



Power System Operation Corporation Limited
Western regional Load Despatch Centre
Report on the Incident in Western region

Incident no: WR/Sept /2014/ GD

1. **Date and Time of the Incident** : 00:20 Hrs ,10-09-2014
2. **Incident Name** : LBB operation at 400/220 kV Indore(MP) S/s
3. **Category** : GD-1
4. **Systems or sub-systems affected** : Indore South Zone Area
5. **Antecedent Condition at 00:15 Hrs** :

Frequency: 49.919 HZ

Constituent-wise generation and demand details prior to the event (As per WRLDC SCADA data).

WR Constituents	Demand Met (in MW)	Generation(in MW)				
		Thermal & Gas	Hydro	Nuclear	Wind	Solar
Gujarat	8148	3968	369	-	868	0
Maharashtra	10494	7122	28	-	N/A	N/A
Madhya Pradesh	5306	1447	1681	-	-	-
Chhattisgarh	2628	1620	107	-	-	-
Goa	286	0	0	-	-	-
DD	248	0	0	-	-	-
DNH	609	0	0	-	-	-
ESIL	223	0	0	-	-	-
ISGS/IPPs	-	13510	1127	1645	-	-
Total	27942	27667	3312	1645	868	0

WR IR Export = 5016 MW

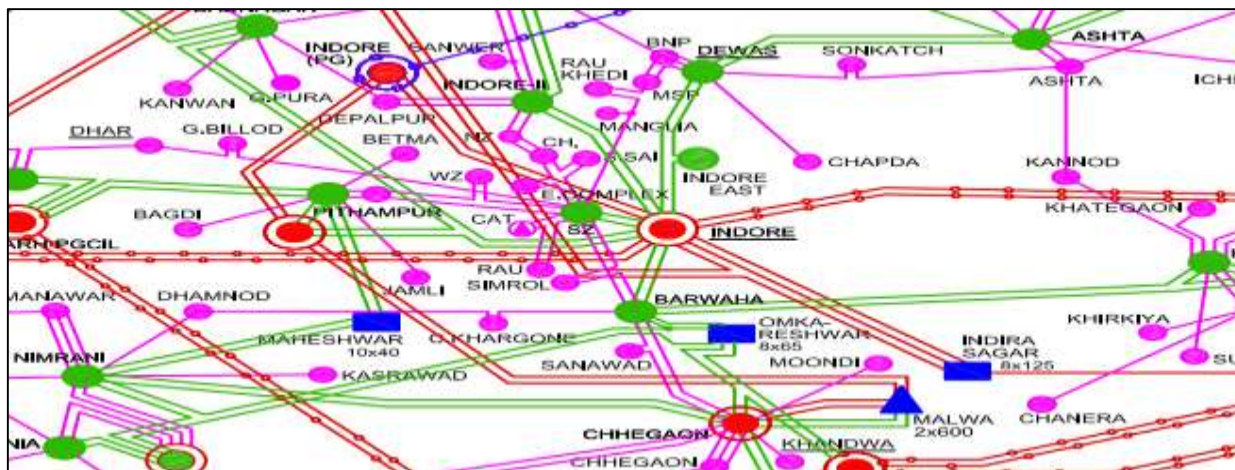
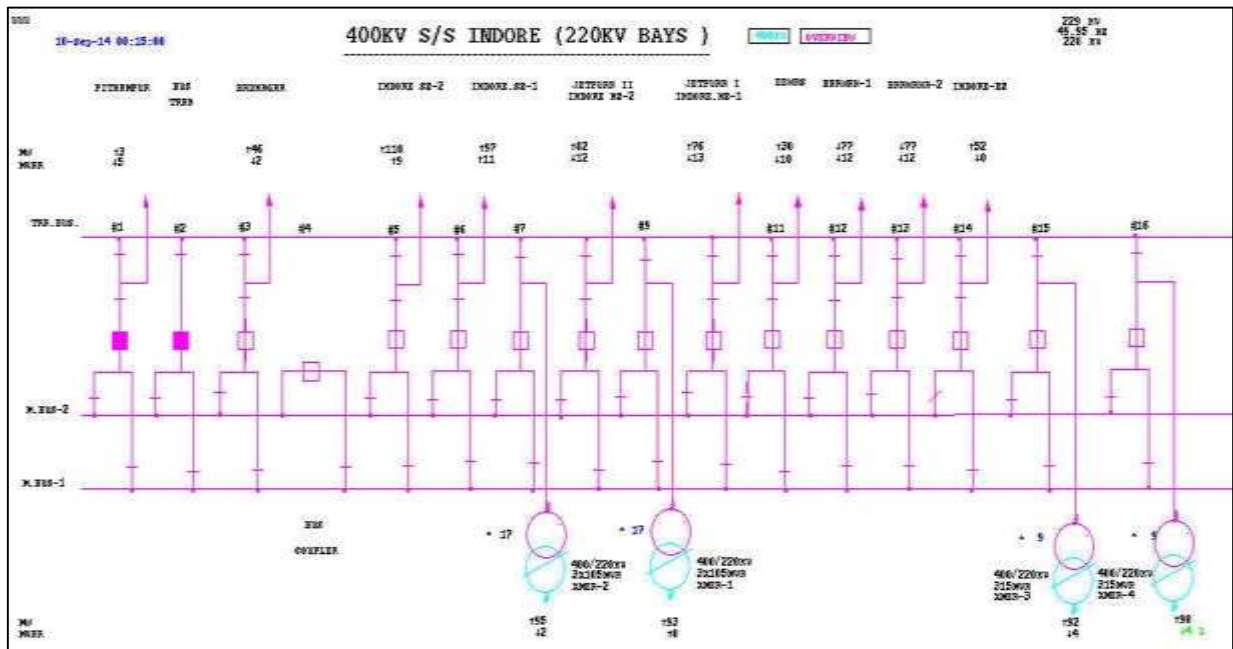
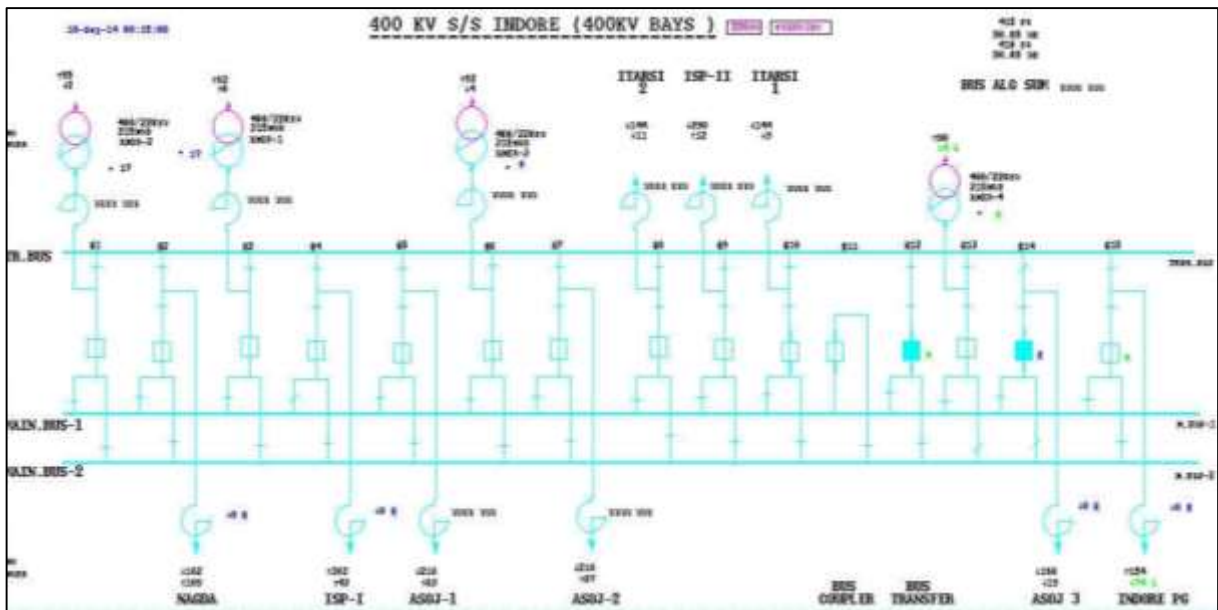


Figure : Geographical Map



6. **Event** : At 00.20 hrs on dated 10.09.14, 220 kV Indore South Zone- Indore circuit 1 LBB operated with following feeders tripped along with their charging time.

Elements	Restoration Time
220 kV Indore-Dewas	01:03
220 kV indore-Barwaha	00:58
220 kV indore-Jetpura	01:07
220 kV Bus Coupler	01:02
400/220 kV Indore ICT 1	01:04
400/220 kV Indore ICT 2	01:04
220 kV Indore-Indore South Zone 2	01:08
220 kV Indore-Indore South Zone 1	Still out

7. Reason for tripping:

- Fault is observed in B phase which is due to line fault in B Phase of 220 kV Indore-Indore South Zone 1 circuit. It was found that Earth wire of the circuit has snapped which has resulted in B phase to E/F. The circuit tripped from Indore South zone on zone 2 indication while the indication at Indore end is also Zone 2 at a distance of 4.91 km. Same can be observed from PMU (Fault in B Phase started at 00:20:06.880 and recovered at 00:20:07.240) and fault clearance time was around 360ms which is near to Zone 2 time i.e. 300 ms.
- After this Y Phase LBB of the circuit has operated at 400/220 kV Indore end which resulted in tripping of the elements from 220 kV Indore Bus-1. This states that Y phase breaker has not opened at Indore end causing LBB operation which is verified from PMU data also which shows that Fault in Y Phase started at 00:20:07.240 and recovered at 00:20:07.520 i.e a total time of 280 ms. After this fault has recovered.
- As it can be observed that fault has recovered from Indore as well as Indore south zone in zone 2 time i.e. 300 ms . Seeing the fault 220 kV South zone circuit 2 also tripped from Indore end in Zone 2.
- The data of SCADA(MP and associated IGS, ISTS) and PMU (Bina,Itarsi,Vindhyachal) was lost as data comes through route of 400/220 kV Indore S/s . From Dehgam PMU data it was observed that fault was in B Phase and same was confirmed by relay indication from site.
- 220 kV Indore South Zone blackout occurred due to loss of incoming feeders.

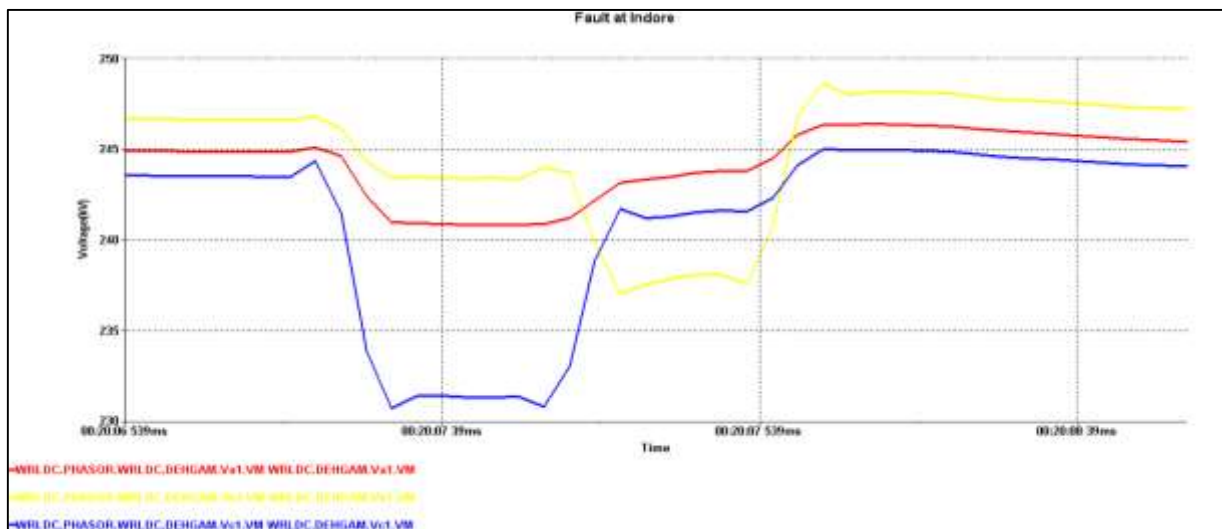


Figure : Dehgam Voltage data

8. **Restoration time of elements:** Restoration was completed.
9. **Quantum of load loss or generation loss:** At Indore South zone, Load loss of 200 MW reported by MP SLDC.

(Shift Charge Manager)