to submit the status of SPS implementation to RPC/RLDC. (Action: RRVPNL, RRVUNL, Adani; Time Frame: 7 days)</p> <p>6. RVPNL and RVUNL to furnish the details (DR/EL & Preliminary Report) of the tripping within 24hrs of an event and also furnish the detailed report within 15 days of the event.</p>		
9.	31/B1/I	Multiple Element tripping at 400/220kV Rajwest, Barmer, Akal Station	28.07.2015 at 09:59 Hrs	Rajasthan & Rajwest	<p>1. Rajasthan to submit the detailed investigation report of the incident within 15 days considering the following points:</p> <p>a. Sequence of event.</p> <p>b. Status of tripping of Wind Generation and Ramgarh GT.</p> <p>c. Reason of zero voltage for 3second at Rajwest station.</p> <p>d. Over flux setting for 400/220kV ICT at Rajwest, Akal and Station transformer of Rajwest.</p> <p>e. Protection setting in 220kV Rajwest-Dhorimanna and Barmer-Dhorimanna line.</p> <p>f. Reason of tripping of 220kV Rajwest-Barmer DC and Rajwest-Dhorimanna ckt</p> <p>g. Tripping of elements other than</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>reported?</p> <p>h. Time Synchronization of digital data reporting of Rajwest, Akal, Barmer, Jodhpur in NR/Rajasthan SoE (Action: RVPNL, Time Frame: 15 days)</p> <p>2. Rajasthan to submit the location wise details of bus reactor and line reactor to be commissioned in next one year. (Action: RVPNL; Time Frame: 15 days)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: RVPNL, RVUNL; Time Frame: 15 days)</p> <p>4. W.r.t. the wind generation tripping of 24.06.2014, the aspect of tripping of wind generation from angle of the absence Fault Ride through (FRT) or Low Voltage Ride through (LVRT) was requested from Rajasthan. No information in this regard received at RLDC. (Action: RVPNL; Time Frame: 15 days)</p> <p>5. Status of dynamic voltage compensation in case of wind generation installation in Rajasthan to be furnished to NRPC/NRLDC. (Action: RVPNL; Time Frame: 30 days)</p> <p>6. Time Synchronization of DR/EL needs to be looked into. (Action: RVPNL, RVUNL; Time Frame: 15</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					days)		
10.	31/B1/J	Multiple Element tripping at 400/220kV Akal Station and Wind generation tripping	20.08.2015 at 10:03 Hrs & 10:17 Hrs	Rajasthan	<p>1. RVPNL to submit the detailed investigation report of the incident within 15 days considering the following points:</p> <p>a. Reason of tripping of 400kV Akal-Barmer and Akal-Jodhpur line.</p> <p>b. Reason of delayed clearance of fault.</p> <p>c. Protection setting at 400kV Akal station needs to be reviewed</p> <p>d. Preventive measures taken by Rajasthan for wind generation tripping during fault.</p> <p>e. Non-availability of Fault Ride Through (FRT) or Low Voltage Ride Through (LVRT) capability of renewable generation has been highlighted.</p> <p>f. Decisions were taken in OCC meeting that SLDC Rajasthan would take up with all renewable developers to provide this facility in line with CEA regulations (older plant would also be requested to retrofit)</p> <p>g. Some of the wind generations tripping dates are: 24-June 2014, 15-Jan 2015, 22-May 2015, 28-July 2015, 19-June 2015 and 20-June 2015.</p> <p>h. DR/EL & detailed report is still awaited from Rajasthan. (Action: RVPNL; Time Frame: 15 days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>2. Availability of time synchronized digital data to be ensured. (Action: RVPNL; Time Frame: 15 days)</p> <p>3. W.r.t. the wind generation tripping of 24.06.2014, the aspect of tripping of wind generation from angle of the absence Fault Ride Through (FRT) or Low Voltage Ride Through (LVRT) was requested from Rajasthan. No information in this regard received at RLDC. (Action: RVPNL; Time Frame: 15 days)</p> <p>4. Time Synchronization of DR/EL needs to be looked into. (Action: RVPNL; Time Frame: 15 days)</p>		
11.	31/B1/Q	Multiple Element tripping at 400kV Jodhpur	21.10.2015 at 02:24 Hrs	Rajasthan & Rajwest	<p>1. RVPNL to submit the detailed investigation report considering the healthiness of bus bar protection scheme and communication scheme in bus bar scheme. (Action: RVPNL; Time Frame: 15 days)</p> <p>2. Availability of time synchronized digital data of Akal, Rajwest and Jodhpur station to be ensured. (Action: RVPNL; Time Frame: 15 days)</p>		
12.	30/B1/A	Multiple Element tripping at 765kV Anta Station	03.02.2015 at 10:52 Hrs	APL & Rajasthan	<p>1. Healthiness of ABB make REB-500 Bus Bar Protection to be ensured. (Action: Rajasthan; Time Frame: 15days)</p> <p>2. Availability of DR/EL of Anta station & digital data at 764/400kV Anta station</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					to be ensured. (Action: Rajasthan ; Time Frame: 1 months) 3. Availability of digital data of 400kV Kawai station to be ensured. (Action: APL-Kawai ; Time Frame: 1 months)		
13.	30/B1/C	Multiple Element tripping at 400/220kV Ratangarh station	16.02.2015 at 15:23 Hrs	Rajasthan	1. Interim arrangement of tripping of ICTs with the 400kV lines tripping to be reviewed and changed. (Action: Rajasthan ; Time Frame: 7 days) 2. CVT of 400kV Ratangarh-Merta line at Ratangarh end may be borrowed from POWERGRID & to be replaced. (Action: Rajasthan ; Time Frame: 1 months) 3. Availability of DR/EL of Ratangarh station to be ensured. (Action: Rajasthan ; Time Frame: 1 months) 4. Availability of digital data of 400/220kV Ratangarh, Suratgarh station to be ensured. (Action: Rajasthan ; Time Frame: 1 months) 5. Rajasthan may submit the detailed report along with action taken report within 15 days . 6. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent ; Time Frame: 3months)		
14.	30/B1/G	Multiple Element tripping	05.03.2015 at	POWERGRID	1. PRD mal-operation of 400/220kV		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
		at 400/220kV Bassi(PG) station	11:15 Hrs	& Rajasthan	ICT-3 at Bassi (PG) end to be checked & corrected. (Action: POWERGRID ; Time Frame: 1month) 2. Availability of time synchronized digital data to be ensured. (Action: POWERGRID ; Time Frame: 1month)		
15.	30/B1/I	Multiple Element tripping at 765kV Anta(Raj)	14.03.2015 at 18:13 Hrs	Rajasthan	1. Rajasthan may kindly furnish the details (DR/EL & Preliminary Report) of the tripping within 24hrs of the event and also furnish the detailed report within 15 days of the event. 2. DR of 765kV Anta-Phagi ckt-1 to be time synchronized. (Action: Rajasthan ; Time Frame: 7days) 3. Over voltage setting of 400kV Anta-Kalisindh ckt-1 to be checked & corrected. (Action: Rajasthan ; Time Frame: 7days)		
16.	30/B1/Q	Multiple Element tripping at 400/220kV Bhiwadi(PG) and 500kV Balia-Bhiwadi Bipole	29.04.2015 at 16:42 Hrs	POWERGRID & Rajasthan	1. Digital data availability needs to be ensured. (Action: POWERGRID, Rajasthan ; Time Frame: 15days) 2. Sensitive setting of Negative sequence over current protection setting for Bipole to be checked & corrected. (Action: POWERGRID, Rajasthan ; Time Frame: 15days)		
17.	30/B1/O	Multiple element tripping at 400kV Akal & Wind generation	22.05.2015 at 09:00 Hrs	Rajasthan	1. Availability of time synchronized digital data to be ensured. (Action: Rajasthan ; Time Frame: 15days)		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>2. W.r.t. the wind generation tripping of 24.06.2014, the aspect of tripping of wind generation from angle of the absence Fault Ride Through (FRT) or Low Voltage Ride Through (LVRT) has asked from Rajasthan. No information in this regard received at RLDC. (Action: Rajasthan; Time Frame: 15days)</p> <p>3. Time Synchronization of DR/EL needs to be looked into. (Action: Rajasthan; Time Frame: 15days)</p> <p>4. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		

15. Incidents pertaining to UPPTCL

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
1.	33/B2	Multiple element tripping at 400/220kV Sarnath(UP)	23.07.2016 at 13:52hrs, 13.08.2016 at 16:08hrs , 18.08.2016 at 18:55hrs & 05.11.2016 at 12:01hrs	UPPTCL	<p>1. UPPTCL to submit the detailed investigation and action taken report of the incidents till 20th Mar 2017 considering the following points:</p> <p>➤ For 23rd July 2016:</p> <p>i. High set setting of 400/220kV ICTs at Sarnath needs to be revised. It should be minimum 8 times of full load current for all the ICTs with 100-200ms time delay to cater the transient.</p> <p>ii. Low set setting of backup over current/ earth fault setting of 400/220kV ICTs should be directional in nature.</p> <p>iii. Primary protection setting for 220kV Sarnath-Gajokhar line to be reviewed and set right.</p> <p>iv. Back up protection of 220kV lines at 400/220kV Sarnath station to be properly co-ordinated with 400/220kV ICTs at Sarnath station.</p> <p>v. 220kV Sarnath-Sahupuri line may further connected with the grid to increase the reliability of that area.</p> <p>vi. Non-availability of digital SCADA data of Sarnath in UP SoE.</p> <p>➤ For 13th and 18th Aug 2016:</p> <p>i. Multiple protection failure needs to be looked into. (Distance protection, back up protection of the 220kV lines etc.)</p> <p>ii. Protection co-ordination between</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>ICT"s and 220kV element at Sarnath station.</p> <p>iii. Reason of multiple 220kV elements tripping at 400/220kV Sarnathstation.</p> <p>iv. Non-availability of Analog and digital data needs to be looked into.</p> <p>v. Availability and time synchronization of DR/EL needs to be looked into.</p> <p>➤ For 5th Nov 2016:</p> <p>i. Radial load should be available for SPS of ICTs to avoid cascade tripping. However, 220kV Sarnath-Gajokhar line further connected to 220kVJaunpur station.</p> <p>ii. UPPTCL should formulate procedure for third party work in its premises.</p> <p>iii. Number of times multiple element tripping occurred at 400/220kV Sarnath station. It needs to be taken care.</p> <p>iv. Availability of complete time synchronized digital data to be ensured.</p> <p>2. UPPTCL may also submit the action taken report on recommendation of Tractebel audit report of 400/220kVSarnath station. (Action: UPPTCL; Time Frame: till 20th Mar 2017)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 15days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>4. Time Synchronization of DR/EL needs to be ensured. (Action: UPPTCL; Time Frame: 15days)</p> <p>5. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3 months)</p>		
2.	33/B5	Multiple Elements tripping at 400/220kV Bareilly (UP)	06.08.2016 at 14:30hrs	UPPTCL, POWERGRID & NHPC	<p>1. Tripping of 220kV Tanakpur-Sitarganj from Sitarganj station needs to be checked. (Action: POWERGRID; Time Frame: 15days)</p> <p>2. Reverse zone setting and over voltage setting (over voltage stage-2 operated) of 400kV Bareilly (UP) end of all 400kV lines needs to be checked and corrected. (Action: POWERGRID; Time Frame: 15days)</p> <p>3. Replacement of static relay of 220kV Shahjahanpur end of 220kVBareilly-Shahjahanpur line to be expedited. (Action: UPPTCL; Time Frame: 30days)</p> <p>4. Low forward power protection setting of Tanakpur HEP needs to be checked and corrected. (Action: NHPC; Time Frame: 15days)</p> <p>5. Healthy and numerical bus bar protection at 400/220kV Bareilly (UP) station to be commissioned as soon as possible. (Action: UPPTCL; Time Frame: 15days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>6. Availability of time synchronised DR and standalone EL needs to be ensured at 400/220kV Bareilly (UP). (Action: UPPTCL; Time Frame: 15days)</p> <p>7. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured.(Action: UPPTCL; Time Frame: 15days)</p>		
3.	33/B10	Multiple Element tripping at 220kV Rewa Road (UP) and complete generation outage of Bara TPS	05.09.2016 at 17:11 Hrs	UPPTCL and PPGCL	<p>1. PSC advised UPPTCL to co-ordinate with other agency and take remedial measures for proper protection settings.</p> <p>2. PSC advised UPPTCL to submit the detailed investigation and action taken report of the incidents considering the following points:</p> <p>a. <i>Distance protection relay setting coordination be jointly checked at 220kVRewa Road S/S (UPPTCL), 400kVRewa Road S/S (Isolex) and Bara TPS in view of the fact that for of fault on 220kVRewa Road - PGCIL-II line, no tripping took place at 400kVRewa Road S/S and the fault resulted in tripping of 400kV Bara -Rewa Road-I & II lines and tripping of generating units - I & II at Bara TPS.</i></p> <p>b. <i>Protection co-ordination between 400/220kV ICTs and distance protection of 400kV Bara-Rewa Road line</i></p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>c. Exact changes in the setting (earlier and revised setting) for 400/220kV ICTs at Rewa Road (Isolex), 400kV Bara-Rewa Road line protection, 220kV Rewa Road (UP)-Rewa Road (400) main and back up protection setting.</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 15days)</p> <p>4. Availability and time Synchronization of DR/EL needs to be looked into. (Action: UPPTCL; Time Frame: 15days)</p> <p>5. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3 months)</p>		
4.	33/B12	Multiple Element tripping at 400kV Mau station	04.10.2016 at 11:20 Hrs	UPPTCL and POWERGRID	<p>1. Healthy numerical bus bar Protection at 400/220kV Mau station needs to be ensured. (Action: UPPTCL; Time Frame: 1months)</p> <p>2. Till the commissioning of 400/220kV Bus Bar Protection, reverse zone time delay setting of all 400kV and 220kV lines can be changed to 160 ms according to approved alternative.</p> <p>3. Directionality features of directional earth fault protection setting in all outgoing lines of 400kV Mau station needs to be reviewed.</p> <p>4. Z-3 setting of 400kV Azamgarh end</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>of 400kV Azamgarh-Mau line needs to be reviewed and corrected as per Ramakrishna Committee report.(Action: UPPTCL; Time Frame: 7days)</p> <p>5. Directional earth fault protection setting of 400kVSarnath end of 400kVAnpara-Sarnath line needs to be reviewed and corrected. (Action: UPPTCL; Time Frame: 15days)</p> <p>6. Z-2 setting of 400kVBalia end of 400kVBalia-Mau ckt-1 & 2 needs to be reviewed and corrected as per Ramakrishna Committee report.(Action: POWERGRID; Time Frame: 7days)</p> <p>7. Main and back up protection setting for 400kV Mau end of 400kV Mau-Anpara line needs to be checked and corrected. (Action: UPPTCL; Time Frame: 7days)</p> <p>8. UPPTCL to submit the status of station event logger for all 400/220kV station. (Action: UPPTCL; Time Frame: 1months)</p> <p>9. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 7days)</p> <p>10. Availability of DR (Disturbance recorder)/EL (Event logger) to all the 400&220kV element at 400/220kVMau (UP) station to be ensured. (Action: UPPTCL; Time Frame:45days)</p> <p>11. Availability of automatic download</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					facility of DR & standalone EL at 400/220kVMau (UP) to be ensured. (Action: UPPTCL ; Time Frame: 45days)		
5.	33/B12	Multiple Element tripping at 765/400kV Fatehabad(UP)	11.10.2016 at 20:23Hrs, 19.10.2016 at 15:39 Hrs, 20.10.2016 at 13:11 Hrs	UPPTCL and Lalitpur	<p>1. All the corrective action was taken by UPPTCL/POWERGRID.</p> <p>2. SPS scheme for Lalitpur generation needs to be submitted by UPPTCL in next OCC meeting. (Action: UPPTCL; Time Frame: 1months)</p> <p>3. Corrective action for survival of Lalitpur units on house load needs to be ensured and compliance report to be submitted to NRPC Sectt. & NRLDC. (Action: UPPTCL; Time Frame: 1months)</p> <p>4. UPPTCL to submit the status of station event logger for all 400/220kV station. (Action: UPPTCL; Time Frame: 1months)</p> <p>5. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 7days)</p>		
6.	32/B1/J	Multiple Element tripping at 400kV Bareilly(UP)	06.03.2016 at 14:30 Hrs	UPPTCL and POWERGRID	<p>1. UPPTCL to inform the RPC/RLDC about "Reason of opening and closing of breaker at Bareilly(UP) end for 400kV Bareilly (UP)-Bareilly (PG) DC: Line should be tripped in reverse zone within 500ms" (Action: UPPTCL; Time Frame: 15days)</p> <p>2. Availability of healthy and reliable DC system as protection system dependent on DC supply. Changeover logic from</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>charger to battery should have regularly checked. (Action: UPPTCL)</p> <p>3. Availability of time synchronised DR and standalone EL needs to be ensured at 400/220kV Bareilly (UP). (Action: UPPTCL; Time Frame: 15days)</p> <p>4. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: UPPTCL; Time Frame: 15days)</p>		
7.	32/B1/L	Complete outage of 400/220kV Lucknow(PG) Station	13.03.2016 at 09:22 Hrs	UPPTCL & POWERGRID	<p>1. Is there any SPS enabled for tripping of unit at Rosa TPS for tripping of Lucknow-Rosa line. Also confirm the status of Rosa unit tripping along with reason of tripping (Action: UPPTCL, Rosa TPS; Time Frame: 15days)</p> <p>2. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>	All preventive action already taken by UPPTCL & POWERGRID	
8.	32/B1/M	Multiple Element tripping at 400kV Obra and Anpara TPS station	18.03.2016 at 15:48 Hrs	UPPTCL	<p>1. Details were not available with representative of UPPTCL.</p> <p>2. No Person from UPRVUNL attended the meeting. It has been observed in the past also that no person from Uttar Pradesh Rajya Vidyut Utapadan Nigam limited attended the meeting. SLDC kindly ensure the presence of</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>UPRVUNL in the meeting.</p> <p>3. Committee concerned about non-availability of UPRVUNL representative in the meeting and suggest UPRVUNL/UPPTCL to submit the detailed report within 7days considering the following points:</p> <ul style="list-style-type: none"> a. Nature of fault (single phase to earth fault, phase to phase fault or three phase fault)? b. Non-tripping of 220kV Sahupuri-Obra from Obra end? c. Delayed operation of Zone-3 at Anpara for 400kV Anpara-Obra line? d. Delayed operation of Zone-2 at Allahabad for 220kV Allahabad-Obra ckt-3. e. Operation of Distance protection at Obra end for 220kV Allahabad-Obra ckt-1. Tripped in reverse zone before Z-2 tripping from remote end? f. Redundant auxiliary supply other than 132kV at Anpara TPS? g. Protection Co-ordination between 400kV Anpara-Obra and 400/220kV 240MVA ICTs at Obra TPS needs to be looked into h. Over current protection setting for 400/220kV 240MVA ICTs and 		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>220/132kV 100MVA ICTs at Obra TPS needs to be reviewed?</p> <p>i. Status of DR/EL availability at Obra and Anpara TPS?</p> <p>4. Availability of healthy Bus Bar Protection at 220kV Obra(UP)to be ensured. (Action: UPRVUNL; Time Frame: 2months)</p> <p>5. UPPTCL may also submit the action report of suggestive measures mentioned in its report. (Action: UPPTCL; Time Frame: 1months)</p> <p>6. Availability of time synchronized digital data to be ensured. (Action: UPPTCL, UPRVUNL; Time Frame: 1months)</p> <p>7. Availability of DR/EL facility at the 220kV Obra, Allahabad, 400/220kV Anpara, etc to be ensured. (Action: UPPTCL, UPRVUNL; Time Frame: 3months)</p> <p>8. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>		
9.	32/B1/O	Multiple Element tripping at 400/220kV Agra(UP)	03.04.2016 at 14:40 Hrs	UPPTCL	<p>1. UPPTCL may kindly submit the detailed report within 7days considering the following points:</p> <p>a. Exact location? (As two faults)</p> <p>b. Two successive faults in a short</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>duration?</p> <p>c. Reason for clearance of both the faults?</p> <p>d. Delayed clearance of fault in case of second fault?</p> <p>e. Reason of tripping of 220kV Shamsabad-Firozabad?</p> <p>f. Tripping of Agra-Hathras (even if it is radial).</p> <p>g. Element charged through Tie Bus Coupler?</p> <p>h. Tripping of 220kV feeders from Agra end after 10sec of fault?</p> <p>i. Reason of non-operation of SPS?</p> <p>j. Availability of time synchronized digital data?</p> <p>2. Availability of healthy numerical bus bar protection at 220kV Agra (UP) to be ensured. (Action: UPRVUNL; Time Frame: 2months)</p> <p>3. UPPTCL may also submit the action taken report for suggestive measures mentioned in its report. (Action: UPPTCL; Time Frame: 15days)</p> <p>4. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 1months)</p> <p>5. Availability of DR/EL facility at the 220kV Agra, Shamsabad, Sikandrabad</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					and 400/220kV ICTs at Agra (UP) to be ensured. (Action: UPPTCL, UPRVUNL ; Time Frame: 3months) 6. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)		
10.	32/B1/P	Multiple element tripping at 400kV Muzaffarnagar(UP)	21.04.2016 at 12:13 Hrs	UPPTCL	1. UPPTCL may kindly submit the detailed report within 7days considering the following points: a. Exact location of fault? b. Delayed clearance of fault? c. Bus Bar Protection operation for both buses needs to be looked into as all the 400kV elements except ICTs reportedly tripped during the event. d. Reason of non-tripping of ICTs if 220kV Modipuram is connected with the grid? e. Healthiness of bus bar protection? f. Tripping of 400kV Alaknanda-Vishnuprayag and 220kV Muzaffarnagar-Meerut. g. Tripping of Muzaffarnagar ckts from Meerut and Muradnagar end in case of bus bar protection operation at Muzaffarnagar. h. Availability of DR/EL for tripped elements. i. Availability of SCADA digital status		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>data of Muzaffarnagar.</p> <p>2. Availability of healthy numerical bus bar protection at 400/220kV Muzaffarnagar (UP) to be ensured. (Action: UPPTCL; Time Frame: 2months)</p> <p>3. UPPTCL may also submit the action taken report and suggestive measures in its report. (Action: UPPTCL; Time Frame: 15days)</p> <p>4. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 1months)</p> <p>5. Availability of DR/EL facility at the 400/220kV Muzaffarnagar, Muradnagar, Vishnu Prayag, and 400/220kV ICTs at Muzaffarnagar (UP) to be ensured. (Action: UPPTCL, UPRVUNL; Time Frame: 3months)</p> <p>6. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>		
11.	32/B1/R	Multiple element tripping at 400/220kV Muzaffarnagar(UP)	02.05.2016 at 16:04 Hrs	UPPTCL	<p>1. Sensitive backup over current setting of 400/220kV 315MVA ICT-1 & 3 needs to be reviewed. (Action: UPPTCL; Time Frame: 15days)</p> <p>2. Overload setting of 400/220kV ICT should be enabled for Alarm only not for tripping. (Action: UPPTCL; Time</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Frame: 15days)</p> <p>3. Availability of healthy numerical bus bar protection at 400/220kV Muzaffarnagar (UP) to be ensured. (Action: UPPTCL; Time Frame: 2months)</p> <p>4. UPPTCL may also submit the action taken report and suggestive measures in its report. (Action: UPPTCL; Time Frame: 15days)</p> <p>5. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 1months)</p> <p>6. Availability of DR/EL facility at the 400/220kV Muzaffarnagar (UP) to be ensured. (Action: UPPTCL, UPRVUNL; Time Frame: 3months)</p> <p>7. Centralised Event Logger should be available at each station. It is helpful during analysis of multiple elements tripping at the station. (General Recommendation)</p>		
12.	32/B1/U	Multiple element tripping at 400kV Alaknanda and Vishnuprayag	06.06.2016 at 12:35 Hrs	UPPTCL	<p>1. UPPTCL to submit the detailed investigation report after internal discussion with Vishnu prayag, Alaknanda, and SLDC to RLDC/RPC within 7days considering the following points:</p> <p>a. Reason of simultaneous tripping of both 400kV Muzaffarnagar-Vishnuprayag and Muzaffarnagar-</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>Alaknanda line. Distance protection setting in both the lines?</p> <p>b. As per SoE, it seems Auto-reclosure time for 400kV Alaknanda-Muzaffarnagar ckt at Alaknanda are 1.5sec (Main) and 3sec (Tie).</p> <p>c. In view of PMU and SCADA SoE, time synchronization needs to be checked as from PMU, fault occurred at different time.</p> <p>d. From SoE, 400kV Vishnuprayag-Alaknanda got tripped from Vishnuprayag end. No tripping of 400kV Muzaffarnagar-Vishnuprayag ckt occurred as per SoE.</p> <p>e. Availability of time synchronized digital data to be ensured.</p> <p>f. DR/EL & detailed report is still awaited from UPPTCL</p> <p>g. Other tripping in Vishnu prayag, Alaknanda generation complex.</p> <p>2. Availability of time synchronized digital data to be ensured. (Action: UPPTCL, JPVL; Time Frame: 15days)</p> <p>3. Availability of time synchronized DR/EL needs to be ensured. (Action: UPPTCL, JPVL; Time Frame: 15days)</p> <p>4. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame:</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					3months)		
13.	32/B1/V	Multiple Element tripping at 400/220kV Mau station	12.06.2016 at 13:48 Hrs	UPPTCL	<p>1. As per SoE, 400kV Azamgarh (end)-Mau line after around 20sec of fault. Digital data synchronization needs to be checked at Azamgarh (UP). It needs to be checked by UPPTCL. (Action: UPPTCL; Time Frame: 15days)</p> <p>2. Healthiness of bus bar protection at 400/220kV Mau station needs to be ensured. (Action: UPPTCL; Time Frame: 90days)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 15days)</p> <p>4. Availability of time synchronized DR/EL needs to be ensured. (Action: UPPTCL; Time Frame: 15days)</p> <p>5. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent; Time Frame: 3months)</p>		
14.	32/B1/W	Multiple Element tripping at 400/220kV Rosa & Bareilly(UP) Station	23.06.2016 at 18:13 Hrs & 18:22 Hrs	UPPTCL	<p>1. Healthiness of bus bar protection at 400/220kV Bareilly (UP) station needs to be ensured. (Action: UPPTCL; Time Frame: 90days)</p> <p>2. Electro mechanical bus bar protection may be replaced with numerical bus bar protection as per CEA grid standards. (Action: UPPTCL; Time Frame: 90days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>3. Till commissioning of healthy bus bar protection at 400/220kV Bareilly (UP), over current setting of bus coupler shall also be changed with definite time of 160ms. By doing so, tripping of elements connected to other bus may be prevented. (Action: UPPTCL; Time Frame: 15days)</p> <p>4. UPPTCL may kindly take information from Rosa TPS and send the detailed report to RPC/RLDC for multiple elements tripping at 18:22hrs of 23rd Jun 2016 considering the following points: (Action: UPPTCL; Time Frame: 15days)</p> <ul style="list-style-type: none"> a. Exact reason and location of fault? b. Sequence of tripping? c. Reason of simultaneous multiple element tripping to be looked into? d. Any operational issues? e. Detailed report of the tripping to be submitted. <p>5. Tripping at 18:22hrs may be due to operational issues at Rosa TPS and same needs to be rectified. (Action: Rosa TPS; Time Frame: 15days)</p> <p>6. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 15days)</p> <p>7. Availability of time synchronized</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					DR/EL needs to be ensured. (Action: UPPTCL ; Time Frame: 15days) 8. Availability of standalone automatic downloading facility of DR/EL in the sub-station to be ensured. (Action: All the NR Constituent ; Time Frame: 3months)		
15.	31/B1/F	Multiple Element Tripping at 400/220kV Unnao (UP)	21.07.2015 at 17:58 Hrs	UP	1. Availability of new numerical bus bar protection to be ensured or arrangement in existing scheme for DR triggering to be made in case of bus bar protection operation. (Action: UPPTCL ; Time Frame: 2 months) 2. High set direction earth fault setting needs to be reviewed. It should not be instantaneous (100 ms time delay) and at least 8-10 times of normal load current. (Action: UPPTCL ; Time Frame: 15 days) 3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL ; Time Frame: 7 days) 4. Availability of DR (Disturbance recorder)/EL (Event logger) to all the 400 & 220kV element at 400/220kV Unnao (UP) station to be ensured. Station Event Logger should also be available for 220kV Unnao station. (Action: UPPTCL ; Time Frame: 45 days) 5. Availability of automatic download facility of DR & standalone EL to be		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					ensured. (Action: UPPTCL ; Time Frame: 45 days)		
16.	31/B1/G	Multiple element tripping at 400/220kV Azamgarh(UP)	26.07.2015 at 09:14 Hrs; 28.08.2015 at 15:16 Hrs; 29.09.2015 at 11:55 Hrs	UPPTCL	<p>1. Over load protection setting should be for Alarm only and not for tripping. Over load protection setting of 400/220kV 315MVA ICT needs to be reviewed. (Action: UPPTCL; Time Frame: 1 months)</p> <p>2. High set setting of 400/220kV 315MVA ICTs of Azamgarh station should be 8-10 times of nominal current with 100ms time delay. If time delay cannot be provided in present relay, this setting may be disabled till implementation of numerical relay. (Action: UPPTCL; Time Frame: 3 months)</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 7 days)</p> <p>4. Availability of DR (Disturbance recorder)/EL (Event logger) to all the 400&220kV element at 400/220kV Sultanpur (UP) station to be ensured. (Action: UPPTCL; Time Frame: 45 days)</p> <p>5. Availability of automatic download facility of DR & standalone EL at 400kV Sultanpur (UP) to be ensured. (Action: UPPTCL; Time Frame: 45 days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					6. UPPTCL to submit the detailed report and action taken report to RLDC/RPC within 15 days (Action: UPPTCL ; Time Frame: Immediate)		
17.	31/B1/N	Multiple Element tripping at 220kV Dhauliganga station	24.09.2015 at 20:06 Hrs	POWERGRID, NHPC & UPPTCL	<p>1. NHPC to review the line and unit tripping, PSS tuning and submit the detailed report to RPC, RLDC. (Action: NHPC; Time Frame: 15 days)</p> <p>2. SCADA Analog and digital data availability and healthiness of 220kV Dhauliganga HEP, Bareilly (UP) needs to be ensured. (Action: NHPC, UPPTCL; Time Frame: 15 days)</p> <p>3. Availability of time synchronised DR and standalone EL needs to be ensured at 220kV Bareilly (UP). (Action: UPPTCL; Time Frame: 15 days)</p> <p>4. UPPTCL to take corrective action at 220kV Bareilly (UP) to prevent multiple element tripping nearby Bareilly(UP) station. (Action: UPPUCL; Time Frame: 30 days)</p>		
18.	31/B1/O	Multiple Element tripping at 220kV NAPS (NPCIL)	27.09.2015 at 20:17 Hrs	NPCIL & UPPTCL	<p>1. NPCIL to submit the detailed report of the tripping within 7days considering the following points:</p> <p>a. DR system files (.dat, .cfg) be also be sent for better viewing of the incident.</p> <p>b. Delayed clearance of fault.</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>c. Bus bar protection at 220kV NAPS. d. Exact reason of tripping of unit #1, unsuccessful auto transfer of auxiliary. e. Digital data reporting of the incident. (Action: NPCIL; Time Frame: 7 days) 2. NAPP to look into the issue of poisoning of nuclear reactor. Further improvement to be expedited. (Action: NPCIL; Time Frame: 2 months) 3. Auxiliary changeover scheme of NAPP units needs to be checked and corrected. (Action: NPCIL; Time Frame: 2 months) 4. Availability of time synchronized digital data to be ensured. (Action: NPCIL, UPRVUNL; Time Frame: 1 months) 5. Availability of DR/EL facility at the 220kV Khurja, Atrauli, Jahagirabad, Khair, Etah etc to ensured. (Action: UPPTCL, UPRVUNL; Time Frame: 3 months)</p>		
19.	31/B1/T	Multiple element tripping at 400kV Mainpuri (PG)	22.11.2015 at 18:25 Hrs	POWERGRID & UP	<p>1. POWERGRID to check the SCADA SoE for following points and submit report within 15 days: a. Opening of 400kV Mainpuri-Fatehpur(end) ckt1 tie CB closed after ~ 650ms of opening of main CB and again opened after ~100ms. b. Revival of 400kV Mainpuri-Ballabagrh ckt-1 within a minute of tripping. (SoE, SCADA data). (Action:</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>POWERGRID, Time Frame: 15 days)</p> <p>2. Availability of healthy digital data of 400kV Mainpuri station to be ensured. (Action: POWERGRID; Time Frame: 15 days)</p>		
20.	31/B1/U	Multiple element tripping at 400/220kV Obra(UP)	26.11.2015 at 13:59 Hrs	UPPTCL & UPRVUNL	<p>1. No Person from UPRVUNL attended the meeting. It has been observed in the past also that generally no person from Uttar Pradesh Rajya Vidyut Utapadan Nigam limited attends this sub-committeemeeting. UP SLDC to advice UPRVUNL for presence in the future meetings (Action: UP SLDC, Time Frame: Immediate).</p> <p>2. UPRVUNL to submit the detailed report within 7days considering the following point:</p> <p>a. Exact location of fault & sequence of event.</p> <p>b. Reason of delayed clearance of fault. (Fault clearance time was ~4second)</p> <p>c. Availability of healthy bus bar protection at 220kV Obra TPS needs to be looked into.</p> <p>d. Tripping of elements other than reported?</p> <p>e. Time Synchronization of digital data reporting of Obra in NR/UP SoE (Action: UPRVUNL, Time Frame: 7</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>days).</p> <p>3. Availability of healthy Bus Bar Protection at 220kV Obra(UP)to be ensured. (Action: UPRVUNL; Time Frame: 2 months)</p> <p>4. Availability of time synchronized digital data of 220kV Obra(UP) to be ensured. (Action: UPRVUNL; Time Frame: 30 days)</p> <p>5. Availability of time synchronized DR/EL to be ensured. (Action: UPRVUNL; Time Frame: 30 days)</p> <p>6. Availability of automatic download facility of DR & standalone EL to be ensured. (Action: UPPTCL; Time Frame: 45 days)</p>		
21.	30/B1/H	Multiple Element tripping at 400kV Obra (TPS)	11.03.2015 at 06:04 Hrs	UP	<p>1. No Person from UPRVUNL attended the meeting. It has been observed in the past also that no person from Uttar Pradesh Rajya Vidyut Utapadan Nigam limited attended the meeting. SLDC kindly ensure the presence of UPRVUNL in the meeting.</p> <p>2. UPRVUNL to submit the detailed report within 7days considering the following point:</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>a. Location of fault & Reason of fault. b. Healthiness of bus bar protection to be looked into. c. Reason of tripping of all the transmission elements at the same time. d. Connectivity of the tripped elements. e. Reason of tripping of 400kV Bara-Panki line.</p> <p>3. Availability of Bus Bar Protection to be ensured. (Action: UPRVUNL; Time Frame: 2months) 4. Availability of time synchronized digital data to be ensured. (Action: UPRVUNL; Time Frame: 30days) 5. Availability of time synchronized DR/EL to be ensured. (Action: UPRVUNL; Time Frame: 30days)</p>		
22.	30/B1/J	Complete Outage of 400kV Bareilly(UP) station	21.03.2015 at 08:59 Hrs	UP & POWERGRID	<p>1. Availability of new numerical bus bar protection to be ensured. (Action: UPPTCL; Time Frame: 2months) 2. Distance zones setting of 400kV Bareilly-Unnao line to be reviewed according to Ramakrishna committee task force recommendations. (Action: UPPTCL; Time Frame: 7days) 3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 7days)</p>		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>4. Availability of DR (Disturbance recorder)/EL (Event logger) to all the 400&220kV element at 400/220kV Bareilly(UP) station to be ensured. (Action: UPPTCL; Time Frame:45days)</p> <p>5. Availability of automatic download facility of DR & standalone EL to be ensured. (Action: UPPTCL; Time Frame:45days)</p>		
23.	30/B1/K	Complete Outage of 400/220kV Sultanpur Station	01.04.2015 at 22:22 Hrs	UP & POWERGRID	<p>1. Availability & Healthiness of bus bar protection scheme at 400kV Sultanpur station to be ensured. (Action: UPPTCL; Time Frame: 1months)</p> <p>2. Reason of delayed clearance of fault couldn't conclude due to non-availability of complete DR/EL & time synchronized digital data.</p> <p>3. Availability of time synchronized digital data to be ensured. (Action: UPPTCL; Time Frame: 7days)</p> <p>4. Availability of DR (Disturbance recorder)/EL (Event logger) to all the 400&220kV element at 400/220kV Sultanpur (UP) station to be ensured. (Action: UPPTCL; Time Frame:45days)</p> <p>5. Availability of automatic download facility of DR & standalone EL at 400kV Sultanpur (UP) to be ensured. (Action: UPPTCL; Time Frame:45days)</p>		
24.	30/B1/L	Complete outage of	08.04.2015 at	UP & NTPC	1. Healthiness of bus bar protection at		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
		400/220kV Muradnagar(UP) station	05:36 Hrs		400/220kV Muradnagar end to be checked & corrected. (Action: UPPTCL ; Time Frame: 15months) 2. Manual checking of VAJC relay (isolator selection switch) in case of isolator operation to be properly monitored. (Action: UPPTCL ; Time Frame: 15months) 3. Availability of all digital data of Muradnagar sub-station in NR SCADA & its time synchronization needs to be ensured. (Action: UPPTCL ; Time Frame: 15months)		
25.	30/B1/M	Complete Outage of 220kV Raebareilly(PG)	10.04.2015 at 13:53 Hrs	POWERGRID, UP & NTPC	1. Healthiness & setting of 220kV bus bar protection scheme at 220kv raebareilly (PG) to be reviewed. (Action: POWERGRID ; Time Frame: 15days) 2. Sensitive setting of auxiliary contactor of unchahar units to be corrected. It may be coordinated with zone-3 setting of line protection. (Action: NTPC ; Time Frame: 15days). 3. Availability of digital data to be ensured. (Action: POWERGRID, NTPC ; Time Frame: 15days)		
26.	30/B1/N	Complete outage of Harduaganj station and one unit tripping at NAPS	16.04.2015 at 11:15 Hrs	UP & NAPS	1. NAPP may look into the issue of poisoning of nuclear reactor. Further improvement to be expedited. (Action: NPCIL ; Time Frame: 2months)		

Sr. No.	Incident ID	Incident	Date & Time of incident	Utilities involved	Recommendations of PCC	Status of action taken on Recommendations	Remarks
					<p>2. Availability of time synchronized digital data to be ensured. (Action: NPCIL, UPRVUNL; Time Frame: 1months)</p> <p>3. Availability of DR/EL facility at the 220kV Harduganj, Khurja, Mainpuri, Atrauli, Jahagirabad, Khair, Etah etc to ensured. (Action: UPPTCL,UPRVUNL; Time Frame: 3months)</p> <p>4. Availability of bus bar protection at 220kV Harduaganj station to be expedited. (Action: UPRVUNL; Time Frame: 1months)</p> <p>5. Overall protection system of 220kV Harduaganj & nearby area needs to be checked & corrected& Protection co-ordination also needs to be reviewed. (Action: UPRVUNL; Time Frame: 1months)</p> <p>6. Zone-2 & 3 settings are the associated line from Harduaganj to be checked & corrected.(Action: UPRVUNL; Time Frame: 1months)</p> <p>7. Independent third party Protection Audit for 220kV Harduaganj station to be done. (Action: UPRVUNL; Time Frame: 2months)</p>		