

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 13/RP/2011 in Petition No. 9/2011**

- Subject : Review of Commission's order dated 28.6.2011 in Petition No. 9/2011 for 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)
- Date of hearing : **21.10.2014**
- Coram : Shri M. Deena Dayalan, Member  
Shri A.K. Singhal, Member  
Shri A.S. Bakshi, Member
- Petitioners : Andhra Pradesh Power Generation Corporation Ltd  
Telangana State Power Generation Corporation Ltd
- Respondent : POSOCO
- Parties present : Shri K.Gopal Choudhury, Advocate, APGENCO & TSGENCO  
Shri C.A.Nageswara Rao, APGENCO  
Shri Siva Reddy, TSGENCO  
Ms. Jayantika Singh, POSOCO

**Record of Proceedings**

Pursuant to the judgment of the Appellate Tribunal for Electricity (the Tribunal) dated 2.9.2014 in Appeal No. 208/2013 and after issuance of notice to TSGENCO and POSOCO, the petition was listed for hearing.

2. During the hearing, the learned counsel for the petitioner mainly submitted as under:

(a) The petitioner is aggrieved by the findings of the Commission in order dated 29.4.2013 on issues connected to (i) the implementation of FGMO/RGMO in the operation of hydroelectric projects (ii) the consideration of proportionality, cost-benefit and improved frequency band in the facts and circumstances of each case and (iii) the non-consideration of the question of jurisdiction of the Commission in respect of generating stations which are not connected with the ISTS and which are embedded within the State Grid.

(b) As regards Srisailam Left Bank Power House, time for RGMO implementation was allowed up to 31.12.2013. However, the power station is equipped with analog-based Hitachi Governors. There is no provision to operate the station under RGMO without replacing the

existing Governors with new microprocessor-based Governors. The units are being operated under FGMO with manual intervention and the same is in compliance with the IEGC. The existing units are of the Reversible pump/ Turbine type and due to the complexity involved, the governors for RGMO have to be procured from the OEM (Hitachi).As it is necessary to import the equipment, the time required for replacement of all the Governors for operation under RGMO is about 54 months. In case RGMO is directed to be implemented, the same may be considered during future R&M works and accordingly time may be allowed.

(c) As regards Nagarjunasagar generating station, time for RGMO implementation was allowed upto 31.12.2013. The Governor of Unit 1 of this generating station has been replaced with a new microprocessor-based governor and operation of this unit is now under RGMO. The Units 2 to 7 of this generating station are equipped with analog-based Hitachi governors and there is no provision to operate the station under RGMO without replacing the existing Governors with new microprocessor-based governors. These units are being operated under FGMO with manual intervention and the same is in compliance with the IEGC. The existing units are of the Reversible pump / Turbine type and due to the complexity involved, the Governors for RGMO have to be procured from the OEM (Hitachi). As it is necessary to import the equipment, the time required for replacement of all the Governors for operation under RGMO is about 57 months. In case RGMO is directed to be implemented, the same may be considered during future R&M works and accordingly time may be allowed.

(d) As regards Jurala hydro generating station, RGMO had been directed to be implemented without further delay. The project which was commissioned during 2008-11, is a run-of-the-river system and only surplus water which is available after meeting the requirements of drinking water and irrigation is utilized for power generation. The release of water is not in the hands of the petitioner. The units are being operated under FGMO with manual intervention and the same is in compliance with the IEGC. However, for want of surplus water, there is no desired response. Also, the generating station does not operate round the year. The time required for incorporation of RGMO feature in all the governors is about 14 months depending upon the positive response of the manufacturer. In case RGMO is directed to be implemented for the generating station, time may be allowed.

(e) As stated above, all the three hydro generating stations in the State of Telangana are in compliance with the IEGC and have been permitted to operate in FGMO with manual intervention.

(f) As regards Donkarayi Hydro station, operation in FGMO with manual intervention has been directed by the Commission. This power house operates between the discharge of the Upper Sileru Power House and the Fore Bay of the Lower Sileru Power House, the Power House discharges into a power canal leading to the fore bay. The power canal is more than 35 years old and there are frequent repairs and maintenance required to be done due to impairment of the canal. There is hollowness developed in between sub-base and canal panels. Increases in the discharge may lead to breach of canal bund at embankment location. The canal was designed for 4500 cusecs and discharge through power house is 4250 cusecs at maximum load. If RGMO operational effect is to be achieved, whether by incorporating RGMO facility or operating in FGMO with manual intervention to operate as in RGMO, the discharge may

increase to 4600 cusecs which may lead to water flowing over canal bunds and/or causing scouring of canal bunds. The operation of the Power House is thus dependent upon, and controlled by the discharges through and into the power canal to the fore bay. The maintenance of the level in the power canal and the fore bay and the strict requirement to monitor flow under the complex hydrology without endangering breach of the power canal and the fore bay is imperative and decisive. There is no scope for controlling the water flow on other considerations even under FGMO or otherwise. This Power House ought to be exempted from the implementation of RGMO and FGMO with manual intervention to operate in the manner required for RGMO. While this station has been placed under FGMO with manual intervention, it will not be possible to achieve operational results of performance under RGMO which may be expected in terms of the proviso to Clause 5.2(f)(iii) of the IEGC, 2010. The operation under FGMO with manual intervention will always be subject to the hydrology, the necessity of the imperatives of maintenance of the water level in the power canal and the forebay and monitoring of the bow without endangering breach of the power canal and the fore bay. It is entirely possible, and it may also be necessary, in likely circumstances, that the manual intervention on considerations of hydrology and safety is opposite to that which is required if the operation were to be in the manner required by RGMO. Even the requirements of Clause 5.2(f)(iii) cannot be complied with invariably. It is imperative and necessary that these limitations be recognized and incorporated with respect to the requirement for operating the station under FGMO with manual intervention.

(g) As regards Upper Sileru Power House, the Governors of Stage I units which were commissioned during the years 1967 and 1968 are of the mechanical flyball type and have become old and obsolete. The governors of the Stage II units, commissioned during 1994 and 1995, are of the BHEL G25 type. There is no provision to operate these governors in RGMO. These units are being operated under FGMO with manual intervention and the same is in compliance with the IEGC. In case RGMO is directed to be implemented, the same may be considered during future R&M works and accordingly 42 months time may be allowed.

(h) As regards Lower Sileru Power House, the Governors of Stage I units, which were commissioned during 1968 and 1974-76 are of LMZ type. There is no provision to operate these Governors under RGMO. The operation under RGMO can only be implemented after replacement of the Governors. The units are being operated under FGMO with manual intervention and the same is in compliance with the IEGC. In case RGMO is directed to be implemented, the time required for replacement of all the Governors for operation under RGMO is 42 months which may be allowed.

(i) The Machkund Hydro Electric Project, was a joint project between the States of undivided Andhra Pradesh (84 MW share) and Odisha (36 MW share), which was commissioned in 1955. The discharge from this Power House maintains the water level in the Balimela reservoir from which the States of Odisha and the undivided Andhra Pradesh shared water equally. The Governors do not have the facilities required for FGMO or RGMO. The first petitioner (APGENCO) was only the operator of the project owned by the two States. The generating station is very old and there are frequent interruptions due to multiple maintenance issues. It was proposed to replace the existing units themselves with new ones with higher capacity to harness more power from the existing resources. On implementation of an R&M scheme, the

new units can be operated under RGMO. Time was sought for implementation of RGMO up to 31/12/2015 on the expectation that the agreement between the States of undivided Andhra Pradesh and State of Odisha would be concluded. However, the agreement between the two States was not concluded. It was later considered expedient to take up the R&M of the units one by one so as to avoid/minimize generation loss. In the circumstances, it was considered necessary to seek time, on estimate basis, up to December, 2018 for the complete implementation of RGMO in this power station. Consequent upon the A.P. Reorganization Act, 2014 and the bifurcation of the undivided State of Andhra Pradesh, the assets located outside the undivided Andhra Pradesh are to be divided between the State of Telangana and the residual Andhra Pradesh. The entire scheme of the project, its operation, the R&M proposals and the investments are required to be re-worked through tri-partite agreements between the three States namely, Andhra Pradesh, Telangana and Odisha. Since this exercise will take time and these States have also to agree on funding the same, it is futile and wasteful to replace the Governors for the existing generating units, at this stage. As the existing governors do not have any provision for operation under FGMO, it is necessary to grant exemption from operation under RGMO and/or FGMO for this station.

(j) Maximum of 5% of the variation of generation that may be required by FGMO / RGMO in small hydroelectric stations is of insignificant effect on the frequency of the very large capacity Regional/National grid and the costs for implementation of RGMO is disproportional and unjustifiable for any tangible benefits, specially when considered in the context of project specific constraints. In cases where there are constraints, exemptions may be granted on a case to case basis.

(k) Clause 5.2(f)(ii)(d) envisages review of the provision for implementation of RGMO after stabilization of frequency around 50 Hz and introduce FGMO. In the IEGC 2010, the frequency band contemplated for grid operation measures was 49.5-50.2 Hz. In the first amendment to IEGC, the frequency band was revised as 49.7-50.2. In the second amendment, the same was further revised as 49.95-50.05. Thus, the achievement of improvement in the frequency and the stabilization thereof has been recognized. The improvement is a result of various measures taken by the Commission to ensure grid discipline. However, keeping in view the frequency band applicable and considering the proportionality of the requirements, exemption from provisions for operation under RGMO / FGMO with manual intervention, on a case to case basis, is imminent, specially where there are local and/or special or equipment constraints.

(l) The jurisdiction of this Commission is not disputed in case of the generating stations connected to the ISTS. However, all the other generating stations owned and/or operated by the petitioners are connected only to the State Grids and embedded within the State Grids. Hence, these generating stations are subjected only to the State Grid Code and to the jurisdiction of the State Electricity Regulatory Commissions and not within the jurisdiction of the Central Commission. While section 79(1)(h) of the Electricity Act, 2003 provides with the power to the Central Commission to specify a Grid Code, Section 86(1)(f) of the said Act provides the power to the State Commission to specify the Grid Code for the state. Thus, there is clearly a demarcation of power and jurisdiction between the Central and State Commissions. Merely because the State Grid Code is required to be consistent with the Grid Code specified by the Central Commission, it cannot be stated that State Grid Code will be

rendered otiose and/or that the Grid Code specified by the Central Commission would extend to all entities embedded within a State's Grid. A conjoint reading of Clauses 1.2, 1.3. 2 (qq) and 2(gggg) of the IEGC would clearly show that the IEGC, on its terms, applies only to utilities, generating companies, consumers connected to the ISTS.

3. The Commission directed the petitioner to submit the following information, on affidavit, on or before 5.12.2014.

**For Jurala Hydroelectric Project**

Details of the incidents during which FGMO response got curtailed due to scarcity of water in the system along with a detailed write-up on the operation under FGMO, including the restrictions imposed by other Civic authorities which hampered the availability of water for providing the FGMO response.

**For Machkund Hydroelectric Project**

Status and the time frame required/involved in respect of R&M of the units of the station.

4. The due date for filing the above information shall be strictly adhered to and any information received after the due date shall not be considered while passing the order.
4. Subject to the above, order in the petition was reserved.

By order of the Commission

Sd/-  
(T. Rout)  
Chief (Law)