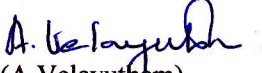


## **OBSERVATION OF A.VELAYUTHAM ON DISSENT REPORT/VIEWS**

(In terms of CERC Ref.No.CERC/Engg/Thr/FGMO Committee/2014 dt:08/12/2015)

1. The Committee Report was prepared by FGMO Committee secretariat taking into account the views of all members including mine, in line with the TOR of the committee. I have accepted and submitted the Committee report to the Commission, in my capacity as the Chairman of the Committee. Shri.P.P.Francis,GM,NTPC have submitted a dissent report and Shri.Chandan Roy, Ex.NTPC,Director wished to know his views communicated vide his mail dated 29/09/2015 have been take care.
  - a) In general both (Shri.Chandan Roy and Shri.P.P.Francis) have given their view on better frequency control strategy. POSOCO also gave presentation to the Committee on the desired frequency control strategies and the poor FRC (Frequency Response Charecteristics} in Indian Grid System. I too have given similar views on better grid operation practices vide my e-mail dated 06/04/2015, 19/06/2015 and 08/08/2015. However I have indicated in my view dated 08/08/2015 that my views are for the information and consideration of the commission during future course of action relating to improved frequency control/grid operation.
  - b) They both ( Shri.Chandan Roy and Shri.P.P.Francis) further indicated that secondary control is the pre-request for adopting primary control. The view may be partially correct. However the same is not appreciated in the context of grid security requirement. The Frequency Response Characteristics (FRC) of a control area is the combined response of governor and load (change of load due to its sensitivity to frequency) in the area. It can be also mentioned as governor action in conjunction with inertial response of rotating masses decides FRC.FRC depends on the action of participating governors of generators and the nature of connected load. FRC contain the frequency swing which occurs in less than a minute after the loss of a block of generation or load in the system. Governor, along with the other available defence mechanism would help containing the frequency to a new settled value (other than scheduled/nominal frequency). For a typical loss of generation, depending on the quantum of generation/load loss, grid collapse could be avoided by governor control. During the 31<sup>st</sup> July, 2012 disturbance in Indian Power Grid, Northern, Easter and North Eastern Regional grids were collapsed, Western and Southern Regional grids were saved from collapse. The contribution from primary response (FGMO/RGMO) in conjunction with other defence mechanism saved the western and Southern regional grids from collapse.
  - c) Shri.P.P.Francis has stated that the Committee report is personal view of Chairman and not of Committee members. Para 1 and 1(a) above may clarify the facts on his view.
  - d) Shri.P.P.Francis, has further indicated that I have not allowed him to give his view in the third meeting. He was allowed to give his presentation in the earlier meeting. Further he had furnished his detailed view through his written submission prior to the third meeting. As the Committee was fully aware of his views on the subject issue, he was not given further specific time, though he was participating in the discussion.
2. For historical reasons Indian grid was subjected to operate under undefined frequency bandwidth in the pre UI/DSM era. In the UI/DSM era the grid is being operated with in defined frequency bandwidth. With all good measures taken by CERC over the period, also partly attributable to grid collapse occurrence during 30-31 July,2012, presently the grid is being operated in a defined bandwidth of 49.9 – 50.05 Hz.(close to 50 Hz). However, soon we have to move towards single set point (governor) based frequency operation from the present floating set point.

3. Grid security cannot be compromised till we achieve single set point based frequency operation or the practice in line with international standard. TOR for the FGMO Committee relates to grid security. The issue has been adequately addressed in the Committee report.
4. Governor shall not be called upon to operate at frequent intervals under FGMO/RGMO mode. Grid operator has to ensure the same by maintaining the frequency variation within the defined dead band of governor. More power variation is possible within the defined dead band if FRC value is normal/adequate. Generally FRC would be sufficient (limited to load response), if all generators enable their governor. To improve efficiency, the control strategy adopted by certain generators does not contribute to FRC even if governor is on. Further DSM discourages generators to enable governor.
5. The present TOR relates to Grid Security. I request the commission to address improved frequency control in line with international practice. During deliberations in the committee, members contributed information on better frequency control practices. Also there were written submission by members including mine on the same. Dissent Report/Views on the FGMO Committee report also have suggestion on better frequency control. All opinions may be considered during next review of Grid operation/frequency control.

  
(A. Velayutham)  
Chairman,  
FGMO Committee

21/12/2015