

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram:

Dr. Pramod Deo, Chairperson

Shri S.Jayaraman, Member

Shri V.S.Verma, Member

Shri M.Deena Dayalan, Member

DATE OF HEARING: 9.2.2012

DATE OF ORDER: 11.10.2012

Petition No. 217/MP/2011

with I.A. Nos. 42/2012

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 North- Eastern 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 NERLDC.

And

In the matter of

North Eastern Regional Load Despatch Centre, Shillong**Petitioner**

Vs

1. Assam Electricity Generation Company Limited, Guwahati
2. Meghalaya Energy Corporation Ltd., Shillong
3. Tripura State Electricity Corporation Ltd., Banamalipur
4. Department of Power, Govt. of Arunachal Pradesh, Itanagar
5. Department of Power and Electricity, Govt. of Mizoram, Aizwal
6. Department of Power, Govt. of Nagaland, Kohima
7. Department of Power, Govt. of Manipur, Imphal
8. NEEPCO Ltd., Shillong
9. NHPC Ltd., Manipur
10. Power Grid Corporation of India Limited, Shillong**Respondents**

Following were present:

Shri T.S.Singh, NERLDC
Ms. Joyti Prasad, NRLDC
Shri R.K.Bansal, NRLDC
Shri S.K.Meena, NHPC
Shri Amrik Singh, NHPC
Shri C.Vinod, NHPC
Shri G.K.Das, SLDC, Assam
Shri H.H.Saran

ORDER

The petitioner, North Eastern Regional Load Despatch Centre (NERLDC) has filed this petition seeking directions to all users of North Eastern 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 petitioner has also made the following prayers for:

- (a) A standalone separate Regulation for planning implementation of the communication network to connect the sub-stations/power plants as per the following criteria:
 - (i) CTU may be mandated by way of Regulation for planning and coordinating the maintenance of communication system.
 - (ii) CTU shall be responsible for implementation of inter-State communication system.
 - (iii) STU shall be responsible for implementation of State communication;
- (b) Higher depreciation rates as applicable for IT equipment and software;
- (c) For the transmission projects through tariff based competitive bidding, the laying of communication system wherever required shall be decided in consultation with CTU/ STU and shall be made part of project;
- (d) The communication equipments at the sub-stations under the control area of LDC to be installed by the agency owning the substation as per the technical parameters decided by CTU.

- (i) The communication equipment at generating stations shall be installed by the agency owning the generating plants as per the technical parameters decided by CTU/STU.
- (e) Sub-stations/power plants shall be connected as per the following criteria:-
- (i) All the sub-stations and power plants to the respective control area of LDCs.
 - (ii) All the sub-stations with inter-State tie lines including HVDC stations.
 - (iii) Any other sub-stations/power plants as decided by LDC.
 - (iv) Wind generator data shall be interfaced to respective control area of LDC from the owners data control centre.
 - (v) The communication medium should have physical path redundancy in addition to equipment and fiber Redundancy.
 - (vi) The communication medium is laid/owned and maintained by the agency owning the transmission line.
 - (vii) STUs may lay the fiber optic cable from the sub-stations/power plants under the control area of RLDC up to their sub-stations/control center to become part of the wide band network.

3. The petitioner has submitted that in terms of Section 28 (3) (e) of the Electricity Act, 2003 (the Act), NERLDC is 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 users.

4. The petitioner has 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 Central Commission a comprehensive proposal for institutional mechanism for planning and implementation of communication system for power sector.

5. The petitioner has submitted that in accordance with Section 2 (54) of the Act, Regulation 5 (3) of the CEA Connectivity Regulations and Detailed Procedures of Central Transmission Utility with the approval of the Commissions under 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 'CERC Connectivity Regulations'), a user, who is getting connected to the grid, is solely responsible to provide the telemetry to the Load Despatch Centre. 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 the 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.

6. The petitioner has 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 highlighted in the weekly ULDC Performance reports and various levels of UCC/Technical Coordination Committee (TCC)/NERPC Board meetings.

7. The petitioner has submitted the status in respect of the deficiencies in telemetry in the Regions in Annexure- III of the petition under the categories:

- (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.

8. Replies to the petition have been filed by Assam Electricity Grid Corporation Ltd., Tripura State Electricity Corporation Limited, Meghalaya Energy Corporation Limited, NEEPCO Ltd., NHPC Ltd. and Power Grid Corporation of India Limited.

9. Tripura State Electricity Corporation Limited (TSECL) in its reply affidavit dated 16.1.2012 has submitted that out of 15 Remote Terminal Units (RTUs), 8 RTUs were installed and commissioned during 2003 by Power Grid funded under ULDC scheme from Government of India and remaining 7 RTUs were installed by the respondent from its own resource. Presently, 13 RTUs are working and 2 RTUs are non functional due to lack of technological obsolescence. TSECL has further submitted that it has decided to replace non-working RTUs by the month of March, 2012. Tripura State Electricity Corporation Limited has supported the proposal of the petitioner in respect of institutional mechanism for planning and implementation of communication system for power system. TSECL has also requested the Commission to specify the interface requirements and guidelines of Speech and Data communication facilities by prioritizing time proven

technological criteria with adequate spares and service backup options to be followed by the respondents in line with provisions of Grid Code, Technical Standards and CERC Regulations.

10. State Load Despatch Centre, Assam Electricity Grid Corporation Ltd (AEGCL) in its reply affidavit dated 18.1.2012 has submitted that 21 RTUs were installed under ULDC scheme in 2003. Installation of 30 RTUs new are being undertaken under SCADA Expansion Project. AEGCL has recently embarked on "Replacement/Upgradation of Ground Wire to Optical Ground Wire (OPGW)" for 460 km. additionally, Power Grid has undertaken installation of 650 km (approx.) of OPGW on AEGCL network as replacement of microwave network. It has been further submitted that the works on the aforesaid schemes are under progress and an effective and satisfactory system for real time voice and data transfer will be in place as and when the projects are finally commissioned. AEGCL has requested the Commission to extend the time for establishment of voice and data communication system.

11. NHPC Limited in its reply affidavit dated 23.1.2012 has submitted that with regard to Loktak HEP, there is no PLCC equipment on the Loktak-Imphal-1 and Loktak-Jiribam-1 transmission lines which are owned by Manipur State Government. In Loktak-Imphal-2 transmission line, speech, protection and data Channels are in order but for Loktak-Jiribam-2 transmission line, data channel is not in order. For new generating stations of NHPC, installation of communication facilities falls within the scope of transmission licensee.

12. The respondent, Meghalaya Energy Corporation Limited (MeECL) in its reply affidavit dated 25.1.2012 has enumerated the action plan for their sub-stations and requested to allow it to complete the works. MeECL has further

submitted that under the T&T Scheme 'Upgradation and Augmentation of Communication System', the following RTUs are included:

Phase-I: Telemetry of Lumshnong, NEIGRIHMS, EPIP- I and II, Killing and Mawphlang sub-station to be completed by December, 2012.

Phase-II: Telemetry of Cherra, Nongstoin, Nangalbibra, Rongkhon, Ampati, Ishamati, Mustem, Mynkre and Nongpoh sub-stations.

13. In response to TSECL reply, the petitioner vide its rejoinder dated 27.1.2012 has submitted that main RTUs located at Dharmanagar, Gumti and Badharghat sub-stations are faulty for more than a year and are yet to be rectified. With regard to interface and guidelines of speech and data communication facilities by RLDC, TSECL has submitted that the interface requirement to be provided by RLDC is limited to interface of SCADA software and data cannot be generalized. Such requirements of interface are discussed in ULDC Coordination Committee on O&M of NEULDC held normally on quarterly basis followed by interaction at working level for implementation. The new RTUs of the TSECL were integrated in this manner. The petitioner has submitted that it has no comment to offer on the obsolescence, life and availability of spares mentioned by the respondent, TSECL.

14. Powergrid in its reply affidavit dated 30.1.2012 has submitted that all the sub-stations are commissioned with PLCC having a provision to transmit data to SCADA system of RLDCs. Due to introduction of Wide Area Measurement system (WAMS), Special Protection Scheme (SPS) and commissioning of several sub-stations and power stations, there is a need for wideband communication system based on fibre optics. Under Unified Load Despatch and Communication (ULDC) project, fibre optic and microwave based communication systems were established. However, under these projects certain sub-stations of Power Grid were connected with fibre optic or microwave links. Power Grid has submitted that only six sub-stations were provided with fibre optic or microwave links in North-Eastern Region. Due to the

replacement of microwave by fibre optic, 4 additional existing sub-stations of Power Grid will be connected with fibre optics by September, 2013. Powergrid has further submitted that in order to connect the balance existing/upcoming central sector sub-stations and power plants on fibre optic based communication system, it has submitted the proposal for consideration before NERPC. The said proposal was discussed in the 11th and 12th NERPC meeting held on 6.5.2011 and 15.11.2011. Subsequently, NERPC in its 12th meeting had approved the fibre optic based communication network comprising of around 1901 km of OPGW at a initial estimated cost of ₹ 56.36 crore (3rd quarter, 2011 price level) and its implementation is subject to availability of grant from Government of India. Accordingly, Powergrid has requested to grant regulatory approval in case the grant from Government of India is not available so that investment made in this regard can be recovered through tariff.

15. During the hearing, the representative of the petitioner requested the Commission to direct Power Grid to replace the microwave links, which were earlier part of the ULDC scheme, on priority basis by fibre optics. In response, the representative of the Power Grid submitted that most of the microwave links would be vacated by the month of March, 2012 and the work of installation of optic fibre would be completed within three months i.e. by June, 2012. However, implementation of the rest of the scheme approved by NERPC requires funding by the users. The representative of the petitioner further submitted that as per the original ULDC scheme, 21 RTUs were installed by Power Grid in Assam and subsequently, 30 RTUs were installed by AEGCL. The representative of the petitioner requested the Commission to direct AEGCL to replace 21 RTUs which have been installed in location vital grid operation. AEGCL has submitted that STU has undertaken the expansion of SCADA system for which backbone communication chosen was PLCC. The project was awarded to M/s Areva and due to cabling problem, some RTUs are not responding which would be rectified by the month of May, 2012. With regard to time bound programme for

implementation, the representative of the petitioner submitted that the Power Grid has committed to complete the project by the month of May, 2012 for optical fibre network for 600 km length and remaining 640 km OPWG under the scope of AEGCL would be completed by the Month of April, 2013. Therefore, total 1060 km OPWG would be available for communication by the end of April 2013. The remaining feeder point communication system would be implemented through PLCC. He further submitted that the work has been awarded for AEGCL to LS cables system of Korea, who has already started the survey works along with the transmission lines. The representative of the NHPC submitted that there is no RTU and PLCC systems on the lines owned by Government of Manipur.

16. We have heard the representatives of the petitioner and respondents and have perused the relevant records.

17. The real time visibility of the generating stations and the sub-stations to the Load Despatch Centre is absolutely necessary for reliable grid operation and security of electrical power system for which the provisions have been made in the relevant regulations framed by Central Commission as well as Central Electricity Authority. 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."

18. Regulation 6 (3) of CEA Connectivity Regulations 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."

19. Clause 1.1 (c) of the "General Conditions for Connectivity" of the Procedures of Central Transmission Utility approved under CERC Connectivity Regulations 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."

20. 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.

21. We also observe that Departments of Power, Governments of Arunachal Pradesh, Mizrom, Nagaland and Manipur have not responded to the petition and have not submitted their 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 do not appreciate the indifferent attitude of some of States of Northern Eastern Region to a matter of critical important like grid security. We direct all users to submit the information by 31.10.2012 to the NERLDC/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.

22. The petitioner has prayed to frame new regulations for reliable data and voice communication system. It is clarified that there are various provisions in the Grid Code, CEA Connectivity Regulations and CERC Connectivity Regulations for reliable data and voice commutation system. The petitioner should make efforts to implement these provisions in letter and spirit. With respect to planning and communication system associated with the power system, it is observed that technical standards for the communication network form a part of the transmission system and it should be included in the CEA Connectivity Regulations. The petitioner may approach Central Electricity Authority, if so advised, for mandating the same in the CEA Connectivity Regulations.

23. The petitioners have also filed I.A No. 42/2012 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 CERC Connectivity Regulations. In view of our decision in the preceding paragraph, no separate directions are required to be issued in the said IA.

24. The Petition No. 217/MP/2011 along with IA No. 42/2012 is disposed of with above terms.

Sd/-
(M.DEENA DAYALAN)
MEMBER

sd/-
(V.S.VERMA)
MEMBER

sd/-
(S.JAYARAMAN)
MEMBER

sd/-
(Dr. PRAMOD DEO)
CHAIRPERSON