CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Miscellaneous Petition No. 9/2011

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

Date of Hearing: 9.6.2011 **Date of Order: 28.6.2011**

IN THE MATTER OF

Exemption from and extension of time for implementation of Restricted Governor Mode Operation(RGMO) of various Thermal and Hydel Generating Stations operated by the Andhra Pradesh Power Generation Corporation Ltd (APGENCO)

AND

Andhra Pradesh Power Generation Corporation Ltd, Hyderabad ...**Petitioner**

The following was present:
1. Shri K.Gopal Choudhury, Advocate, APGENCO

ORDER

This petition has been filed by the Andhra Pradesh Power Generation Corporation Ltd, (APGENCO) for relaxation of the provisions of Clause 5.2 (f) of the Indian Electricity Grid Code (IEGC), 2010 in exercise of power under Clause (4) of Part 7 of the IEGC, 2010 and to grant exemption from, and extension of time, for implementation of RGMO in the thermal and hydro generating stations of the petitioner, as detailed below:

(a) Exemption from RGMO

Sl.No	Thermal/Hydro generating stations
1	Dr. Narla Tata Rao Thermal Power Station (420MW) LMW Units-I and II
2	Donkarayi Power House 1x 25MW
3	Nagarjunasagar Right Canal Power house 3 x 30 MW
4	Nagarjunasagar Left Canal Power house 2 x 30 MW
5	Penna Ahobilam Power house 2 x 10 MW

(b) Extension of time for RGMO

Sl.No	Thermal/Hydro generating stations	Extension upto
i.	Dr. NTTPS- 3 X 210 KWU Units 3, 5 & 6	31.12.2011
ii.	Dr. NTTPS- 1 X 2010 KWU Unit 4 and 1 X 500 KWU Unit 7	31.12.2011
iii.	RTPP- 2 X 210 KWU Unit 1	31.12.2011
iv.	RTPP- 2 X 210 KWU Unit 2	31.12.2012
v.	RTPP- 2 X 210 KWU Unit 3 & 4	31.12.2011
vi.	KTPS- Stage- V- 2 X 250 MW KWU Units 9 & 10	31.12.2011
vii.	KTPP- 1 X 200 MW KWU Unit 1	31.12.2011
viii.	Machkund HEP- 3 X 23 MW + 3X 17 MW	31.12.2013
ix.	Upper Sileru PH- 4 X 60 MW	31.12.2012
x.	Lower Sileru PH- 7 X 110 MW	31.12.2012
xi.	Srisailam RBPH- 7 X 110 MW	30.06.2012
xii.	Srisailam LBPH- 6 X 150 MW	31.12.2013
xiii.	Nagarjunasagar- 1 X 110 MW + 7 X 100.8 MW	31.12.2013
xiv.	Jurala- 4 X 39 MW	31.12.2012

Background

2. In Petition No. 66/2003 (SRLDC-v-NTPC) and in other connected petitions, the Commission by its order dated 20.8.2009 directed the implementation of Restricted Governor Mode operation (RGMO) as under:

"41. Based on the above and having specific regard to the prevailing condition of shortage, we direct the implementation of only restricted governor operation in various types of thermal and hydro units as per the following schedule:

(a) KWU & LMZ turbines for thermal sets of 200 MW and above:

(i) Software based EHG system : 1.3.2010

(ii) Hardware based EHG system where boiler controls are in "auto" : 1.6.2010

(b) Hydro units of 10 MW and above : 1.3.2010

42. All the generating companies are directed to place before the Commission, within a month, their action plan in line with the above schedule and furnish monthly progress reports to the Commission in this regard"

3. While so, the Commission relaxed the implementation of RGMO schedule by amendment of Clause 5.2 (f) of the Indian Electricity Grid Code (IEGC), 2010 with effect from 3.5.2010, as detailed hereunder:

"Following Thermal and Hydro (except those with three hours pondage) generating units shall be operated under restricted governor mode operation (RGMO) with effect from the date given below:
(a) Thermal generating units of 200 MW and above:

(i) Software based EHG system: 1.8.2010

(ii) Hardware based EHG system: 1.8.2010

(b) Hydro units of 10 MW and above: 1.8.2010

4. In the backdrop of the above, we now examine the prayers of the petitioner, in this petition in the subsequent paragraphs.

5. The learned counsel for the petitioner submitted that it has sought exemption from the implementation of RGMO in respect of the following thermal and hydro generating stations of the petitioner for the reasons as stated as under:

Exemption from RGMO

(a) Dr. Narla Tata Rao Thermal Power Station (420MW) LMW Units-I and II

(i) The governor system employed in BHEL make LMW Turbines is hydro mechanical governing system with centrifugal fly ball mechanism.

(ii) It is a pure hydraulic system and responds freely as and when there is change in grid frequency. The inbuilt design characteristics of this hydro mechanical governing system is that any change in frequency/speed is sensed by a mechanical governing system and changes in control valve position with corresponding change in unit load, and this cannot be blocked.

(iii) The requirement of RGMO is that, there should not be any load change while the grid frequency/speed is rising towards 50 Hz, from a lower level. This requirement could not be made available in a hydro-mechanical Governing System.

(iv) The original Equipment Manufacturer (OEM) M/s BHEL has been informed several times to suggest possibilities of implementing RGMO in LMW turbines and in response, the OEM has stated vide their e-mail dated 21.5.2010, that there is no such scheme available at their end for implementation of RGMO in LMW turbines.

(b) Donkarayi Power House 1x 25MW, Nagarjunasagar Right Canal Power house 3 x 30 MW, Nagarjunasagar Left Canal Power house 2 x 30 MW, Penna Ahobilam Power house 2 x 10 MW.

These are irrigation canal based power houses operating discharges through the canal for irrigation purposes and no variations in the discharges are allowed

except as specified by the irrigation authorities from time to time. Hence, these machines cannot be kept under RGMO.

6. Similarly, the learned counsel for petitioner has sought the extension of time for implementation of RGMO for the thermal and hydro generating stations of the petitioner as per the schedule, for reasons mainly as under:

(a) Purchase order has been placed on M/s BHEL for implementation of RGMO which includes equipments for the units (ISKAMATIC, PROCONTROL) which is expected to be delivered and thereafter the programming and implementation of RGMO would require the shutdown consent of SLDC. Moreover, the technical needs and practical stabilization of the unit as a whole need to be studied, post implementation of RGMO with M/s BHEL equipment.

(b) Programming and implementation of RGMO in Max DNA system after shut down clearance. However, implementation can be done only in the next annual overhaul having regard to the power and grid operation considerations.

(c) Shut down of units for changeover to Max DNA controls, capital overhaul and implementation of RGMO thereafter.

(d) Mechanical fly ball governors do not have facilities required for RGMO. Replacement of existing governors with microprocessor based governors for operation in RGMO mode is envisaged under R&M scheme.

(e) Modification of the micro-processor based Max DNA governing systems of M/s BHEL for enabling RGMO mode of operation.

7. As regards the delay in implementation of RGMO in the units, the learned counsel submitted that details in this regard have been provided in the petition, generating station wise, which may be considered by the Commission. He also clarified that in case of hydro generating units, the discharge of water in canal being the prerogative of the State irrigation department, the exemption from operation of RGMO has been sought for as the same was not under its control.

8. The Commission observed that RGMO has been recommended by CEA in LMW turbines also, which would involve consideration of capital expenditure, during the Renovation and Modernization (R&M) of the units. It was also observed that RGMO is in interest of generators and in case the generators delay the implementation of RGMO,

then these units would have to be operated in FGMO mode with appropriate droop setting, so that these units participate in load sharing and contribute to the stability of the grid.

9. As regards the constraints expressed by the learned counsel for the petitioner on discharge of water in canal in case of hydro generating units, the representative of RLDC clarified that the constraints relating to discharge of water in canal were insignificant. He however submitted that these units could operate on FGMO mode as time constant of the governing system was much smaller than the time constant of control of water system. He also submitted that the non-implementation of RGMO resulted in fluctuation in grid frequency and destabilization of the line flow and voltages, thereby threatening grid stability. He however suggested that these units could be put on FGMO without loss of further time, but prayed that the petitioner should be directed to implement the provisions of the IEGC, 2010 without fail.

10. Considering the submissions of the petitioner and the documents on record, we observe that the steps taken by the petitioner for implementation of the RGMO in its units of the generating station is belated. It is expected that the petitioner would expedite the implementation of RGMO in these units at the earliest. We, however direct the petitioner to ensure that these thermal and hydro generating units shall be put on FGMO with manual intervention with immediate effect, till such time RGMO is implemented.

11. Petition No. 9/2011 is disposed of in terms of the above.

Sd/-	**Sd/-**	**Sd/-**
[V.S.VERMA]	**[S.JAYARAMAN]**	**[DR.PRAMOD DEO]**
MEMBER	**MEMBER**	**CHAIRPERSON**