CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Coram:
Shri Gireesh B. Pradhan, Chairperson
Shri M. Deena Dayalan, Member
Shri A.K. Singhal, Member

Reference No: 01/Rpn/2014
Date of Order: 21.3.2014

In the matter of
Representation of Madhya Pradesh Power Management Company Limited regarding certain provisions of Central Electricity Regulatory Commission (Deviation Settlement Mechanism & other related matters) Regulations 2014

In the matter of
Madhya Pradesh Power Management Power Company Limited… Applicant

ORDER

The Madhya Pradesh Power Management Company Limited (MPPMCL) has made a representation dated 14.2.2014 to the Commission regarding Regulation 7 of the Central Electricity Regulatory Commission (Deviation Settlement Mechanism & other related matters) Regulations 2014 (DSM Regulations) particularly pertaining to the limits on deviation volume and the consequences of crossing the limits which was received in the Commission on 17.2.2014. In the meantime, MPPMCL has filed the Writ Petition No. 3125 of 2014 in the Hon'ble High Court of Madhya Pradesh, Jabalpur on 18.2.2014 challenging Regulation 7 of the DSM Regulation. The Hon'ble High Court in its order dated 21.2.2014 while issuing the notice to the Commission has issued the following directions:-

> "In the meantime, respondent No.3 is directed to decide the representation of the petitioner Annexure P/7, which is stated to be pending with it, on filing an application in this regard by the petitioner within a period of three working days from today."

2. In compliance with the directions of the Hon'ble High Court, MPPMCL vide a letter dated 3.3.2014 has served the copy of the directions of the Hon'ble High Court on the Commission.

3. The MPPMCL has raised the following issues with regard to the implementation of the DSM Regulations which came into effect from 17.2.2014:

(a) The Regulations prescribe that deviation of a Designated Inter State Transmission System Customers (DICs) should not exceed 12% of its scheduled drawal or 150 MW, whichever is lower. It implies that DICs (viz. the States) having scheduled drawal of 1250 MW and above are expected to limit their deviation to only 150 MW. The implication is that the limit of allowed deviation continues to decrease in percentage as the scheduled drawal increases, whereas beneficiaries having scheduled drawal below 1250 MW are allowed deviation of 12% of their scheduled drawal. A beneficiary having higher scheduled drawal practically requires more deviation in MW terms. If the Regulation had prescribed for deviation not to exceed 12% of its scheduled drawal or 150 MW, whichever is higher, instead of whichever is lower, then DICs could have managed well within the limits of deviation.

(b) There is unjust inequality created by the impugned Regulations among the States, as can be gathered from the following table, which reveals that a very small State and a large State both are put on the same footing and allowed same deviation volume of 150 MW only.

State	Actual Demand during 2012-13 (MW)	Forecasted Demand during 2012-13 (MW)	Allowed deviation volume (MW)	Percentage deviation allowed with respect to column 2
1	2	3	4	5
Delhi	5942	6100	150	2.52
Uttar Pradesh	13940	14400	150	1.08
Uttarakhand	1759	1900	150	8.53
Chandigarh	340	370	41	12.00
Madhya Pradesh	10077	9494	150	1.49
Maharashtra	17934	18250	150	0.84
Goa	524	460	63	12.00
Bihar	2198	2750	150	6.82
Jharkhand	1263	1285	150	11.88
West Bengal	7322	8045	150	2.05
Andhra Pradesh	14582	15955	150	1.03
Puducherry	348	363	42	12.00
Kerela	3578	3731	150	4.19

(c) The applicant being a holding company of all three Distribution Companies in the State aggregates the power requirement of the entire State. The projection of demand is made on the basis of historical data, seasonal data, cultural data and meteorological data, all of which can only give a rough idea of future demand and can never predict the demand with exact certainty. Since the applicant has a bigger system, having peak demand of around 10000 MW, it is practically impossible to limit the volume of deviation in the range of 150 MW only, which is just 1.5%.

(d) As per the requirement of Regulation 7 of the Deviation Settlement Mechanism Regulations, the applicant is expected to restrict its maximum drawal from Grid within 150 MW of the scheduled drawal in order to avoid levy of additional charges for deviation under Regulation 7 (iii). With best of

the applicant's efforts, it is not practically possible to maintain the actual drawal from the grid within 150 MW as prescribed in the Regulation. Further, this deviation within 150 MW has to be maintained in each 15 minute block, i.e., in all the 96 time blocks in the day.

(e) The applicant has been experiencing practical difficulty on account of non-availability of actual figure of instant drawal from the Grid. The applicant has to rely and act through SLDC based on information acquired from remote locations of the Western Region, which are corroborated and thereafter uploaded on the website of WRLDC and SLDC. The data available in the website of WRLDC and SLDC do not truly depict the summation of interface meters on the basis of which the actual billing is done by WRPC. The reason of mismatch between the data is attributed to communication lag, non-operation of any communicational link, non-operation of any data centre etc.

(f) The penal charges on account of deviation from volume beyond 150 MW, particularly when there is over drawal with frequency above the norm of 50 Hz and when there is under drawal with frequency below the norm of 50 Hz, are illogical because in the mentioned conditions the overdrawing or under drawing utility is helping the grid to get back the system frequency to the norm of 50 Hz. However, the impugned Regulations provide for penalty by way of additional deviation charges for over drawal and by way of not compensating for under drawals, even in the mentioned conditions.

(g) As a consequence, the crossing of limits of deviation makes the applicant liable to pay penal charges as mentioned under Table-A of clause 7 (iii) of the DSM Regulation, which are at double the normal rate if deviation is beyond 250 MW. The penal charges so billed to applicant Company and paid by applicant Company are ultimately passed on to the consumers of the State.

4. The Commission has considered the issues raised by MPPMCL in its representation dated 14.2.2014. The analysis and decision of the Commission on the various issues raised by MPPMCL are discussed in the succeeding paragraphs.

5. The DSM Regulation has repealed the Central Electricity Regulatory Commission (Unscheduled inter Change Charges) Regulations 2009 (UI Regulations). Regulation 7 of the UI Regulation provided for the volume limit on over drawal as under:-

> "7.(1) The over-drawal of electricity by any beneficiary or a buyer during a time block shall not exceed 12% of its scheduled drawal or 150 MW, whichever is lower, when frequency is below 49.7 Hz and 3% on a daily aggregate basis for all the time blocks when the frequency is below 49.7Hz.
>
> **Explanation:** The limits specified in this clause shall apply to the sum total of over-drawal by all the intra-State entities in the State including the distribution companies and other intra-state buyers, and shall be applicable at the inter-State boundary of the respective State.
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> 7.(2)The under-injection of electricity by a generating station or a seller during a time-block shall not exceed 12% of the scheduled injection of such generating station or seller when frequency is below 49.7 Hz and 3% on daily aggregate basis for all the time block when the frequency is below 49.7Hz."

The UI Regulations came into force with effect from 1.4.2009 and therefore the volume limits were in operation with effect from that date. Under the UI Regulation, the volume

limits were applicable for frequency below 49.7 Hz. MPPMCL did not have any grievance against Regulation 7 of the UI Regulations.

6. Grid Disturbance took place in the Northern Region on 30.7.2012 and in the Northern, Eastern and North-Eastern Region on 31.7.2012. An Enquiry Committee under the Chairmanship of Chairperson, Central Electricity Authority was constituted by the Ministry of Power, Government of India to look into the reasons for grid disturbance. The Committee in its report has observed the impact of the grid of the overdrawal by the constituents on the grid disturbance as under:-

> "5.2.2 Overdrawals attributable to frequency control through commercial signals
>
> 5.2.2.1 One of the objectives of load despatch is to maintain power system parameters within permissible limits. The frequency, being one of the parameter has to be maintained at 50 Hz or close to 50 Hz. For historical reasons, the Indian grid systems experienced poor frequency profile. In the 1990s, more loads were met with available generation at the cost of frequency. System was subjected to operate in the range of 48-51.5 Hz. Power quality and Grid security was compromised during this period. To enforce Grid discipline and to improve frequency profile, a new tariff mechanism was conceived in the early 1990s. The earlier PLF based tariff was replaced by Availability Based Tariff (ABT). Apart from fixed and variable charges, ABT had a third component, namely Unscheduled Interchange (UI) charge. UI Charge is payable if an utility is deviating from schedule (Generation/drawal) depending on the frequency. ABT was first implemented in the WR on 1st, July, 2002. It was possible to implement it with the regulatory support. There was positive improvement in the frequency profile. Initially the frequency band stipulated was 49.0-50.5 Hz and subsequently the range was tightened by Central Commission. The present range is 49.5-50.2 Hz. Further tightening of the frequency band by Central Commission has been challenged in the court. In the interest of power quality and grid security, there is a definite need to operate the system at and very close to 50 Hz. It is further observed that Utilities resort to load shedding to earn revenue through UI to compensate their poor financial management. If the frequency profile is close to 50 Hz, UI rate is nominal and utilities tend to overdraw/underdraw thereby completely deviating from the schedule. If more number of utility players resort to such activity, it may even lead to load encroachment phenomena and grid disturbance, as has been observed in recent grid disturbances. One has to draw power only through long term, medium term or short term contracts. UI mechanism, which helped the system initially, needs to be reviewed now."

In para 9.2.2 of the Report, the Enquiry Committee has recommended the following:

> "9.2.2 A review of UI mechanism should be carried out in view of its impact on recent grid disturbances. Frequency control through UI may be phased out in a time bound

manner and Generation reserves/ ancillary services may be used for frequency control. Appropriate regulatory mechanism needs to be put in place for this purpose. POSOCO should take up the matter with CERC."

7. Keeping in view the findings and recommendations of the Enquiry Committee, the Commission repealed the UI Regulations and brought into effect the DSM Regulations with effect from 17.2.2014 after following the due procedure of previous publication and consultation with the stakeholders in accordance with section 178(3) of the Electricity Act, 2003 read with the Electricity (Procedure for Previous Publication) Rules, 2005. The basic difference between UI Regulations and DSM Regulations is that while the UI was acting as a market mechanism under certain grid frequency range, under the DSM Regulation, the focus has shifted to maintenance of grid discipline and it is no longer a market mechanism. In the DSM Regulations, the volume limit of 12% or 150 MW whichever is lower have been specified irrespective of grid frequency and additional charges for deviation have been imposed for crossing the volume limit so that the DICs give due attention to operational discipline on a continuous basis and mitigate probability of system reaching to a state which endangers grid security. Moreover, the earlier provision has been relaxed to the extent that there is no requirement to limit the deviation from the schedule over a day to 3%. If all the buyer DICs start over-drawing or under-drawing simultaneously in a particular time block or time blocks, then it may be disastrous for the grid security and may lead to grid collapse. Deviation charges and Additional deviation charges are considered necessary as the ramifications of grid failure are very severe as was evident from the grid failure of July, 2012. Therefore, the Commission has specified the volume limits for deviation i.e. 12% of schedule or 150 MW, whichever is lower, based on valid consideration keeping in view the grid security.

8. MP Power Management Company Limited has contended that the impugned regulations have created unjust inequality as the beneficiaries having higher scheduled drawal require more deviation in MW terms. In this context it is clarified that it is the quantum of overdrawal / underdrawal which affects the load generation balance and thereby the grid frequency. Limit of 12% or 150 MW, whichever is lower, has been fixed so that the cumulative overdrawal / underdrawal of control areas (States) remains within the limit and grid security does not get endangered. While '12% of the schedule' will be applicable to States / UTs having a net drawal schedule of 1250 MW and less from the Inter-State Transmission System (ISTS), the States having net drawal schedule above1250 MW would have to maintain the net drawl within 150 MW. The applicant has correlated the deviation volumes with actual/forecasted demand in support of its contention that a small State and a large State are put on the same footing and allowed the same deviation volume of 150 MW. It is to be noted that the deviation charges apply on 'deviation from net drawal schedule of power at the boundary of the control area (States/ UTs) with ISTS' and 12% limit for deviation from schedule or 150 MW is with respect to such net schedule and not the aggregated demand of state whether actual of forecasted, part of which is met from State's own generation. Therefore, Regulation 7 of DSM Regulations does not create any unjust inequality between the States.

9. The applicant has submitted that it is not practically possible to maintain the actual drawal from the grid within 150 MW. In this regard, it is mentioned that as per the Regulation 5.3 of Indian Electricity Grid Code (IEGC), each SLDC shall develop methodologies/mechanisms for daily/ weekly/monthly/yearly demand estimation (MW,

MVAr and MWh) for operational purposes. Based on this demand estimate and the estimated availability from different sources, SLDC shall plan demand management measures like load shedding, power cuts, etc. and shall ensure that the same is implemented by the SEB/ distribution licensees. With demand forecasting in accordance with the above provisions, it is possible to project both demand and the net drawal from the interstate grid. As net drawal schedule of a State for the next day is finalised by RLDC in accordance with the requisition given by the State itself, it is the responsibility of the State to limit its drawl within net drawal schedule for the day, which is decided just one day before. Further, as per Regulation 5.4 of IEGC, each SLDC shall make provisions to effect a reduction of demand in the event of insufficient generating capacity, and inadequate transfers from external interconnections to meet demand, or in the event of breakdown or congestion in intra-state or inter-state transmission system or other operating problems (such as frequency, voltage levels beyond normal operating limit, or thermal overloads, etc.) or overdrawal of power vis-à-vis of the regional entities beyond the limits mentioned in UI Regulations which has since been replaced by DSM Regulations.

10. MPPMCL has to maintain grid discipline by managing demand in a proper manner in accordance with the provisions of IEGC i.e. to estimate demand in accordance with Regulation 5.3 of IEGC and if due to some reasons demand of the state or generation within the state is not as per estimates, the net drawal is required to be maintained within 12% of schedule or 150 MW, whichever is lower, by taking action of demand disconnection in accordance with Regulation 5.4.2 of the IEGC.

11. Further, in the DSM Regulations, the time for revision of schedules of DICs has been reduced from 6 time blocks (90 minutes) to 4 time blocks (60 minutes), which would enable the control areas to get their demand schedule revised with effect from 46-59 minutes. During this period, the control areas are required to enhance generation of their own generating units and/or reschedule load through demand management.

12. Another point made by the MP Power Management Company is the difficulty due to non-availability of actual figures of instant drawal from grid. We would like to underline that the real time power system operation is not carried on the basis of website data, but on the basis of real time operation data available on the SCADA (Supervisory Control and Data Acquisition) System. The State Load Despatch Centres (SLDCs) in the country are equipped with SCADA systems. The SCADA system available at each SLDC has the facility of ICCP (Inter Control Centre Communication Protocol) through which SLDC can see full details of real time power flow on inter-state boundaries i.e. net inter change on the tie lines of the state with ISTS. All operational decisions are to be taken on the basis of SCADA data which is real time data .Thus, the issue raised regarding difference in SCADA data and energy meter data is also not relevant because energy meter data is available after 7 to 8 days and it is an average over 15 minutes time block. If there is any difference between SCADA data at SLDC and RLDC, it needs to be got corrected by checking the concerned equipment. The issue raised by the MPPCL about variation in SCADA data and energy meter data and

energy accounting by RPC is an issue which needs to be addressed irrespective of Deviation Settlement Mechanism regulation replacing the UI Regulations.

13. The point made by the MPPMCL regarding the technical flaw in the DSM Regulations, particularly with regard to over drawal when the frequency is over 50 Hz and under drawal below 50 Hz is also not correct. It has been observed during the grid failures of July 2012 that over drawal even at higher frequency was a contributory factor in grid failure. The Deviation Settlement Mechanism has now been formulated with the intention to drive the point that frequency is not the only criteria for security of the grid; the power flow on lines is also important. This needs to be taken note of by States /UTs clearly. It is to be understood that impact of over-drawal is not to be considered for a single entity but collective impact of all entities needs to be taken into account. If all the entities under the same argument of helping the grid start overdrawing simultaneously and that too without any volume limit, as the charges for deviation are low, the line flows on inter-State and inter-regional lines may go beyond safe operating limits and stability of the grid will become vulnerable. Further, the charges for deviation above the 50 Hz frequency are very low(ranging in steps from 178 paise/kwh between 50-50.01 Hz to 35-60 paise/kwh between 50.04 to 50.05 Hz and 'zero' at 50.05 Hz and above) and additional charges for deviation are also linked to the charges for deviation for the particular frequency band. Since the charges for deviation become zero at 50.05 Hz and above, the additional charges for deviation also become zero at 50.05 Hz and above. Therefore, the point made by the MPPMCL that it will have to pay severe penalty by way of additional deviation charges above 50 Hz is not correct.

14. It is pertinent to mention here that Tripura State Electricity Corporation Limited has filed a Petition (6/RP/2014) in which certain difficulties have been highlighted regarding operation of Regulation 7 of DSM Regulations. The Commission has issued notice in the matter. Whatever decision will be taken in the said matter will be applicable in case of MPPMCL. We also grant liberty to MPPMCL to participate in the said proceedings and present its case.

15. The representation of MPPMCL is disposed of in terms of the above.

sd/-	**sd/-**	**sd/-**
(A.K. Singhal)	**(M Deena Dayalan)**	**(Gireesh B. Pradhan)**
Member	**Member**	**Chairperson**