

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

**Coram:
Dr. Pramod Deo, Chairperson
Shri S. Jayaraman, Member**

DATE OF HEARING: 20.12.2011

DATE OF ORDER: 26 .9.2012

**Petition No. 168/MP/2011
with I.A. Nos. 39/2012**

In the matter of

Petition under section 28 (e) of the Electricity Act, 2003 read with clause 1.5 of IEGC 2010 for establishment and maintenance of Communication facilities by the users of the Northern Region in terms of Clause 4.6.2 of IEGC, 2010, read with Clause 5(3) of CEA (Technical Standards for Connectivity to the Grid) Regulation, 2007 to ensure availability of reliable real time data at NRLDC.

And

In the matter of

Northern Regional Load Despatch Centre, New Delhi**Petitioner**

Vs

1. Uttar Pradesh State Load Despatch Centre, Lucknow
2. SLDC, Power Development Deptt., Jammu
3. Rajasthan Rajya Vidyut Prasaran Nigam Ltd., Jaipur
4. SLDC, Punjab State Electricity Transmission Corp. Ltd., Ablowal
5. Haryana Vidyut Prasaran Nigam Ltd., Panchkula
6. SLDC, Delhi Transco Ltd., New Delhi
7. SLDC, Himachal Pradesh State Electricity Board, Shimla
8. SLDC, Power Transmission Corp. of Uttarakhand Ltd., Dehradun
9. NRTS-I, PGCIL, New Delhi
10. NRTS-II, PGCIL, Jammu
11. Narora Atomic Power Station, Narora
12. Rajasthan Atomic Power Station – A, Kota
13. Rajasthan Atomic Power Station – B, Kota
14. Rajasthan Atomic Power Station – C, Kota
15. Sewa-II Hydro Electric Project, Chamba
16. Salal Hydro Electric Project, Udhampur
17. Bairasiul Hydro Electric Project, Chamba
18. Dhauliganga Hydro Electric Project, Pithoragarh, Uttarakhand
19. Dulhasti Hydro Electric Project, Kishtwar, J&K
20. Koteswar Hydro Electric Project, Tehri Garwal, Uttarakhand
21. Tehri Hydro Development Corp. Ltd., Rishikesh
22. Jhajjar Thermal Power Project, Aravali Power Co. Ltd., Noida
23. Barsingsar Thermal Power Plant, Neyveli Lignite Corp. Ltd., Rajasthan
24. Allain Duhangan HEP, Kullu, Himachal Pradesh
25. Karcham- Wangtoo H.E. Project, Tapri, Himachal Pradesh,

.....**Respondents**



**Petition No. 178/MP/2011
with I.A.No. 46/2012**

In the matter of

Petition under section 28(e) of the Electricity Act 2003 read with Clause 1.5 of IEGC 2010 for establishment and maintenance of Data and Communication facilities by the USERS of the Southern Region in terms of Clause 4, 6, 2 of IEGC 2010 read with Clause 5(3) of CEA (Technical Standards for Connectivity to the Grid) Regulation 2007 to ensure availability of reliable real time data at SRLDC

And

In the matter of

Southern Regional Load Despatch Centre, Bangalore**Petitioner**

Vs

1. RAMAGUNDAM STG I & II, NTPC, RSTPS, Karim Nagar, Andhra Pradesh
2. RAMAGUNDAM STG I & III, NTPC, RSTPS, Karim Nagar, Andhra Pradesh
3. NTPC Talcher STG II, Angul, Orissa
4. NLC TPS II STG I, Neyveli Lignite Corp. Ltd., Thermal Power Station II, Tamil Nadu
5. NLC TPS II STG II, Neyveli Lignite Corp. Ltd., Thermal Power Station II, Tamil Nadu
6. NLC TPS I EXPANSION, Neyveli Lignite Corp. Ltd., Thermal Power Station I (Expn.), Tamil Nadu
7. Madras Atomic Power Station, Kalpakkam, Tamil Nadu
8. KGS UNITS 1 and 2, NPCIL, Kaiga Generating Station, Kaiga
9. KGS UNITS 3 and 4, NPCIL, Kaiga Generating Station, Kaiga
10. Lanco Kodapalli Power Pvt. Ltd., Kondapalli
11. Transmission Corporation of Andhra Pradesh Ltd., Hyderabad
12. Karnataka Power Transmission Corporation Ltd., Bangalore
13. Kerala State Electricity Board, Trivandrum
14. Tamil Nadu Transmission Corporation Ltd., Chennai
15. Puducherry Electricity Deptt., Electricity Deptt. of Puducherry, Puducherry
16. Goa Electricity Board, Panaji
17. SR-I, Power Grid Corporation of India, SRTS-I, Secunderabad
18. SR-II, Power Grid Corporation of India, SRTS-II, Bangalore

.....**Respondents**

1. Member Secretary, SRPC, Bangalore**Proforma Respondent**

**Petition No. 194/MP/2011
with I.A. No. 44/2012**

In the matter of

Petition under 28(e) of the Electricity Act-2003 read with clause 1.5 of IEGC 2010 for establishment and maintenance of communication facilities by the USERS of the Western Region in terms of Clause 4.6.2 of IEGC, 2010 read with Clause 5(3) of CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 to ensure availability of reliable real time data at WRLDC.

And

In the matter of

Western Regional Load Despatch Centre, Mumbai**Petitioner**



Vs

1. Maharashtra State Electricity Transmission Co. Ltd., Mumbai
2. State Load Despatch Centre, GETCO, Gotri, Vadodara
3. M.P. Power Transmission Co. Ltd., SLDC, Jabalpur
4. Goa Electricity Department, Pananji
5. Electricity Department, Dadar Nagar Haveli, Silvassa
6. Electricity Department, Daman and Diu, Daman
7. Narmada Control Authority, Indore
8. WRTS-I, PGCIL, Nagpur
9. WRTS-II, PGCIL, Vadodara, Gujarat
10. SLDC, Chhattisgarh State Power Transmission Co. Ltd., Raipur

.....**Respondents**

Following were present:

Shri S.K.Sonee, POSOCO
Shri V.V.Sharma, NRLDC
Shri Bebasis De, NRLDC
Miss Joyti Prasad, NRLDC
Shri Abhimanyu, WRLDC
Shri N.Nallarasan, SRLDC
Shri P.A.Patel, GETCO
Shri Y.J.Ganit, GETCO
Shri L.P.Joshi, THDC
Shri Appa Saran, THDC
Shri G.M.Agarwal, UPPTCL
Shri Kiran Saini,DTL
Shri Hemant Pandey,NCA
Shri V.K.Jain, TNEB

ORDER

The petitioners, Northern Regional Load Despatch Centre, Southern Regional Load Despatch Centre and Western Regional Load Despatch Centre have filed these petitions seeking directions to all users of Northern Region, Southern Region and Western Region to establish the maintain the data telemetry and communication facilities in terms of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (hereinafter referred to as 'the Grid Code), Central Electricity Authority (Technical Standards for connectivity to the Grid) Regulations, 2007 (hereinafter referred to as CEA Connectivity Regulations) and various other regulations issued by Central Commission from time to time.

2. The petitioners have submitted that in terms of Section 28 (e) of the Electricity Act, 2003 (the Act), they are responsible for carrying out real time



operations for the grid control and despatch of electricity within the region through secure and economic operation of the Regional Grid in accordance with the Grid Standards and the Grid Code. The real time data is vital for taking decisions during grid operation in terms of Section 2 (54) of the Act. Further, to maintain security and reliability of the network, state estimator tool is used at control centre to determine the current state of system and perform contingency analysis. The accuracy of state estimator results also depends on the real time data availability (digital and analog) from the users.

3. The petitioners have submitted that getting real time data of various power system elements using reliable communication system has become an essential pre-requisite for successful operation of modern power system and in this regard, POSOCO vide its letter dated 19.11.2010 had submitted to the CERC a comprehensive proposal for institutional mechanism for planning and implementation of communication system for power sector.

4. The petitioners have submitted that in accordance with Section 2 (54) of the Act, Regulation 5 (3) of CEA Connectivity Regulations and detailed procedures of Central Transmission Utility approved under Regulation 27(1) of the Central Electricity Regulatory Commission (Grant of Connectivity, Long- Term Access and medium-term open Access in inter-state Transmission and related matters) Regulations 2009 (hereinafter referred to as the Connectivity Regulations), user, who is getting connected to the grid, is solely responsible to provide the telemetry to the Load Despatch Centres. The Central Transmission Utility (CTU)/State Transmission Utilities (STUs) are to coordinate the required communication for voice and data. The associated communication system to facilitate data flow up to appropriate data collection point on CTU system shall also be established by the concerned USER or STU as specified by CTU in the Connection Agreement. All USERS/STUs in coordination with CTU shall provide the

required facilities at their respective ends as specified in the Connection Agreement.

5. The petitioners have submitted that despite continuous efforts and persuasion with the concerned utilities, relevant data from a number of Generating Stations/ Sub-stations are still not being telemetered to the concerned RLDCs. These issues were raised in the various Regional Power Committee (RPC) forums, namely Operation Coordination Sub-Committee (OCC)/ULDC Scheme Monitoring Group (USMG)/Technical Coordination Committee (TCC) / concerned Regional Power Committee (RPC) Board.

6. The petitioners have submitted the status in respect of the deficiencies in telemetry in the Regions, which including the following:

- (a) Telemetry not provided;
- (b) Telemetry provided but not working/working intermittently;
- (c) Data telemetry is working on single communication channel hence lack reliability;
- (d) Voice communication not available.

7. In Petition No. 168/MP/2012, replies have has been filed by SLDC, Uttar Pradesh Power Transmission Corporation Ltd., Jaypee Karcham Hydro Corporation Ltd., Himachal Pradesh Electricity Board, SLDC, Delhi, Aravali Power Corporation Pvt. Ltd., Power Transmission Corporation of Uttarakhand Ltd., NHPC Ltd and Nuclear Power Corporation Ltd.

8. State Load Despatch Centre, UP in its reply affidavit dated 19.10.2011 has submitted that in order to fulfill the telemetry requirement, in line with IEGC, Uttar Pradesh Electricity Regulatory Commission has notified UP Electricity Grid Code, 2007, which provides that all users shall provide systems to telemeter

power system parameters such as power flow, voltage and status of circuit breakers, isolators and flow of active power etc. It has been submitted that Uttar Pradesh Power Transmission Corporation Ltd is carrying out expansion of SCADA Phase-II along with Power Grid and Optical Ground Wire (OPGW) is being installed on some existing transmission lines in lieu of Microwave Communication System and all new 220 kV and above transmission lines. Efforts are being made to resolve the problem enumerated by NRLDC and it would be resolved shortly. SLDC, UP has submitted that although there is a provision for metering and scheduling for power purchase through MOU Route, however, there is no provision for telemetry system, which is to be installed by the generating companies or IPPs. SLDC, UP has requested to issue directions to UPPCL to execute supplementary agreements in case of all power purchasing agreements where power purchase has been done through MOU Route incorporating the provision of telemetering.

9. Jaypee Karcham Hydro Corporation Ltd. in its reply affidavit dated 21.10.2011 has submitted that the real time data from Karcham Wangtoo Power Station is being sent to NRLDC through V-Sat as well as GPRS communication and shall make the data available in future also on regular basis.

10. Himachal Pradesh State Electricity Board (HPSEB) in its reply affidavit dated 21.11.2011 has submitted that in order to cover entire network of the State (66 kV and above), seven more RTUs at different identified locations have been proposed to be installed during the implementation of replacement/up-gradation of SCADA/EMS system for NR (ULDC Phase-II) Scheme. HPSEB has also proposed to install 351km of optical ground wire (OPGW) along with multiplexers at identified locations in ULDC phase-II scheme, so that most of the State network may be covered through wideband link for data/speech transmission.

11. State Load Despatch Centre, Delhi Transmission Corporation Ltd. in its reply affidavit dated 21.11.2011 has submitted that due to certain reasons beyond the control of the respondent it could not provide complete data integration with reference to new sub-stations and generating stations only. The data integration of all generating stations had already been completed. The data integration of only one 400kV (Mundka commissioned on 28.9.2010) and two 220 kV sub-stations (namely Ridge Valley-commissioned on 25.9.2010 and DIAL-commissioned on 27.9.2010) are still pending. SLDC, Delhi has submitted that the integration is likely to be completed by 31.12.2011 for Ridge Valley and DIAL Sub-station and by 31.3.2012 for 400 kV Mundka sub-station.

12. Aravali Power Corporation Pvt. Ltd. (APCL) in its reply affidavit dated 11.11.2011 has submitted that its station IGSTPS, Jhajjar established data telemetry through two independent channels over Jhajjar Mundka transmission line PLCC up to Mundka sub-station. Thereafter, the data is transferred through Mundka Bawana Line PLCC (in custody of DTL) at Bawana sub-station. IGSTPP is hooked up to APCPL modems to Power Grid panel from where data is transferred to NRLDC through Power Grid optic fiber cable. The exchange for voice communication at Jhajjar and Bawana ends are commissioned and functional however, the exchange at Mundka sub-station (under custody of DTL) is under commissioning. Once Mundka sub-station exchange is commissioned voice communication between Jhajjar and NRLDC would be accomplished with the help of DTL and PGCIL.

13. Power Transmission Corporation of Uttarakhand Ltd. (PTCUL) in its reply affidavit dated 13.12.2011 has submitted that the SCADA/EMS projects are under implementation and a new SLDC is being established at Dehradun and Sub-LDCs at Kashipur and Rishikesh and is anticipated to be commissioned in

December, 2012 with provisions of addition of new generating stations and sub-stations. The upcoming new generating stations and sub-stations shall be connected within six months from date of their commissioning.

14. NHPC Ltd. in its reply affidavit dated 14.12.2011 has submitted that all the associated problems would be resolved by March, 2012.

15. Nuclear Power Corporation India Ltd (NPCIL) in its reply letter dated 3.12.2011 has submitted that during the run-up for establishment of Unified Load Despatch and Communication (ULDC) in 1993, it was agreed that the PGCIL will be responsible for establishment/augmentation of Load Despatch Centres with associated communication facilities in the Northern Region (NR) including NPCIL, NTPC and NHPC under Unified Scheme and subsequent operation and maintenance of these facilities. Presently at NAPS, the data telemetry is working on single communication channel and the communication facilities are not functional after formation of LILO at Sambhal in 220 kV NAPS-Moradabad line. NPCIL has submitted that in its opinion the ownership of all such equipments supplied by Power Grid at NAPS including operation and maintenance vests with Power Grid.

16. In response to reply to SLDC, UP, the petitioner NRLDC in its affidavit dated 11.11.2011 has submitted that UPPTCL has not indicated implementation plan regarding inception and completion of SCADA Phase-II and installation of OPGW in lieu of Microwave links in all 220 kV and above transmission lines. As on date telemetry is intermittent and reliable data is not available at NRLDC. UPPTCL shall furnish actual status of availability of dual channel for the RTUs reporting to SLDC. NRLDC has submitted that the status of availability of voice communication to SLDC needs to be furnished by UPPTCL.

17. In response to HPSEB reply, NRLDC has submitted that HPSEB has not submitted the details of implementation plan for OPGW network planned under ULDC Phase-II.

18. The petitioner has also submitted that data from DTL is not yet available even after commissioning of stations which creates difficulties in real time operation as well as to run the security related application in real time. With respect to Jaypee Kharcham Hydro Electric Plant, the petitioner has submitted that though the SAS have been integrated, the availability of data is not reliable. The integration was subsequently, done through V-SAT and GPRS system as the planned communication through PLCC was not available.

19. In Petition No. 178/MP/2012, reply has been filed by Neyveli Lignite Corporation Ltd., SLDC, Transmission Corporation of Andhra Pradesh Limited, TANTRANSCO and NTPC Ltd.

20. Neyveli Lignite Corporation Ltd. (NLC) in its reply dated 17.10.2011 has submitted that the generators should be allowed to capitalize the expenditures incurred in the establishment and maintenance of data and communication facilities. Higher depreciation rate as applicable to IT equipment and software be allowed. The CTU be directed to specify the equipment/facilities and the suppliers for avoiding compatibility issues while integrating with its communication system. NLC vide its affidavit dated 13.12.2011 has further submitted that all the SCADA inputs in NLC TPS-II are fully functional except 400 kV bus-1 frequency and SOE of 230 kV and 400 kV bus-bar protection SOE. NLC has further submitted that it has established hot line through BSNL from NLC TPS-I Expansion and NLC TPS-II to SRLDC in October 2010. The second data channel through TPS II- Puducherry feeder is likely to be completed by June, 2012.

21. State Load Despatch Centre, Transmission Corporation of Andhra Pradesh Limited in its reply affidavit dated 21.10.2011 has submitted that out of 5,700 data input points in Andhra Pradesh, the pending field input data to SRLDC is only from 187 points. Major 146 nos are pertaining to APGENCO. 14 nos pertain to APTRANSCO and 27 nos pertain to IPPs. Out of 146 nos pending field inputs of APGENCO, 66 nos. (MW-32+MvAr 34) analog points are on LV side of generating transformers i.e. the unit side of the generators. As informed by APGENCO, these analog field input points can only be extended when the generators are taken out/shut down for maintenance works. It has been further submitted that APTRANSCO have planned OFC schemes under various transmission projects through which alternate communication path for the existing system will be achieved for transfer for data from RTUs to ALDC, ALDC to SLDC and thereon to RLDC. As a part of upgradation of SLDC, proposal was submitted to the Andhra Pradesh Electricity Regulatory Commission. Under the scheme, a backup SLDC and communication augmentation were also proposed, which will create redundant path for communication to SLDC. PGCIL has also proposed OPGW Expansion project in 400 kV transmission scheme by which also alternate data path will be achieved from SLDC to RLDC. The scheme is yet to be finalized and implemented. SLDC, AP in its reply dated 14.12.2011 has further submitted that all the action points indicated by SLRDC would be attended by January, 2012.

22. The respondent Nuclear Power Corporation India Ltd.-KAIGA in its letter dated 19.12.2011 has submitted that all the digital points in KGS 3&4 (total 30 digital points and 4 analog points) are wired up to Remote Terminal Unit (RTU) panel and they are waiting for Power Grid for final hook up. Regarding analog points from KAIGA Stage-I and II (8 Nos) transducers are under procurement and after receiving them they will be installed during unit shutdown and signals will be extended. KAIGA has already established two hotline circuits with SRLDC

each with Stage-I & II and Stage-III & IV. They are working satisfactorily and being tested regularly.

23. TANTRANSCO in its reply affidavit dated 22.10.2011 has indicated the works being carried out for making available data and voice communication system with SRLDC. TANTRANSCO has submitted that the work will be completed by 31.3.2012.

24. NTPC Ltd. in its reply affidavit dated 11.11.2011 has submitted that most of the inputs have been extended and healthiness of the transducers have been checked for Ramagundam Stages I, II and III. The OLTCs of Generating Transformers-4, 5 and 6 are not being operated online and therefore, SCADA requirement for the same be reviewed. With regard to deficiencies in data telemetry for NTPC Talcher Stage-II, inputs for Generating Transformers-4, 5 and 6 (MW, MVA_r, connected and disconnected system), NTPC-HDVC feeders#1, 2, 3, 4 (MW, MVA_r) are already available at Talcher HDVC station. Tap changers of Generating Transformers#1-6 at Talcher Stage-II are OFF-LOAD type and therefore, SCADA requirement for the same need to be reviewed. Till September, 2007, Switchyard of NTPC Kayamkulam was operated by Power Grid and availability of voice communication-ULDC phone is maintained by Power Grid. Input to the telemetry panel maintained by Power Grid at Kayamkulam switchyard will be provided in consultation with Power Grid.

25. NTPC in its affidavit dated 19.12.2011 has further submitted that all NTPC stations have established communication links with the concerned RLDCs and data transfer in real time is taking place. Most of the generating transformers are equipped with OFF-LOAD tap changers and few with ON-LOAD tap changers operated OFF-LOAD only. Hence, the requirement of position input of the generator Transformers is not relevant and can be dropped. In some generating

units MW and MVAR data at the generator terminal has not been provided. There are some constraints in providing this data as the RTUs are located in the SWYO Control Room and the source of data is physically distant. Since the relevant data (MW and MVAR) on the high voltage side of Generator Transformers (Injection) are already made available, the Generator Terminal Data has no relevance in system operation. This data requirement may also be dropped. With reference to the voice communication to generating stations from RLDCs, the same is available on dial up mode. Further, NTPC has established a Regional Control Centre (RCC), which is manned round the clock, who can be contacted for all needs. Any additional voice communication facility can be agreed mutually. For all the new power projects of NTPC, the provisions for data and voice communication protocol IEC 60870-5-101 is being implemented. Necessary hardware like Gateways and PLCC compatible modems are being provided. NTPC Stations have been complying the provisions of Grid Code and Connectivity Regulation in this regard.

26. In Petition No. 194/MP/2011, reply has been filed by SLDC, Madhya Pradesh Power Transmission Company Ltd., Narmada Control Authority, SLDC, Gujarat Energy Transmission Corporation Ltd, SLDC, Chhattisgarh State Power Transmission Company Ltd. and SLDC, Maharashtra State Electricity Generation Corporation Ltd.

27. State Load Despatch Centre, Madhya Pradesh Power Transmission Company Ltd. (MPPTCL) in its reply dated 11.11.2011 and 22.11.2011 has submitted that all efforts has been made to provide SCADA and communication facilities for upcoming new sub-stations and power stations. MPPTCL has already initiated installing 40 nos. Remote Terminal Units (RTUs) which would be completed by 4th quarter of 2012. On similar lines of Power

Grid's Master Telecommunication Plan of Western Region, MPPTCL has also finalized 239 km fiber optic based wide band communication and the implementation would be completed by 30 months from now. MPPTCL has also furnished with reply the list of sub-stations and power stations where the RTUs are functioning. It has been submitted that the matter has been taken up with various IPPs coming up in the State.

28. Narmada Control Authority (NCA) in its reply dated 19.11.2011 has submitted that the unit-wise SSP real time data and status indication of RBPH (6 x 200 MW) and total sum of MW, MVA_r of CHPH units (5 x 50 MW) are available at WRLDC via SLDC, Gujarat since July, 2008. For completing the remaining work of providing unit-wise CHPH real time data at WRLDC, a period of one year is required. NCA has requested extension of time up to one year so that it may enable to arrange availability of unit wise CHPH real time data at SLDC Gujarat and WRLDC.

29. State Load Despatch Centre, Gujarat Energy Transmission Company Ltd. in its reply affidavits dated 2.11.2011, 14.11.2011 and 9.12.2011 has submitted that Gujarat State is having 130 nos. of locations out of which data availability through RTUs are available from 113 nos. and have already been extended to WRLDC. For remaining 17 nos. of locations, the work for commissioning of RTUs would be completed by November, 2012.

30. State Load Despatch Centre, Chhattisgarh State Transmission Company Ltd in its reply dated 15.12.2011 has submitted that existing system of data communication is running with availability factor of 90-95% and probabilities are examined and explored for the back-up communication through V-Sat. The matter shall be taken up with the embedded customers in

the State of Chhattisgarh for having mandatory communication facilities irrespective of the type of Open Access, they opt for.

31. State Load Despatch Centre, Maharashtra State Electricity Transmission Company Ltd. in its reply dated 15.12.2011 has submitted that in the petition, real time data from 227 locations from Maharashtra State is required by WRLDC. At present, the data from 73 locations is already being transmitted over Inter Controlcentre Communication Protocol (ICCP) link with existing SCADA system at WRLDC. The data from additional 85 locations will be transmitted to WRLDC over ICCP data link on completion of the RTU-DC scheme by March 2012. Remaining 69 locations include IPPs/ CPPs, wind stations and newly commissioned tapped/ LIL/Oed EHV sub-stations. SLDC has already taken up the matter for data requirement, interfacing details and communication protocols with IPPs/CPPs and wind stations and STU. After the establishment of required infrastructure and communication links by the respective users and integration of real time data into SCADA system at SLDC, the data will be transmitted to WRLDC. It has been also submitted that a comprehensive plan for establishment of communication network using OPGW is under finalization, which would be completed within two years .

32. Power Grid in its affidavit dated 14.12.2011 has submitted that all the sub-stations are commissioned with Power Line Carrier Communication (PLCC). The PLCC equipment is being provided with the provisions for data transmission to SCADA system of RLDCs. However, the PLCC system has limitation in terms of its reliability and capacity for data and speech communication. The petitioner has further submitted that requirement of communication system has increased in recent years due to introduction of Wide Area Measurement System (WAMS), Special Protection Schemes (SPS) and commissioning of large number of sub-

stations and same cannot be met with PLCC. Therefore, Wide Band Communication System based upon fibre optic is required.

33. Power Grid has also submitted that the number of sub-stations of Power Grid provided with fibre optic or microwave links in Northern, Western, Southern, Eastern and North Eastern Regions under ULDC scheme are as follows:

Northern Region: 18
Western Region: 5
Southern Region: 8

34. The Power Grid has further submitted that due to the replacement of microwave link by fibre optic, following additional existing sub-stations of Power Grid will be connected with fibre optics:

Northern Region: 12 nos. by July, 2012
Southern Region: 15 nos. by August, 2012
Western Region: no microwave links under ULDC

35. In order to provide speech and data connectivity of upcoming and remaining sub-stations of Power Grid, Fibre Optic Expansion Projects have been approved by the respective RPCs for implementation. The scheduled completion time is as follows:

Northern Region: Progressively from October, 2013 to December, 2013
Western Region: Progressively from April, 2013 to July, 2013
Southern Region: Progressively from January, 2014 to March, 2014

36. The Power Grid have submitted that in order to ensure that in future all the sub-stations are provided with fibre optic based communication system along with the commissioning of sub-stations, the requirements are being put for consideration of the Standing Committee on Transmission Planning at the time of approval of the transmission schemes.

37. We heard the representatives of the petitioners and respondents and have perused the relevant records.

38. During the course of hearing on 15.11.2011, all users, including generating companies, transmission licensees, the State Electricity Boards/SLDCs were directed to furnish a clear cut action plan for the establishment of the communication system.

39. From the records available, it is evident that only PGCIL, UPPTCL, JKHCL, HPSEB, APPCPL, DTL, APTRANSCO, PTCUL, NHPC, NPCIL, NLC, TANTRANSCO, NTPC, MPPTCL, NCA, GETCO, CSPTCL, and MSETCL have submitted their replies. Other Respondents have not filed any response to our directions dated 15.11.2011.

40. Regulation 4.6.2 of the Grid Code provides as under:

"4.6.2. Reliable and efficient speech and data communication systems shall be provided to facilitate necessary communication and data exchange, and supervision/ control of the grid by the RLDC, under normal and abnormal conditions. All Users, STUs and CTU shall provide Systems to telemeter power system parameter such as flow, voltage and status of switches / transformer taps etc. in line with interface requirements and other guideline made available by RLDC. The associated communication system to facilitate data flow up to appropriate data collection point on CTU's system shall also be established by the concerned User or STU as specified by CTU in the Connection Agreement. All Users/STUs in coordination with CTU shall provide the required facilities at their respective ends as specified in the Connection Agreement."

In view of the above, the real-time visibility of the generating stations and the sub-stations to the Load Despatch Centre is necessary for the reliable grid operation and security of the electrical power system.

41. Regulation 6 (3) of CEA Connectivity Regulation provides as under:

"6 (3) The requestor and user shall provide necessary facilities for voice and data communication and transfer of operational data, such as voltage, frequency, line flows, and status of breaker and isolator position and other parameters as prescribed by Appropriate Load Despatch Centre."

42. Clause 1.1 (c) of the "General Conditions for Connectivity" of the Procedures of Central Transmission Utility approved under Central Electricity Regulatory Commission (Grant of Connectivity, Long-Term Access and Medium-Term Open Access in inter-State Transmission and related matters) Regulations, 2009 provides as under:

"The applicant or inter-State transmission licensee shall provide facilities for voice and data communication for transfer of real time operational data such as voltage, frequency, real and reactive power flow, energy, status of circuit breaker & isolator positions, transformer taps and other parameters from their station to Data Collection Point (DCP) of CTU as per IEGC. CTU shall provide access to applicant's data transfer through communication Network in case spare channels are available on mutually agreed terms. The location of DCP of CTU shall be the nearest station connected electrically where wideband communication capacity of POWERGRID is available. Additional communication system from the DCP to the concerned RLDC shall be the responsibility of CTU; however its cost shall be borne by the applicant. The responsibility of data transfer shall be that of the applicant."

43. Under the Grid Code, it is the responsibility of all users, STUs and CTU to provide systems to telemeter power system parameters in line with interface requirements and other guideline made available by RLDC and associated communication system to facilitate data flow up to appropriate data collection point on CTUs system. In view of the critical importance of telemetry and associated communication system for ensuring reliability in operation of the grid and optimum utilization of the transmission system, there is an imperative need for all users to establish the telemetry and associated communication system in time bound manner so that the power system operation may be most reliable and optimum. Moreover, in view of the requirement of communication system for a generating station and sub-station, the planning should be done in advance by the generating company and transmission licensee to ensure that necessary system are in place before commissioning of generating station or sub-station to take care of the communication requirements even at the time of injection of power in firm by a generating station and sub-station during testing.

44. From the pleadings of the parties, we have observed that in certain cases there is lack of coordination among different entities. We expect that NLDC/RLDCs/SLDCs to take necessary steps to ensure coordination and co-operation for installation and operation among the users of telemetry and associated voice and data communication system.

45. We also observe that many State Transmission Utilities, State Power Departments/Electricity Departments have not responded to our directions to submit a clear cut action plan for the establishment of the communication system for the existing system and the time schedule for completion including the provisioning for integration of new generating stations and the sub-stations coming in future. We direct all users to submit the information by 31.10.2012 to the NLDC. We direct NLDC to submit a report by 10.11.2012 about the status of implementation of the telemetry system. If any user does not comply with our directions, it will be construed as non-compliance of the order of the Commission and appropriate proceedings under Section 142 of the Electricity Act, 2003 shall be initiated against such users.

46. The petitioners have also filed I.As No. 39/2012, 44/2012 and 46/2012 seeking directions to all the respondents to establish redundant and reliable data telemetry in time bound manner and maintain the same and associated communication facilities in terms of the Grid Code, CEA Connectivity Regulations and Connectivity Regulations. In view of our decision in the preceding paragraph, no separate direction are required to be issued in the said IAs.

47. The Petition Nos. 168/MP/2011, 178/MP/2011 and 194/MP/2012 along with IA Nos. 39/2012, 44/2012 and 46/2012 are disposed of with above terms.

Sd/-
(S.JAYARAMAN)
MEMBER

sd/-
(Dr. PRAMOD DEO)
CHAIRPERSON

