

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 16/SM/2014

Coram:

Shri Gireesh B. Pradhan, Chairperson

Shri A.K. Singhal, Member

Shri A.S. Bakshi, Member

Date of Hearing: 26.2.2015

Date of Order : 04.2.2016

In the matter of

Non-compliance of Regulations 2.8.1 (c) and 5.2 (I) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010.

And

In the matter of

1. Chairman, Jharkhand State Electricity Board
Engineering Building,
HEC, Dhurva, Ranchi-834 004

2. Chief Engineer (TRS and O & M)
Jharkhand State Electricity Board,
Engineering Building, HEC, Dhurva, Ranchi-834 004

....Respondents

3. Eastern Regional Load Despatch Centre
14, Golf Club Road, Tollygunge,
Kolkata-700033

....Proforma Respondent

Following were present:

Shri Himanshu Shekhar, Advocate, JSEB

Shri A.K. Singh, JSEB

Shri Vidya Sagar Singh, JSEB

ORDER

Based on the direction of the Commission by its order dated 7.10.2014 in Petition No. 130/MP/2013, Chairman, JSEB and officer in-charge, SLDC Jharkhand were issued show cause notice under Section 142 of the Act for non-compliance of directions of the

Commission and the provisions of the Regulation 3 (1) (e) of the Central Electricity Authority (Grid Standards) Regulations, 2010 (CEA Grid Standards Regulations) and Regulations 5.1, 5.2(e), 5.2(i) and 5.2 (r) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (Grid Code).

2. Reply to the show cause notice has been filed by the respondents.

3. Jharkhand Urja Sanchar Nigam Limited (JUSNL), vide its affidavit dated 3.2.2015, has submitted as under:

(a) Three generating companies, namely Tenughat TPS, Patratu TPS and Subarnrekha HPS are connected to the transmission network of JUSNL. The actions to improve protection system of transmission network of JUSNL have been initiated as per the provisions of the Grid Code and recommendations of ERPC. The progress in improvements of the protection system is also monitored by ERPC and ERLDC through various protection sub-committee meetings. ERLDC and ERPC were communicated regularly regarding updates on improvements in protection system in protection committee meetings.

(b) JUSNL has complied with all recommendations except PLCC and Auto Reclose which are already under implementation.

(c) With regard to installation of PLCC, offer has been obtained from PUNCOM to implement PLCC works in Chandil- Ramchandrapur and PTPS and work is under process to place work order on the firm. BPL's Engineers have

been called to ascertain the works for PLCC to implement protection at Hatia-II and PTPS.

(d) All provisions of Regulations 2.81(c) and 5.2(l) of the Grid Code except Auto Reclose facility, which is under process of implementation, are being complied with.

(e) During the course of actions taken to improve protection deficiencies and to implement recommendations of ERPC/ERLDC, JSEB unbundling was also in process. Some issues were related to Jharkhand Urja Utpadan Nigam Limited which is now separated company and headed by independent MD. This caused certain problems in co-ordination with other companies to implement the recommendations of PCC. JUSNL delayed the implementation of the recommendation of ERPC due to financial constraints.

4. The matter was heard on 26.2.2015. The representative of Eastern Regional Load Despatch (ERLDC) submitted that in JSEB system, frequent trippings are occurring. This is evident from the fact that on 15th, 17th and 18th February, 2015 Chandil- Santaldih line tripped from Santaldih end but not from Chandil end. The tripping was cleared from far end. The representative of ERLDC further submitted that the relay settings in JSEB system are not proper and this uncoordinated relay setting is the main reason of tripping occurring in JSEB system.

5. Eastern Regional Power Committee (ERPC) vide ROP dated 26.2.2015 was directed to submit a report on the protection system in Jharkhand. The Commission

further directed JSEB to review relay settings, if any, in consultation with ERLDC and ERPC.

6. Meanwhile, ERLDC filed I.A.28/2015 dated 13.9.2015 seeking directions to JUSNL to strictly comply with the provisions of the CEA Grid Standards Regulations and Grid Code. ERLDC has submitted that JUSNL has taken action on all the recommendations of ERPC for rectification of protection deficiencies in the JSEB system except PLCC and Auto reclose. ERLDC has stated that shortcomings in protection system of JUSNL have once again surfaced as a serious problem with repeated disturbances occurring at Chandil and Ramachandrapur in the months of February, April, July and August 2015. JUSNL is not taking corrective measure to comply with the recommendations of ERPC. A significant part of Eastern Railway, South Eastern Railway and large number of industries are being adversely affected due to poor reliability of supply from JUSNL's grid. ERPC has summarised the disturbances occurred in and around Chandil area as under:

S.No.	Date and Time	Area affected within JSEB	Load/Generation loss (MW)
1	15.2.2015 13:25 Hrs	SLG fault (B ph-Ground) occurred close to Santaldih S/C line and subsequently all lines at Chandil tripped due to non-clearance of above fault from Chandil end. Traction power affected at Rajkwan, Golmuri, Kendposi, Goelkera and Manique.	Load-273 MW Generation-0 MW
2	17.2.2015 20:13 Hrs	Total Power failure occurred at 220 kV Chandil sub-station due to bursting of B-Ph CVT of 220 kV Chandil-Ranchi (PG) line at Chandil end. Traction power affected at Rajkwan, Golmuri, Kendposi, Goelkera and Manique.	Load-273 MW Generation-0 MW
3	18.2.2015 12:26 Hrs	SLG fault (B ph-Ground) occurred close to Santaldih S/C line and subsequently all lines at Chandil tripped due to non-clearance of above fault from Chandil end. Traction power affected at Rajkwan, Golmuri, Kendposi, Goelkera and Manique.	Load-235 MW Generation-0 MW

4	29.7.2015 16:53 Hrs	Total Power failure occurred at 220 kV Chandil sub-station in JSEB system due to fault in 220 kV Chandil-Ramchandrapur line. Traction power affected at Rajkwan, Golmuri, Kendposi, Goelkera and Manique.	Load-273 MW Generation-0 MW
5	14.8.2015 10:10 Hrs	Due to fault in 220 kV Chandil-Ramchandrapur and 132 kV Rajkswan-Adityapur line and subsequently all feeders from Chandil tripped on LBB operation causing total power interrupted at 220 kV Chandil sub-station. Traction power affected at Rajkwan, Golmuri, Kendposi, Goelkera and Manique.	Load-273 MW Generation-0 MW
6	28.8.2015 16:05 Hrs	LBB of 220 kV Chandil-Ramchandrapur at Chandil end operated while sensing fault on 132 kV Ramchandrapur-Adityapur-I which reportedly tripped on R-Y fault. Traction power affected at Rajkwan, Golmuri, Kendposi, Goelkera and Manique.	Load-273 MW Generation-0 MW

7. Eastern Regional Power Committee, vide letter dated 9.11.2015, has further submitted as under:

(a) Total power failure at 220 kV Chandil sub-station of JUSNL system on 1.10.2015 at 10:15 hrs. The following elements tripped during the disturbance:

- a. 4X100 MVA ICT tripped at 10:50 Hrs on over current
- b. 220 kV Chandil-Santaldih (tripped from Chandil end only)
- c. 132 kV Chandil-Rajkharsawan
- d. 132 kV Chandil-Adityapur-Rajkharsawan
- e. 132 kV Chandil-Hatia
- f. 132 kV Ramchandrapur-Adityapur D/C.

(b) Total power failure at 220 kV Chandil sub-station of JUSNL system on 2.10.2015 at 12:44 hrs. At 12:42 hrs, total power failed at 220 kV Chandil sub-station due to bursting of B-Ph jumper of wave trap of 132 kV Chandil-Rajkharsawn S/C at Chandil end.

(c) As per Regulation 5.2 (d) and (r) of the Grid Code, Users/CTU/STUs/SLDCs are required to furnish details for analysis of any system disturbance by RLDCs. However, on several occasions the non-

compliance of these provisions of the Grid Code has been observed due to which proper analysis of system disturbances cannot be done.

8. Jharkhand Urja Sanchar Nigam Limited (JUSNL), vide affidavit dated 18.12.2015, has submitted as under:

(a) The deficiencies in the protection system of JUSNL was observed by ERPC's team visited at Tenughat Thermal power station, Patratu Thermal Power Station and Subarrekha Hydel power station of JUSNL. Out of 28 remedial measures suggested by Protection Committee, JUSNL has implemented 26 measures. JUSNL has submitted the present status of rectification of protection deficiencies as under:

I. Recommendation of ERPC team which visited Chandil on 17.4.2013 to 19.4.2013 in line with the decision taken in the 15th Protection Sub-Committee meeting held on 9.4.2013:

Name of line	Protection available	Measures required immediately	Latest status as on 16/12/2015.
220 kV Chandil-Santaldih	SEL(ER) and TJM 12	Matter to be taken up with M/s Easun Reyrolle	Complied, New Micom P442 commissioned on 25.11.2015 and working. Now DR and EL data are available.
220 kV Chandil-Ranchi	SEL(ER) and TJM 12	Matter to be taken up with M/s Easun Reyrolle	Complied, New Micom P442 commissioned on 25.11.2015 and working. Now DR and EL data are available
220 kV Chandil-Ramchandrapur	Micom (Relay Not working from July 2012)	Matter to be taken up with M/s Alstom	Complied, New Micom P442 commissioned on 25.11.2015 and working. Now DR and EL data are available

1X100MVA, 220/132kV Transformer	RYDSB, R1D1-Status- Not healthy- Because-No test reports- No trippings in the past.	The differential relay to be tested and the report to be given to ERPC, ABB to be contacted for any assistance.	Complied
Single Main with Transfer Bus	LBB relay available	The bus to be sectionalized and LBB relay to be made operational	Complied

II. Recommendation of ERPC team which visited 220 kV Hatia sub-station (New), 132 kV Hatia sub-station, Tenughat TPS (2X210 MW) and Patratu TPS (2X50 +1X100) MW on 11th, 12th and 13th June, 2013 in line with the decision taken in the special Protection committee meeting held on 5.6.2013:

Recommendations	Latest Status
All the Micom relays at Tenughat TPS, Patratu TPS, Hatia 220 kV sub-station (New) have to be tested for Reliability, Selectivity and speed. The manufacturer should be contacted for the above works at the earliest.	Complied
Unless EL inputs are there, the Zone indication on different faults for distance protection cannot be identified. Hence the concerned utilities may take up the matter with the manufacturer and relay properly configured to receive EL inputs.	Complied
For Relays other than Micom they should be tested and if found not suitable should be replaced with numerical relay preferably with a different make other than Alstom	Complied
The other mandatory/Routine tests on CTs and PTs should also be carried out and the reports should be submitted to ERPC.	Complied
The PLCC link on 220 kV Tenughat-Patratu S/C, 220 kV Patratu-Hatia D/C and 220 kV Tenughat-Biharshariff S/C should be established immediately.	Tenughat-Biharshariff 220 kV PLCC is not looked after by JSEB. As per information from TTPS, 220 kV Tenughat-Biharshariff line is under up gradation from 220 kV to 400 kV by PGCIL.
The Auto-reclose feature should also be enabled on all the above 220 kV lines immediately	A/R features will be enabled immediately after restoration of PLCC link.
PGCIL Ranchi sub-station is to submit the details of distance relays on their outgoing 220 kV lines to ERPC Secretariat. The protections available on the 400/220 kV	Complied

ICTs may also be given. The copy of the test reports of the 220 kV side relays may also be made available to ERPC secretariat.	
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III. Recommendations of ERPC team visited at 220 kV Ramchandrapur substation, Chandil sub-station, 132 kV Adityapur sub-station and 220 kV WBPCL Santhaldih sub-station from 18.9.2013 to 20.9.2013 to ascertain the reasons behind disturbances occurring repeatedly in JSEB system.

A) 220 kV Ramchandrapur sub-station:

S.No	Observations	Recommendations	Present Status
1	Log register for recording trippings are not being properly filled in by sub-station personnel	Tripping details need to be correctly recorded in the tripping log register for both ends, for proper analysis of tripping.	Complied
2	Micom-P 430 relay is not showing any fault log history	J.S.E.B needs to immediately take up with the manufacturer, for rectification of the relay.	Complied. New Micom P442 has been commissioned on 25/11/2015 and working
3	Relays are not time synchronized, therefore it is not possible to determine the sequence of events in case of multiple outage	J.S.E.B should install the GPS system and time synchronizes all its numerical relays with GPS clock.	Complied
4	Earth fault relay for 220/132 kV Ramchandrapur ICT not properly time graded/Co-ordinated with distance relays of 132 kV Adityapur-Ramchandrapur line.	Necessary action to be taken by JSEB for proper time grading of earth fault relay for 220/132 kV ICTs at Ramchandrapur and distance relay of 132 kV Adityapur-Ramchandrapur line, for ensuring selectivity of relay operation and avoid unnecessary tripping of ICT on occurrence of line fault.	Complied

(B) Adityapur sub-station:

S.No	Observations	Recommendations	Present Status
1	Electromechanical distance relay for 132 kV Adityapur-Ramchandrapur line is non-functional.	The non-functional relay needs to be immediately replaced with fully functional distance protection relays. Distance relay functionality for other 132 kV	Complied

		lines Viz. Adityapur-Rajkharswan and Adityapur-Chandil also need to be checked and tested.	
2	Snapping of earth wire and lightning strike is occurring frequently around Adityapur	Frequent tripping due to lighting and breaking of earth wire needs to be analyzed.	Complied. New Micom P442 has been commissioned on 25/11/2015 and working
3	Log register for recording trippings are not being properly filled in by sub-station personnel	Tripping details need to be correctly recorded in the tripping log register for both ends, for proper analysis of the tripping.	Complied

(C) Chandil sub-station:

S.No	Observations	Recommendations	Present Status
1	Wiring of SEL-311C relay for 220 kV Chandil-Ranchi line appers to be erroneous.	Tripping details need to be correctly recorded in the tripping log register for both ends, for proper analysis of tripping.	Complied. Now new Numerical relay Micom P442 has been commissioned on 25/11/2015 and working satisfactorily.
2	Wiring of REL-650 relay for 220 kV Chandil-Santaldih line appers to be erroneous as on various occasions it has been observed that for reverse Zone faults the relay is sensing Z-1 fault.	Wiring of REL-650 relay for 220 kV Chandil-Santaldih line needs to be corrected for sensing of fault in proper direction and appropriate selectivity.	Complied. Now new Numerical relay Micom P442 has been commissioned on 25/11/2015 and working satisfactorily.
3	Log register for recording trippings are not being properly filled in by sub-station personnel	Tripping details need to be correctly recorded in the tripping log register for both ends, for proper analysis of the tripping	Complied
4	Zone-1 of 220 kV Chandil-Ranchi line is set as 78.6 Km in distance relay at Chandil end.	The distance needs to be verified by Off line fault locator equipment, and if required necessary correction in relay setting needs to be incorporated at both ends.	Complied. Now New Numerical relay Micom P442 has been commissioned on 25/11/2015 and working satisfactorily. Line length 93.5 KM setting done

			accordingly.
5	Micom-P 430 relay is not showing any fault log history	J.S.E.B needs to take up with the relay manufacturer, for rectification/replacement.	Complied. Replaced by advance type numerical relay during last week of November 2015. And working O.K.

IV. Recommendations of Various Sub-Committees

Recommendations	Latest Status
17th PCC meeting held on 11.09.2013	
PCC advised JSEB to install Synchroscope at Chandil sub-station.	Complied.
Replacement of two CBs in PTPS with proper rating of single CB.	Complied.
Special meeting on Protection Co-ordination of JSEB system held on 12.11.2013 and 5.12.2013.	
Various Zone-settings of all transmission lines of JSEB system were discussed and finalized and advised JSEB to implement the same by 31 st December, 2013	Complied.
JSEB was advised to place restricted earth fault protection for all transformer with rating >50 MVA	Complied. For all new transformer panels of capacity greater than 50 MVA are with REF. For three old 100 MVA Transformers Canadian Make (Mfr yr 1978) 02 Nos have no neutral C.T. in Transformer. New Transformer TR-4, REF protection provided.

(b) JUSNL has commissioned PLCC in various 220 kV transmission lines except two transmission lines. The remaining two (2) PLCC would be completed by February, 2016.

(c) After unbundling of Jharkhand State Electricity board (JSEB) into four companies, namely JUVNL, JUSNL, JBVNL and JUUNL which came into existence on 7.1.2014, JUSNL is facing coordination issues with different companies.

(d) ERPC vide letter dated 8.1.2016 informed that PCC of Eastern Region is continuously emphasizing for improvement of protection system in Jharkhand and in the next 4 to 6 months Jharkhand system would be considerably be secure and healthier.

Analysis and decision:

9. We have considered the submissions of ERPC, ERLDC and JUSNL and perused documents on record. JUSNL has submitted that it has complied with all the recommendations of ERPC except PLCC and Auto Reclose. JUSNL has further submitted that it is in the process to place work order to implement PLCC work and Auto-Reclose feature shall be enabled after restoration of PLCC link.

10. As per the minutes of meetings of the 113th OCC and 35th PCC held on 14.9.2015 and 15.9.2015 respectively, the following was emerged:

a) Total power failure at 220 kV Chandil sub-station of JUSNL system on 14.8.15 at 10:10hrs, the following incidents occurred:

(i) The sequences of events were initiated due to mal-operation of LBB relay at Chandil end and there was no voltage dip observed in PMU data of Ranchi S/S). Due to which all the other 220kV feeders i.e 220kV Chandil-Ranchi and 220kV Chandil- Santaldih line got tripped from Chandil end.

(ii) With the tripping of all the 220kV feeders, 132kV Chandil-Hatia and 132kV Ramchandrapur-Adityapur-D/C lines got over loaded and tripped on actuation of Directional E/F & O/C relay.

b) JUSNL informed that 220 kV Chandil-Ramchandrapur line was tripped from both ends at 09:55 hrs due to B-ph jumper snapping at location no 42. The LBB at 220kV Chandil S/S was triggered while trying to charge the 220kV Chandil- Ramchandrapur line from Chandil end. The LBB was checked by Alstom and found it correct. Old relays are being replaced at both ends of 220kV Chandil-Ramchandrapur line with new Micom P442 relays. The work is expected to be completed by 30.9.2015.

c) At 16:05 hrs on 28.8.2015, total power failed at 220kV Chandil sub-station in JUSNL system due to mal-operation of LBB relay. The following feeders from Chandil end were tripped:

S. No	Name of Bay/Line	Tripping Time	Closing Time	Local End Relay	Remote end Relay
1	220 kV Chandil-STPS	16:05Hrs	17:33Hrs	Master Trip 86, Contact multiplier relay 86	Not Tripped
2	220 kV Chandil-Ramchandrapur	16:05Hrs	17:41Hrs	Zone-4, LBB Relay	Not Tripped
3	220 kV Chandil - PGCIL	16:05Hrs	16:51Hrs	Master Trip 86	Not Tripped
4	132 kV Chandil-Adityapur Ckt-I	16:05Hrs	17:48 Hrs		o/c, Zone-I, 5.9Km, Fault current B-Phase 673.4 A, Y Phase 3.185 KA
5	132 kV Chandil-Hatia	16:05Hrs	16:33Hrs	Not Tripped	Overcurrent,86
6	132 kV Ramchandrapur-Adityapur Ckt-I	16:05Hrs	16:35Hrs	Not Tripped	Overcurrent,87
7	132 kV Ramchandrapur-Adityapur Ckt-II	16:05Hrs	16:45Hrs	Not Tripped	Tripped Y- phase, Zone -I,2.978Km, fault Current R Phase 201.8A, Y – Phase 6.522 KA, B-Phase 359.2 A
8	220 kV Bus Coupler at RCP	16:05Hrs	16:48 Hrs	Non directional E/F,O/C,LBB,86	

d) JUSNL informed that due to fault in 132 kV side in Ramchandrapur/Adityapur area, 132 KV Ramchandrapur-Adityapur Ckt-II and 132 kV Chandil-Adityapur-I tripped in zone-1 from Adityapur end. 132 KV Ramchandrapur-Adityapur Ckt-I tripped on over current protection due to overloading. Subsequently, the LBB at Chandil operated due to LBB initiation from 220 kV Chandil- Ramchandrapur line. On enquiry, JUSNL informed that LBB time setting is 400 ms.

e) JUSNL could not explain the reason for LBB operation at 220 kV Chandil sub-station.

f) With regard to UFR operation during the month of August, 2015, ERPC submitted that system frequency touched a minimum of 49.66Hz on 13.8.15 at 19:40Hrs. Accordingly, no report with regard to operation of UFR has been received from the constituents of Eastern Region.

g) On 14.8.2015 at 10:10 hrs, there was a grid disturbance of GD-I type at Chandil (JUSNL) which caused a load loss of 300 MW and also total power failed at 220 kV Chandil sub-station in JUSNL system due to mal-operation of LBB

relay to 220 kV Chandil-Ramchandrapur line. Further, on 28.8.2015 at 16:05 hrs, there was a grid disturbance of GD-I type at Chandil (JUSNL) which caused a load loss of 314 MW and cause total power failed at 220 kV Chandil sub-station in JUSNL`s system due to Single Line to Ground (SLG) fault occurred in 132 kV Ramchandrapur- Adityapur-I and subsequent tripping of all lines from Chandil sub-station of LBB relay for 220kV Chandil-Ramchandrapur line.

11. We now proceed to examine the current position in the JSEB /JUSNL system in the matter of non-compliance of the provisions of the Grid Code. Regulation 2.8.1(c) of the Grid Code which specifies functions of STU provides as under:

“ 2.8.1. Section 39 of Electricity Act, 2003, outlines that the functions of State Transmission Utility (STU) shall be:

(1) (c) To ensure development of an efficient, co-ordinated and economical system of intra-State transmission lines for smooth flow of electricity from a generating station to the load centers;”

Regulation 5.2(l) of Grid Code dealing with coordination in regard to protections and relay settings provides as under:

"5.2 System Security Aspects

(l) Provision of protections and relay settings shall be coordinated periodically throughout the Regional grid, as per a plan to be separately finalized by the Protection sub-Committee of the RPC. RPC shall also prepare islanding schemes and ensure its implementation in accordance with Central Electricity Authority (Grid Standards) Regulations, 2010. All users and SEBs shall ensure that installation and operation of protection system shall comply with the provisions of Central Electricity Authority (Grid Standards) Regulations, 2010."

12. ERLDC has submitted that the respondents are not complying with the provisions of the Grid Code and CEA Grid Standards Regulations in letter and spirit. Regulation 3(1) (e) of the CEA Grid Standards Regulations provides as under:

"3 Standards for Operation and Maintenance of Transmission lines- (1) All entities, appropriate Load Despatch Centres and Regional Power Committees, for the purpose of maintaining the Grid Standards for operation and maintenance of transmission lines, shall,-

(e) Provide standard protection systems having the reliability, selectivity, speed and sensitivity to isolate the faulty equipment and protect all components from any type of faults, within the specified fault clearance time and shall provide protection coordination as specified by the Regional Power Committee.

Explanation: For the purpose of this regulation "fault clearance time" means the maximum fault clearance times are as specified in Table 1 below:

S. No.	Nominal System Voltage (kV rms)	Maximum Time (In milliseconds)
1	765 and 400	100
2	220 and 132	160

Provided that in the event of non-clearance of the fault by a circuit breaker within the time limit specified in Table 4, the breaker fail protection shall initiate tripping of all the breakers in the concerned bus section to clear the fault in the next 200 milliseconds."

13. ERLDC has submitted that due to poor reliability, significant part of Eastern Railway, South Eastern Railway and number of important industries are being adversely affected. Regulation 5.2(r) of the Grid Code provides as under:

"5.2 (r) All the Users, STU/SLDC and CTU shall send information/data including disturbance recorder/sequential event recorder output to RLDC within one week for the purpose of analysis of any grid disturbance/event. No user, SLDC/STU or CTU shall block any data/information required by the RLDC and RPC for maintaining reliability and security of the grid and for analysis of an event".

Regulation 15 (3) of the CEA Grid Standards Regulations provides as under:

"15. Operational Data during normal operation and during grid incidents and grid disturbances: (3) All operational data including disturbance recorder and event logger reports, for analyzing the grid incidents and grid disturbance and any other data which in its view can be a help for analyzing grid incident or grid disturbance shall be furnished by all the Entities within twenty four hours to the Regional Load Dispatch Centre and concerned Regional Power Committee. (4) All Equipments such as disturbance recorders and event loggers shall be kept in healthy condition, so that under no condition such important data is lost."

14. JUSNL, vide affidavit dated 18.12.2015, has placed on record the compliance report of protection system. It is noted that JUSNL has implemented 26 out of 28 recommendations of ERPC. JUSNL has complied with all recommendations except two recommendations pertaining to establishment of PLCC links and auto reclose of 220 kV

lines. However, the problems in protection system have refused again in recent times. With regard to recommendations pertaining to establishment of PLCC and Auto reclose scheme, more than 50% work has been completed by JUSNL and remaining work would be completed within 2 to 3 months.

15. We are of the view that JUSNL has improved protection deficiencies like replacement of static relays with numerical relays and also strengthened the protection system, completed earthing audit at Chandil, Ramchandrapur, Adityapur GSS and also implemented earth pit maintenance work at various sub-stations. We are of the view that JUSNL has replaced static relays with numerical relays at various sub-stations, namely 220 kV Ramachandrapur sub-station, 220 kV Chandil sub-station, 220 kV Hatia sub-station, 132 kV Hatia sub-station and 132 kV Adityapur sub-station. Disturbance data is available from Disturbance Recorder (DR)/Event Logger (EL) and Sequence of Events (SOE) from the above sub-stations. Auto Reclose (A/R) facility also enabled in various 220 kV Transmission lines in JUSNL system.

16. ERPC vide letter dated 7th and 8th January 2016 has placed on record the present status of protection system of Jharkhand/JUSNL system. ERPC has submitted that Chandil, Ramachandrapur, Adityapur and adjoining sub-stations in Jharkhand were mainly tripped due to mismatch of protection co-ordination. PCC of Eastern Region is continuously emphasizing to improve protection system in Jharkhand and it is expected that within another 4 to 6 months, Jharkhand system will be considerably secure and healthier.

17. Taking note of submissions of JUSNL and observations of ERPC that substantial work has been carried out, we are of view that non-compliance of the direction is not made out at this stage for imposition of penalty under Section 142 of the Act. However, we consider it appropriate to issue direction to JUSNL to complete the work by 31.3.2016. Accordingly, JUSNL shall submit a complete report to ERPC in the first week of April 2016. It is clarified that in case of failure to complete the work by 31.3.2016 as committed by JUSNL vide affidavit dated 18.12.2015, JUSNL shall be liable for action under Section 142 of the Act for non-compliance of the provisions of the Grid Code and order of the Commission. ERPC is directed to submit its observations on the report of JUSNL by 30.4.2016.

18. The petition is disposed of with the above directions.

Sd/-
(A.S. Bakshi)
Member

Sd/-
(A. K. Singhal)
Member

sd/-
(Gireesh B. Pradhan)
Chairperson