

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram:

- 1. Dr. Pramod Deo, Chairperson**
- 2. Shri S. Jayaraman, Member**
- 3. Shri V.S.Verma, Member**

**Petition No. 244/2009
With IA 60/2009**

In the matter of

Seeking approval for utilisation of surplus available in UI pool account fund towards funding of implementation of pilot project on PMU installations in Northern Region in terms of regulation 11 of the CERC (Unscheduled Interchange Charges and Related Matters) Regulations, 2009.

And in the matter of

Northern Regional Load Despatch Centre

.....**Petitioner**

Vs

Northern Regional Power Committee through Member Secretary, New Delhi

..... **Respondent**

The following were present:

1. Shri P.K Agarwal, NRLDC
2. Shri. S.R Narasimhan, NRLDC
3. Shri A. K. Rajput, NRPC

ORDER

(Date of Hearing: 24.11.2009)

NRLDC has filed this petition seeking approval for utilisation of surplus funds available in UI pool account fund towards funding of a pilot project on Phasor Measurements Units (PMU) installations in the Northern Regional Grid under sub-clause (b) of clause (1) of regulation 11 of the CERC (Unscheduled Interchange Charges and Related Matters) Regulations, 2009 (the regulations). Through the IA the petitioner modified its prayer to the extent that permission was sought under sub-clause (a) of clause (1) of regulation 11 of the regulations.

2. Gist of the submissions by the petitioner is as under:
- (a) With the synchronization of Northern Regional grid with Eastern, Western and North-Eastern grids, the electric power system in the country is growing. This has increased the complexity of the grid; consequently, there is a need for new strategies, technologies, tools, and operating practices facilitating creation of an intelligent electricity grid that would predict and heal power problems before they get out of hand.
 - (b) Under the above circumstances there is a need to observe the dynamic behavior of the system. The existing SCADA system gives the steady state view of the grid. Such widely spread grid requires wide area monitoring i.e. wide area measurements (WAM), which requires application of emerging technologies like Synchrophasors/ Phasor Measurement Units (PMUs).
 - (c) Synchrophasor measurements over wide area facilitate dynamic real time visualisation of power system and are useful in monitoring safety and security of the grid in an effective manner. This would also enable better utilization of the power system without compromising on the reliability front.
 - (d) World over, initiatives are being taken in installation of PMUs. The deployment of these technologies in India has also been envisaged in the Government of India report of working Group on Power for 11th Plan as well as National Electricity Plan – Transmission.
 - (e) In order to have some initial experiences on the subject, it has been proposed to take-up a Pilot project in Northern Region on PMU Measurements.

5. With a view to implementing the project fast, the Petitioner has proposed to initially take up the project with minimum features which include the following:-

(a) Installation of four PMUs at POWERGRID substations in Northern Region.

(b) Installation of computer hardware & software at NRLDC, for acquiring the data from the four PMUs with provision for supply of four more PMUs. The software would be provided to acquire the PMU data, display of the data and generation of reports along with feature for archiving and querying the historical data etc.

(c) Provision of maintenance of system for additional two years after expiry of warranty period.

(d) Reconfiguration/addition of components in the existing wide band communication of ULDC/Telecom system wherever required.

(e) Training of personnel.

6. The Petitioner has further submitted that based on the experience gained by this pilot project, the following could be explored subsequently:-

(a) Addition of more PMUs.

(b) Addition of software functions suitable for further utilisation of real time as well as historical PMU data.

(c) Control actions required, if any

7. The Petitioner has stated that the proposal was discussed in the 11th TCC/12th NRPC meeting with the constituents, who were appreciative of the proposal for taking up such a pilot project and emphasized the need for early completion of the same, possibly by March 2010. The expenditure of Rs 3.0 crores on the proposed project was agreed to and it was also proposed that

the expenditure may be funded out of the amount accumulated as UI capping charges available with NRLDC or by the constituents of the region. The petitioner has also placed on record the approval of CEA to the technical specifications prepared as per the decisions of the above meetings.

8. We have given our thoughtful consideration to the proposal put forth by the petitioner. As stated above, the petitioner had initially prayed for funding of the pilot project of installing the PMUs under clause 11(1)(b) of the regulations. Later, the proposal was modified through the IA seeking funding under clause 11(1) (a) of the regulations and sought for a relaxation under clause 12 of the regulations for using the clause 11(1)(a).

9. Relevant provisions of the regulations are extracted hereunder for ease of reference:

“11. Application of fund collected through UI

(1) The amount left after final settlement of claims of Unscheduled Interchange charges of the generating station and the beneficiaries shall be utilised, with the prior approval of the Commission, for either or both of the following activities:

(a) Servicing of investment for transmission schemes of strategic importance,

Provided that the Central Transmission Utility in consultation with Central Electricity Authority shall identify the inter-State transmission schemes of strategic importance, not being utilised up to optimum level and seek prior approval of the Commission for servicing of capital costs during the initial years from amount left in the “Unscheduled Interchange Pool Fund” after settlement of claims of Unscheduled Interchange Charges.

Provided further that when utilisation of such transmission line or transmission system included in the transmission schemes of strategic importance reaches the optimum level of utilisation, the cost of such scheme shall be recovered from the users of the scheme in accordance with the methodology specified by the Commission.

(b) Providing ancillary services including but not limited to ‘load generation balancing’ during low grid frequency as identified by the

Regional Load Despatch Centre, in accordance with the procedure prepared by it, to ensure grid security and safety:

(2) The amount of fund, allocable for the purposes specified under clause (1), shall be decided by the Commission from time to time."

10. It is seen from the above that clause 11(1) (a) provides that the fund could be used for servicing of investment for transmission schemes of strategic importance. Proviso to the above clause further states that the CTU in consultation with CEA shall identify such schemes not being utilised up to the optimum level and seek prior approval of the Commission for servicing of capital costs during the initial years. This implies that certain transmission schemes are initially under-utilized and in order that a high transmission charge is not imposed on the users of such transmission schemes, funds from the UI pool fund can be used for servicing the investment up till the time of its full utilization.

11. Clause 11(1) (b) provides for use of the above fund for providing ancillary services not limited to "load generation balancing" during low grid frequency to ensure grid security and safety. The phrase 'ancillary services' has not been defined in the regulations. Clause 11(1) (b) leaves the scope of the phrase wide open by giving an inclusive statement that it is 'not limited to load generation balancing'. Accordingly, we are required to ascertain the scope and content of the phrase 'ancillary services'. This being a technical term, common dictionary meaning of the phrase will not be of any help. We are therefore required to rely on the sense in which the phrase is used in the technical literature pertaining to the subject. Based on the study of literature relating to ancillary services for various transmission utilities around the world, we observe that the most common ancillary services are those which are mentioned in the petition, i.e.

- Frequency control services (i.e. a balance of load and generation of active power)
- Voltage control services (i.e. a balance of load and generation of reactive power)

- System restart services (i.e. black start)

12. However, the scope of the term is not universally confined to the above only. The phrase, 'ancillary services' in some of the utilities around the world covered more such services. For example, in the case of Western Power, a T&D utility of Western Australia the phrase includes "other services required to support the security and reliability of the power system that are not covered by other ancillary services". Further, in the case of Swiss Grid, ancillary services covers "system coordination and operational measurements to ensure reliable operation of the system".

13. We therefore, feel that since the setting up of PMUs in the northern grid would amount to operational measurement for the purpose of system coordination with ultimate objective of enhancing grid security, it falls within the ambit of ancillary services and would more appropriately be covered under section 11(1)(b) of the said CERC regulations.

14. The Petitioner has sought recovery of O&M expenses through the RLDC fees and charges. It was pointed out to the petitioner during the hearing that the cost of the pilot project already includes provision of maintenance of the project for additional two years after expiry of warranty period. Thereupon, petitioner clarified that it would be seeking recovery of O&M expenses through the RLDC fees and charges only after the expiry of the additional two year period after warranty.

15. Taking into account the importance of such a pilot project, and in view of the fact that the scheme has already been agreed to by the constituents of the Northern Region and vetted by CEA, we approve the funding of the pilot project on PMU installation in Northern Region under clause 11(1)(b) of the CERC (Unscheduled Interchange Charges and Related Matters) Regulations, 2009.

16. We direct that the petitioner shall submit a program for commissioning of the project and shall keep the Commission updated through a monthly progress report indicating the physical progress and expenditure.

sd/-
(V.S. VERMA)
MEMBER

sd/-
(S.JAYARAMAN)
MEMBER

sd/-
(PRAMOD DEO)
CHAIRPERSON

New Delhi dated the 22nd December, 2009