CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 249/MP/2012

Coram:
Shri V.S.Verma, Member
Shri M.Deena Dayalan, Member

Date of Hearing: 07.03.2013
Date of Order: 19.12.2013

In the matter of:

Maintaining security of the inter-connected power system of India in terms of Regulation 5.2 of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and compliance of Regulations 5.4.2 and 6.4.8 of the Grid Code read along with Regulation 111 of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999.

And
In the matter of:

Northern Regional Load Despatch Centre,
18-A, Qutub Institutional Area,
New Delhi- 110016

…..Petitioner

Vs

1. Punjab State Transmission Corporation Limited
The Mall,
Patiala-147001

2. Haryana Vidyut Prasaran Nigam Limited
Shakti Bhawan,
Sector-6, Panchkula- 134109

3. Rajasthan Rajya Vidyut Prasaran Nigam Limited
Vidyut Bhawan, Janpath,
Jaipur- 302005

4. Delhi Transco Limited
SLDC Building, 2nd Floor,
33 kV Sub-station, Tagore Road, Minto Road,
New Delhi- 110002

5. Uttar Pradesh Power Transmission Corporation Limited
Shakti Bhawan, 14,Ashok Marg, Kuknow- 226007

6. Himachal Pradesh State Electricity Board
Vidyut Bhawan, Kumar House Complex Building-II,
Shimla- 171002

7. Power Transmission Corporation Limited of Uttarakhand Limited
7-B, Lane-1, Vasant Vihar Enclave, Dehradun

8. Power Development Department
Grid Substation Complex Janipur, Jammu.

9. Electricity Department, Sector 9-D,
UT Chandigarh- 160019

10. The Chief Electricity Distribution Engineer,
North Central Railways, Allahabad.

11. State Load Despatch Centre,
SLDC Complex, Near 220 kV,
Grid Station, Ablowal, Patiala- 147001.

12. State Load Despatch Centre,
Haryana Vidyut Prasaran Nigam Limited
Shakti Bhawan, Sector- 6, Dist- Ambala,
Panchkula, Haryana- 134109.

13. State Load Despatch Centre,
Vidyut Bhawan, Janpath, Jaipur- 302005.

14. The General Manager SLDC
Delhi Transco Limited, SLDC Building, 2nd floor,
33 kV s/s, Tagore Road, Minto Road, New Delhi- 110002

15. State Load Despatch Centre, Energy System,
5th Floor, Shakti Bhawan, Ashok Marg,Lucknow- 226007.

16. State Load Despatch Centre, PTCUL, 400 kV s/s, SLDC, Virbhadra,
Rishikesh -249202

17. State Load Despatch Centre
Himachal Pradesh State Electricity Board,
SLDC Control Centre, HPSEB,
Totu Shimla, Himachal Pradesh- 171101

18. State Load Despatch Centre
Power Development Department,
SLDC Building, Narwalbala,
Gladini, Jammu – 180016. **…….Respondents**

Petition No. 250/MP/2012

In the matter of:

Maintaining security of the interconnected power system of India in terms of Regulation 5.2 of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and compliance of Regulations 5.4.2 and 6.4.8 of the Grid Code read along with Regulation 111 of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999.

And
In the matter of:

Southern Regional Load Despatch Centre,
Power System Operation Corporation Limited,
29, Race Course Cross Road,
Benguluru- 560009, Karnataka **…..Petitioner**

Vs

1. Chairman and Managing Director
APTRANSCO, Viyut Soudha,
Hyderabad- 500082

2. Managing Director,KPTCL, Cauvery Bhavan,
Bangalore- 560009, Karnataka

3. Chairman, KSEB, Vaidyuthi Bhavanm, Pattom,
Trivandrum- 695004, Kerala

4. Chairman, TANTRANSCO, 144, Anna Salai,
Chennai- 600002, Tamil Nadu

5. Electricity Department, Govt. of Puducherry, No. 137,
Netaji Subhash Chandra Bose Salai,
Pondicherry - 605 001 **…….Respondents**

Petition No. 251/MP/2012

In the matter of:

Maintaining security of the interconnected power system of India in terms of Regulation 5.2 of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and compliance of Regulations 5.4.2 and 6.4.8 of the Grid Code read along with Regulation 111 of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999.

And
In the matter of:

Eastern Regional Load Despatch Centre,
14, Golf Club Road,
Tollygunge,Kolkata-700033 (W.B) **…..Petitioner**

Vs

1. Managing Director
West Bengal State Electricity Transmission Company Limited,
Bidyut Bhawan, 7th Floor,
Block DJ, Sector-II, Bidhannagar,
Kolkata-700 091

2. Chairman
Bihar State Electricity Board,
Vidyut Bhawan, Bailey Road,
Patna-800 021

3. Chairman
Jharkhand State Electricity Board,
Engineering Bldg, HEC, Dhurwa,
Ranchi-834 004

4. Chairman
Damodar Valley Corporation,
DVC Tower, Maniktala,
Civic Tower, VIP Road,
Kolkata-700 054

4. Chairman,
Orissa Power Transmission Corporation Limited,
Janpath, Bhubaneshwar- 751022.

5. Power Department,

Govt. of Sikkim, Kazi Road, Gangtok- 737 101

6. Bihar State Electricity Board
Vidyut Bhawan, Bailey Road, Patna-800 021

7. Jharkhand State Electricity Board,
Kusai Colony, Doranda, Ranchi- 834002

8. Chief Engineer, CLD, DVC,
P.O. , Maithon Dam, Maithon

9. Orissa Power Transmission Company Limited,
P.O Mancheswar Rly. Colony, Bhubaneshwar- 751017

10. SLDC, Power Department,
Govt. of Sikkim, Gangtok

11. Chief Engineer,
WBSETCL, P.O. Danesh Sheikh Lane,
Andul Road, Howrah- 711109. **…….Respondents**

Following were present:

Shri V.V.Sharma, NRLDC
Shri V.K.Agarwal, NRLDC
Shri S.C.Saxena, NRLDC
Shri S.R.Narasimhan, NRLDC
Shri Rajiv Porwal, NRLDC
Miss Joyti Prasad, NRLDC
Shri Vivek Pandey, NRLDC
Shri Naresh Kumar, NRPC
Shri R.B.Sharma, Advocate, BRPL, JSEB and GRIDCO
Ms. Mahima Sinha, Advocate, Karnataka
Shri S.K.Jain, RRVPNL
Shri Darshan Singh, SLDC, Delhi
Shri R.K.Sharma, SLDC, Punjab
Shri V.Suresh, SRLDC
Shri S.Konar, ERLDC
Shri P.Pentayya, WRLDC
Shri Mahesh Kumar
Shri M.K.Gupta, AE
Shri K.K.Prabhakar, MPPTCL
Shri Antim Jain, MPPKVVCL
Shri Sanjay Bhagwatka
Shri P.Rajaguanidhi, TANTRANSCO
Shri Vikas Sharma, J&K, PDD

Shri Zahir Ahmad, SLDC,UP
Shri Avijeet Lala, Advocate, SLDC, WBSETCL
Shri A.Biswas, SLDC, WBSETCL
Shri P.P.Biswas, WBSETCL

Order

The petitioners, Northern Regional Load Despatch Centre, Southern Regional Load Despatch Centre and Eastern Regional Load Despatch Centre have filed these petitions with the following prayers:

"(a) Direct all the STUs/SLDCs to forecast their demand and make adequate arrangements to avoid dependence on Unscheduled Interchange for meeting their demand or for injecting short term surplus power, irrespective of the frequency;

(b) Direct all the STUs/SLDCs to implement automatic demand disconnection scheme as mandated in the Regulation 5.4.2 (d) of the Grid Code and submit the details of the same to CERC/RPCs/RLDCs;

(c) Direct all the STUs/SLDCs/Regional Entities to comply with Regulation 5.2 (j) of the Grid Code;

(d) Direct all the STU/SLDCs to give their inputs to implement the Grid Security Expert System and direct the Regional Power Committee's secretariat should actively associate themselves in getting these schemes implemented in terms of NLDC letter ref POSOCO/NLDC dated 11.9.2011 to Member GO&D; and

(e) Pass such other order or directions as deemed fit in the circumstances of the case."

2. The facts of these cases and reliefs prayed for in these cases are similar. Gist of the common submissions by the petitioners is as under:

(a) There was a major grid disturbance in Northern Region at 02.33 hrs on 30.7.2012. Northern Regional Grid load was about 36,000 MW at the time of disturbance. Subsequently, there was another grid disturbance at

13.00 hrs on 31.7.2012 resulting in collapse of Northern, Eastern and North-Eastern regional grids. The total load of about 48,000 MW was affected in this black out.

(b) There are large fluctuations in the grid parameters such as frequency, voltage and line loadings on account of large changes in the scheduled and actual drawal (>100 MW) by the State Utilities at the hour boundary attributable to the following reasons:

(i) Manual connection/disconnection of large block of load at the hour boundary.

(ii) Large step change in the drawal schedule due to large change in quantum of buy/sell in Short Term Open Access at the hour boundary/time block boundary.

(c) Regulation 5.2 (j) of Grid Code mandates that no user/SEB shall cause a sudden variation in its load by more than 100 MW without prior intimation and consent of the RLDC. However, typical instances of violation of Grid Code by the State utilities are illustrated, wherein State utilities of UP, Rajasthan, Haryana, Punjab, J&K and Delhi have changed in overdrawal at hourly boundary frequency variation. Such large fluctuations in the grid parameter are a threat to grid security as it may result in mis-operation area of the protective relays and cause undesirable tripping in the

system. Therefore, the change in drawal by the utilities should be in small steps /gradual <100 MW as mandated in Grid Code.

(d) In accordance with Regulation 5.4.2 of Grid Code, SLDC/SEB/distribution licensee and bulk consumer are required to ensure that requisite load shedding is carried out in its control areas so that there is no overdrawal when frequency is 49.7 Hz or below. It has been observed that that the overdrawal by certain regional entities is very large when the frequency is 49.8-50.2 Hz. Under these conditions, if there is a contingency (such as loss of generating units), the system frequency would rapidly fall to insecure level in the absence of automatic control actions.

(e) Regulation 6.4.2 (a) of the Grid Code mandates that the SLDC/SEB/distribution licensee and bulk consumer shall initiate action to restrict overdrawal of its control area, from the grid, whenever the frequency falls to 49.8 Hz.

(f) Regulation 6.4.8 of the Grid Code mandates that the SLDCS/STUs/Distribution Licensees shall regularly carry out demand estimation for their respective States/area, to enable them to plan in advance as to how they would meet their consumers load without overdrawing from the grid.

(g) In view of the circumstances elaborated above, the petitioners have been taking the following actions in the interest of grid security:

(i) Directing the regional entities to maintain their drawal/injection as per the schedule even when the grid frequency is within the band of 49.8-50.2 Hz;

(ii) Issuing verbal/written messages and SMS to the concerned authorities for suitable intervention in maintaining grid discipline and/or take corrective actions during contingencies;

(iii) Issuing A, B and C Messages for persistent and large quantum of Unscheduled Interchange from the grid;

(iv) Carrying out suo-motu revisions in the schedule under perceived threat to grid security ; and

(v) Physical disconnection of EHV feeders in case of persistent overdrawal/indiscipline or delay in response from the utilities.

(h) CTU has prepared a draft proposal for 'Grid Security Expert System' (GSES). The GSES envisages the following:

(i) Remote demand disconnection from the SLDC / RLDC;

(ii) Real-time assessment of the quantum of load relief available through safety net; and

(iii) Supervision of healthiness of the safety net (UFRLS, UVLS, df/dt LS) from remote.

(iv) GSES cut down the response time during emergencies which would also enable the grid operators to assess the security margins required to be maintained in the system. NLDC has given its technical inputs vide its letter ref POSOCO/NLDC dated 11.9.2011 to Member (GO & D), CEA. Inputs have been sought from the State utilities and RPCs on the following aspects:

(i) Identification of feeders for the automatic demand disconnection; and

(ii) Updated list of feeders installed with under frequency/under voltage, df/dt relays.

3. The Commission vide its order dated 14.1.2013 directed the Regional Power Committee of all regions to discuss the issue of 'implementation of the Automatic Demand Management Scheme at the SLDC/distribution company level' as an agenda item within one month and file decisions on affidavit within one week thereafter after serving the copies thereof on all the constituents of the respective RPC. The Commission further directed to all distribution licensees to participate in the respective RPC meetings and SLDCs were directed to provide all necessary data and assistance to NLDC and respective RLDCs for effective

implementation of the Automatic Demand Management Scheme. The Commission further directed all SLDCs and distribution companies to strictly comply with the provisions of the Grid Code and directions of respective RLDCs to maintain grid discipline. RLDCs were directed to take necessary actions in accordance with the provisions of the Electricity Act, 2003 and the Grid Code including disconnection of feeders, wherever necessary, from the point of view of grid security.

4. Replies to the petitions have been filed by Delhi Transco Limited, Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Punjab State Power Corporation Ltd, Transmission Corporation of Andhra Pradesh Limited (APTRANSCO), Tamil Nadu Transmission Corporation Limited (TANTRANSCO), Kerala State Electricity Board (KSEB), Karnataka Power Transmission Corporation Limited (KPTCL), Northern Regional Power Committee (NRPC), Southern Regional Power Committee (SRPC), Southern Regional Load Despatch Centre (SRLDC) and Grid Security Expert System (GSES).

5. Delhi Transco Limited vide its affidavit dated 26.12.2012 has submitted as under:

(a) As far as Delhi system is concerned, no manual connection and disconnection of load occurred. However, these changes are due to natural load occurring in the system during peak hours particularly during winter months.

(b) The response of Under Frequency Relays (UFR) during the time of Grid disturbance were adequate in Delhi System and same has already been submitted in Petition No. 221/MP/2012. Though the existing static UFR are functioning satisfactorily, for quick response all these relays are proposed to be replaced with State-of-the-Art.

(c) The contention of the petitioner that in the event of disconnection of feeders from Grid Sub-station may affect important loads, though is correct, but in case of exigencies, this has to be done in any case as the same is applicable in case of SLDC or STU does load shedding from their sub-stations.

(d) The proposal of Grid Security Expert System (GSES) was put up in the 25th NRPC meeting held on 30.11.2012 wherein there was a general consensus that the proposed system should be implemented subject to feasibility. DTL has no other opinion and would try to implement in coordination with other utilities as and when proposal is cleared by Central Electricity Authority or RPC Forum.

6. Rajasthan Rajya Vidyut Prasaran Nigam Ltd (RVPNL) vide its affidavit dated 4.1.2013 has submitted that Rajasthan is complying the directions of NRLDC and provided details of relief and details of feeders disconnected and

messages received from NRLDC. RVPNL has requested to provide to Distribution Company/ STU/SLDC the full GSES scheme for thorough studies so that input may be provided to CTU.

7. Punjab State Power Corporation Ltd. (PSPCL) vide its affidavit dated 27.12.2013 has submitted as under:-

(a) PSPCL has confirmed having forecast their demand and made arrangements to meet the demand without any dependence of UI for the year 2012-13 (up to 31.10.2013). PSPCL have further undertaken that real time shortage if any will be met by purchase of power from exchange on day ahead basis or by imposition of Regulatory measures.

(b) SLDC, Punjab has also filed Petition No. 49/2012 before Punjab State Electricity Regulatory Commission seeking directions to PSPCL for implementation of automatic demand disconnection scheme in its control area for maintaining voltage and frequency profile, in line with provisions of the Grid Code.

(c) Grid Security Expert System (GSES) as a unified scheme for all constituents, was discussed in the NRPC meeting held on 29th, 30th November, 2012. Power Grid is to explain the said scheme to the constituents before taking up its further development/implementation. Necessary basis

inputs for disconnection of feeders have since been supplied to NRLDC during the meeting held on 7.8.2012.

8. Transmission Corporation of Andhra Pradesh Limited (APRTRANSCO) vide its affidavit dated 11.12.2012 has submitted as under:-

(a) With regard to violation of Regulation 5.2 (j) of the Grid Code on sudden variation of 100 MW without prior intimation and consent, CEA manual on transmission planning defined rare contingencies as temporary removal of complete generating station or complete substation (including all the incoming and outgoing feeders and transformers) from service, HVDC bi-pole and stuck breaker condition.

(b) Regarding variation of frequency, it was clarified to SRLDC that the actual relief realized was around 50% on average and the mismatch is due to non availability of SCADA data on 132 kV level on some of the feeders in the above load shedding scheme. The system frequency has not fallen below 48.80 HZ (stage 1 UFR conditions) even when there is a loss of around 2200 MW due to a grid disturbance in Karnataka on 3.4.2012 indicated by SRLDC in Annexure-1 of the petition.

(c) SRLDC is insisting adherence to 12% or 150 MW over drawls even in high frequency conditions and is opening the ICTs between CTU and STU even though the over drawls are not abnormal. The Commission may

consider to enhance this limit to a higher level say 250 MW in case of high frequency, whenever transmission contingencies are not there. This will help in optimal usage of Hydel resources.

(d) SLDC, AP formulated and implemented the Automatic Load Management Scheme in accordance with Regulation 5.4.2 (d) of the Grid Code, by identifying 132 kV loads, 132/33 kV transformers for a quantum of 800 MW for remote tripping from SLDC.

(e) Regarding inadequate response of thermal/hydel units, such response is low due to lower value of the GCV than the designed GCV during low frequency occurrences

9. Tamil Nadu Transmission Corporation Limited (TANTRANSCO) vide its affidavit dated 12.12.2012 has submitted as under:

(a) SRPC is periodically reviewing the SR Grid parameters in monthly Operation Coordination Committee (OCC) meeting, Technical Coordination Committee meeting and other special meetings conveyed frequently for any special event of the Grid. As such, petition filed by SRLDC seeking direction to SRPC to associate the SLDCs in getting the Grid Security Expert System implement, is unwarranted.

(b) After the major Grid collapse, SRLDC has implemented so many stringent measures as prescribed by High Power Committee to curb overdraw even at high frequencies and is now not allowing overdrawl by more than 150 MW from the Grid even when the Regional Grid frequency is above 50 Hz, which is allowable as per the provisions of Grid Code.

(c) TANTRANSCO is regularly forecasting the demand day wise / block wise without depending on Unscheduled Interchange, and necessary arrangements are also being made in advance based upon the availability to meet the demand forecasted to avoid dependence on Unscheduled Interchange.

(d) Automatic load disconnection scheme under Regulatory measures for a quantum of 657 MW has already been implemented by TANTRANSCO from October, 2010. The loads are being tripped as and when necessary, generating automatic pulse through SCADA.

(e) TANTRASCO is intimating to Southern Regional Load Despatch Centre if any variation in loads occurs. Therefore, TANTRANSCO assures that threat to Grid security due to large fluctuations in the grid parameters which may result in mis-operation of the protective relays and causing undesirable tripping in the system will not happen.

(f) The Regulation stipulates conditions only for the over drawal irrespective of frequency in view of Grid security. The continuous under drawal in high frequency will also lead excursion in frequency which will also be a threat to Grid security. Therefore, violation messages are also to be issued for the conditions of under drawal at frequency above 50 Hz which leads to over drawal of other constituents due to natural balancing.

(g) CEA may be requested to intervene in the ATC computing procedures and ensure the accuracy and transparency of the same in view of critical power position prevailing in Southern Region. In view of the reasons and circumstances stated above, the present petition may be rejected.

10. Kerala State Electricity Board vide its affidavit dated 18.1.2013 has submitted that the Southern constituents are facing severe power shortage and are impeding power cut and road shedding for many hours a day. However, Eastern Region and Western Region have huge surplus power. However, due to transmission constraints, SRLDC has denied open access to transmit power from other regions. The present power crisis and Grid security in the Southern Region can be relieved if sufficient transmission capacity is available for transfer of power from Western Region and Eastern Region to Southern Region.

11. Karnataka Power Transmission Corporation Limited (KPTCL) vide its affidavit dated 7.1.2013 has submitted as under:

(a) All the constituents in the Southern Region are cooperating to maintain the grid discipline and aiding the integrated grid operation under the guidance and supervision of SRLDC.

(b) KPTCL is complying with the directions of SRLDC to maintain the grid discipline. SRLDC has also appreciated the efforts of KPTCL for excellent and sustained grid operations in the various forums such as OCC, TCC, SRPC meetings.

(c) SLDC, Karnataka is handling approximately 7500-8500 MW and all efforts are being made for balancing of demand and supply. As per the Government of Karnataka directions, measures are being taken to supply 6 hours to 3 phase supply and 12 hours of single phase supply to all rural feeders and 22-24 hours power supply to urban and city feeders.

(d) With regard to contingency procedures, most of them do not concern with SLDC, Karnataka at all. However, as far as the contingency measures are concerned, the implementation of UFR scheme, df/dt schemes and special protection load management scheme has already been implemented from July 2012.

(e) SCADA system to all generating stations, sub-stations has fully implemented in which feeders up to 11 kV, IPPs, NCE and solar units are

covered. Based on the said SCADA, SLDC is monitoring the grid on real time for smooth functioning of grid operation with causing any disturbances in the system.

12. Northern Regional Power Committee in its submission dated 1.3.2013 has submitted that in the meeting held on 17.1.2013 and 7.2.2013 in NRPC, both Automatic Demand Management Scheme (ADMS) as mandated in the Grid Code Regulation 5.4.2 (d) as well as Grid Security Expert System (GSES) were discussed. As per Minutes of Meeting (MoM) issued by NRPC following is the status of Automatic Demand Management Scheme (ADMS) in NR:

(i) Delhi: Automatic Demand Management has been implemented;

(ii) Haryana: Distribution companies of Haryana are in the process of installing their SCADA system. The issue of Automatic Demand Management System is under discussion between SLDC and Discoms;

(iii) Punjab: The issue is under preliminary discussion between PSTCL and PSPCL;

(iv) Rajasthan: A Committee has been constituted in Rajasthan for Automatic Demand Management;

(v) Uttar Pradesh: SLDC, UP has advised distribution companies to set up their own control rooms for Automatic Demand Management.

In Noida, Noida Power Company has established the control room and automatic demand Management System is in place;

(vi) Uttarakhand: Draft scheme for Automatic Demand Management Scheme has been formulated by SLDC and certain information has been sought from distribution licensee, namely UPCL;

(vii) Jammu and Kashmir: Information has not been submitted to NRPC Secretariat;

(viii) Chandigarh: Information has not been submitted to NRPC Secretariat.

13. Southern Regional Power Committee (SRPC) vide its affidavit dated 26.12.2012 has submitted as under:

(a) As part of the agenda for the 76th OCC meeting held on 11.10.2012, SRLDC had submitted 10 Templates for automated defense plan for secure operation of grids.

(b) In the Northern Region, the matter regarding Grid Security Expert System has been discussed in detail through an agenda item of Power Grid. However, in Southern Region neither SRLDC nor Power Grid have submitted any agenda item regarding Grid Security Expert System for discussion in the OCC or Protection Sub-Committee meetings.

(c) The recommendations of the Enquiry Committee set up by the Ministry of Power to investigate the grid disturbances in NEW GRID are under implementation. Periodic meetings in this regard are being taken by CEA to oversee the progress of the implementation.

(d) In the 20th SRPC Meeting held on 28.9.2012, a scheme for Unified Real Time Dynamic Measurement Scheme was approved by SRPC. New PABX with advance functionality to Control Centers of Southern Region for Hot Line Communication System was also approved.

(e) The Commission may direct SRLDC/Power Grid to submit the Agenda item for Grid Security Expert System to the SRPC forum for discussion / approval. The 21st meeting of SRPC is scheduled to be held on 2.2.2013. SRLDC may approach the Commission in this regard in case of non approval by the constituents in the SRPC forum.

14. SRPC vide its affidavit dated 15.2.2013 has further submitted as under:

(a) Automatic Demand Management Scheme was discussed in SRPC meeting held on 11th & 12th February, 2013 and observations regarding UFR relief are as under:-

(i) SRLDC was continuously monitoring all feeders connected with AUFR and df/dt protection. SRLDC had also observed that the extent of

protection available was not adequate to ensure safe and secure grid operation.

(ii) APTRANSCO had stated that there was no RTU coverage in respect of certain feeders and it had increased the number of UFR feeders by approximately 300 MW which will be confirmed implementation in about a month's time.

(iii) TANTRANSCO had stated that all the AUFRs in the State were operating properly and periodic testing was also being done. However, due to heavy amount of load shedding being carried out in the State, the desired number of feeders was not available for AUFR operation.

(iv) APTRANSCO had pointed out that during the grid disturbance in NEW Grid on 30.7.2012, all the SLDCs in Southern Region had taken prompt action to prevent any further decay in the frequency.

(v) KSEB had stated that the average percentage availability figures in respect of Kerala system was of the order of 67.57% (average) with minimum and maximum availability of 45.2% & 86% respectively, with the present loading pattern.

(vi) KPTCL had submitted that the percentage availability in its system was the highest amongst all the States in the Region.

(b) SRPC has placed on record the decisions of Technical Coordination Committee of SRPC which is extracted as under:

(i) Intermittency of wind generation vis a vis requirement not to change drawal by more than 100 MW was a huge challenge.

(ii) Overlapping of four groups of interruptible loads was inevitable.

(iii) Implementation of GSES in Southern Region was agreed in principle.

(iv) Funding of GSES requested to be carried out through PSDF.

(v) Detailed engineering of GSES to be done in consultation with the States for Finalization of BoQ.

(vi) SLDC should have over riding powers to decide the feeders etc.

15. Southern Regional Load Despatch Centre vide its affidavit dated 4.12.013 has submitted as under:

(a) All the SLDC's including APTRANSCO have declared grouping of loads as per clause 5.4.2 (e) of the Grid Code. It is also confirmed that the SLDC has the provision to trip the feeder from SLDC, SCADA. However, the required

action of demand side management has been effected only with the intervention of Shift in-charge Engineer. This leads to delay in decision making by the Control Engineers of SLDCs. Though four groups were declared by the constituents, the quantum declared on each feeder widely varies with the declared quantum thereby impacting the safety-net adversely. This necessitates identification of additional feeders so as the average load available for relief during contingencies is equivalent to specified value as per system studies.

(b) UI for the day indicated is net of positive and negative deviations with respect to schedule of the constituent. However, there are numerous occasions in which the change in drawal was more than 100 MW violating the Regulation 5.2 (j) of the Grid Code.

(c) Subsequently, the portion of GSES pertaining to SR was presented as one of the agenda item by SRLDC in the 76th OCC meeting of SRPC held on 11.10.2012. The same was also emphasized in the 16th PCC meeting of SRPC held on 6.11.2012. Feedback / action plan in this regard are yet to be received from the SR constituents. Being an issue of protection / defense plan, the association of SRPC with necessary lead is essential for implementation.

16. Views of utilities on Grid Security Expert System (GSES) dated 1.3.2013 are as under:

(a) Generating companies as well as SLDCs were not in favour of automatic generation reduction.

(b) POSOCO clarified that in case reduction in generation is required, only annunciation will be given in generating station's control room and operator will manually reduce generation. Some of the constituents were of the view that same can be achieved through message and there was no need for GSES for this purpose.

(c) Automatic Demand Management System and GSES were similar. Implementing both the schemes independently would lead to duplication and avoidable expenditure.

(d) Some of the constituents were of the view that if load shedding is carried out through GSES, a distribution company which was complying with intra-State schedule may get affected.

(e) NTPC maintained that the suggestion regarding over injection by generating company and under drawal by State utilities in POSCO report is not in consonance with CERC Regulations.

(f) Delhi Discoms opined that there is need to improve the compliance and maintaining the existing system instead of creating a new grid security system with huge expenditure.

(g) Some of constituents were of the opinion that some of the modules of GSES viz. UFR, df/dt, Islanding Schemes are part of the existing system. These is a need to dovetail these is the GSES.

17. During the course of hearing on 7.3.2013, the representative of NRLDC submitted that Automatic Demand Management Scheme within the State control areas is an essential as by their own admission States have indicated time taken as high as 40-45 minutes in taking corrective action through manual means. Since these automatic schemes are not available, it becomes very difficult for States to control overdrawal in case there are very high overdrawals. The representative of NRLDC further submitted that as per Commission`s direction, NRLDC is resorting to opening of feeders of States on certain occasions. However, opening of feeders at 220 kV and 400 kV level from NRLDC may be indiscriminate and can impact some of the essential loads in the States as well. At EHV levels many lines are not radial in nature which affects quantum as well as area of impact due to such opening of lines. Thus, it is required that State's drawal is as per schedule which had also been emphasized by the Commission through its various Regulations/orders and Statement of the Reasons. The representative of SRLDC submitted that the present mechanism available for Demand Side Management

in all SLDCs control areas is manual. The constituents need to manage the demand even at frequency above 49.8 Hz. Learned counsel for the SLDC, Karnataka submitted that the implementation of UFR scheme, df/dt scheme and special protection schemes are already in place. As per Regulation 5.4.2 (d) of the Grid Code, Automatic Load Management Scheme has been implemented from July, 2012.

18. We have considered the submissions of petitioner and respondents. We agree to the contentions of petitioner and emphasize that Grid Security is of utmost importance and priority.

19. From the records available, it is evident that only DTL, RRVPNL, PSPCL, APRTRANSCO, TANTRANSCO, KSEB, KPTCL, NRPC, SRPC and SRLDC have submitted their replies. Other respondents have not filed any response to our order dated 14.1.2013. We do not approve of the conduct of the respondents in not filing their response to the directions of the Commission in such a grave matter as grid security. We direct the respondents to ensure that our directions are duly complied with in future.

20. With regards to prayer (a): We direct all the STUs/SLDCs of the Northern Region, Southern Region and Eastern Region to forecast their demand and make adequate arrangements to avoid dependence on Unscheduled Interchange for

meeting their demand or for injecting short term surplus power, irrespective of the frequency.

21. With Regards to prayer (b): The issue regarding implementation of Automatic Demand Management Scheme will be dealt with in order in Petition No. 208/SM/2011.

22. Regarding Prayer (c): Regulation 5.2 (j) of the Grid Code provides as under:

> "5.2 (j) Except under an emergency, or to prevent an imminent damage to a costly equipment, no User shall suddenly reduce his generating unit output by more than one hundred (100) MW (20 MW in case of NER) without prior intimation to Similarly, no User / SEB shall cause a sudden variation in its load by more than one hundred (100 MW) without prior intimation and consent of the RLDC, particularly when frequency is falling or is below 49.7 Hz. Similarly, no User / SEB shall cause a sudden variation in its load by more than one hundred (100 MW) without prior intimation to and consent of the RLDC. All users and SEBs shall ensure that temporary over voltage due to sudden load rejection and the maximum permissible values of voltage unbalance shall remain within limits specified under Central Electricity Authority (Grid Standards) Regulations, 2010."

Accordingly, we direct all STUs/SLDCs/Regional entities to comply with Regulation 5.2 (j) of the Grid Code failing which appropriate proceedings shall be initiated against them for non-compliance with the provisions of the Grid Code and directions of the Commission.

23. Regarding Prayer (d): The issue of Grid Security Expert System will be dealt with in order in Petition No. 265/MP/2012.

24. With this, Petition Nos. 249/MP/2012, 250/MP/2012 and 251/MP/2012 are disposed of.

Sd/- sd/-

(M. Deena Dayalan)
Member

(V. S. Verma)
Member