

**PUNJAB STATE ELECTRICITY REGULATORY COMMISSION  
SCO 220-221 SECTOR-34-A CHANDIGARH**

**Petition No. 49 of 2012  
Date of Order: 16.01.2013**

In the matter of :           Petition for effecting proper load management by Punjab State Power Corporation Limited and curbing over-drawal in terms of the Indian Electricity Grid Code and Unscheduled Interchange charges Regulations - Compliance of directions of SLDC u/s 33 of the Electricity Act, 2003

AND

In the matter of:           Punjab State Transmission Corporation Limited, State Load Dispatch Centre (PSTCL/SLDC), SLDC Complex, Ablowal (Patiala), Punjab.

Versus

Punjab State Power Corporation Limited (PSPCL),  
Patiala.

Present:                   Smt.Romila Dubey, Chairperson  
                              Shri Virinder Singh, Member  
                              Shri Gurinderjit Singh, Member

**ORDER**

In this petition, the Punjab State Transmission Corporation Limited (PSTCL) having the responsibility to operate the State Load Dispatch Centre (SLDC), while pointing out numerous instances of over drawl by the PSPCL, (Respondent) from the Grid during the period from 1<sup>st</sup> May 2012 to 31<sup>st</sup> July 2012, below the limiting frequency levels of 49.5 and 49.2 Hz, thereby endangering the Grid security, has prayed the Commission for directing PSPCL to take necessary measures for demand estimation, plan in advance about meeting the load, implementing automatic demand disconnection scheme as per provisions of the Indian Electricity Grid Code (IEGC), to respond to SLDC directives/ queries and to fully cooperate in ensuring the Grid security.

The petition was admitted vide Order dated 19.09.2012 and PSPCL was directed to file reply. PSPCL has filed reply vide Chief Engineer/ARR & TR memo No.6046/48 dated 16.11.2012 and PSTCL has filed rejoinder to the same vide Chief Engineer/SLDC memo No.97 dated 03.12.2012 which are discussed hereunder.

## **2. Petitioner's Submission:**

- i) PSTCL has stated that primary action to exercise load management and to restrict over drawal from the grid is to be taken by the respondent (PSPCL). In this context PSTCL has referred to the following relevant provisions of the Indian Electricity Grid Code:-
  - a) Regulation 5.4.2(b) of the Indian Electricity Grid Code, 2010 mandates that *“the SLDC/SEB/distribution licensees and bulk consumer shall ensure that requisite load shedding is carried out in its control area so that there is no overdrawal when frequency is 49.5 Hz or below”*.
  - b) That clause 5.4.2(a) states that SLDC/ SEB/ Distribution licensee and Bulk consumers shall initiate action to restrict the drawal of its control area, from the grid, within the net drawal schedule whenever the system frequency falls to 49.7 Hz.
  - c) That clause 6.4.7 of IEGC also reiterates actions to be taken by the SLDC/ SEB/ Distribution Licensee and bulk consumers under different conditions so as to ensure zero over-drawal when frequency is 49.5 Hz or below.
- ii) PSTCL has submitted that SLDC is the State body for ensuring integrated operations of the power system complying with NRLDC instructions relating to the grid security. Its functions are defined under Section 32 (2) of the Act.

- iii) The petitioner (PSTCL) has further submitted that during the period from 1<sup>st</sup> May 2012 to 31<sup>st</sup> July 2012, there were 990 time blocks when the frequency of the North-East-West (NEW Grid) was 49.5 Hz or below. During the above period, the respondent (PSPCL) was overdrawing more than 3% of the scheduled power from the grid when the frequency was 49.5 Hz or below. This is a violation of Regulation 5.4.2(b) of the IEGC, 2010.
- iv) The over-drawal by respondent during the period from 1<sup>st</sup> May 2012 to 31<sup>st</sup> July 2012 were in the range of 5.49% to 8.70% of the scheduled drawal. This is a violation of regulation 6.4.8 of the IEGC, 2010.
- v) During the above stated period, the Northern Regional Load Despatch Centre (NRLDC) has been taking up the issue with SLDC to curtail over-drawal of the State through their messages including A, B & C messages which were immediately acted upon by instructing the respondent (PSPCL) to comply with the instructions of NRLDC. The operational mechanism for these messages is as under:-
- **A Message:** Warning message below 49.70 Hz (UI>150 MW or above 12% of the schedule subject to minimum 50 MW and there is downward trend in frequency).
  - **B Message:** Message below 49.50 Hz (UI>150 MW or above 12% of the schedule subject to minimum 50 MW for more than last 10 minutes or UI >300 MW or above 24% of the schedule subject to minimum 50 MW for more than last 5 minutes.
  - **C Message:** Message below 49.50 Hz (UI>150 MW or above 12% of the schedule subject to minimum 50 MW for more than last 20 minutes or UI > 300 MW or above 24% of the schedule subject to minimum 50 MW for more than last 15 minutes or repeated instances of over drawals under frequency <49.50 Hz in the past 2 hours.)

The summary of the number of message issued by NRLDC/SLDC to the respondent during period from 1<sup>st</sup> May 2012 to 31<sup>st</sup> July 2012 is shown in Table given below:-

**Table 1**  
**Summary of the number of Messages issued by NRLDC/SLDC in the period of 1<sup>st</sup> May 2012 to 31<sup>st</sup> July 2012**

Sr. No.	Month	Caution Message in line with clause 6.4.7 of IEGC (Message type A)	Message intimating violation of IEGC Section 5.4.2(a) and 6.4.7 (Message type B)	Message intimating violation of IEGC Section 5.4.2(b) and Electricity Act section 29(2)/ 29(3) (Message type C)	Total Messages
1.	May-2012	95	31	1	127
2.	June-2012	98	96	8	202
3.	July-2012	46	74	13	133

- vi) The objective of the CERC (UI) Regulations as stated in section 3 of the said regulations *“is to maintain grid discipline as envisaged under the Grid Code through the commercial mechanism of Unscheduled Interchange charges by controlling the users of the grid in scheduling, dispatch and drawal of electricity”*.

That the Regulation 7 of the CERC (Unscheduled Interchange charges and related matters) (Amendment) Regulations, 2010 specifies the limit on UI volume. The relevant extracts are quoted below:-

*“Limits on UI volume and consequences of crossing the limits:-*

*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 49.7 Hz...”*

Giving details of instances during the 92 days periods from 1<sup>st</sup> May 2012 to 31<sup>st</sup> July 2012, petitioner has submitted that there were 4085

time blocks when the frequency was below 49.7 Hz. And that out of these time blocks, the Unscheduled Interchange of respondent was more than 12% of the scheduled drawal for 32% to 50% of the time blocks. Likewise Unscheduled over-drawal of respondent during this period was more than 3% of the scheduled drawal on an aggregate daily basis (percentage 16% to 33%).

- vii) Further vide Clause 3(a) Regulation 7 of the CERC (Unscheduled Interchange charges and related matters) (Amendment) Regulations, 2010, the additional Unscheduled Interchange charge applicable for over-drawal of electricity for each time-block when grid frequency is below 49.5 Hz is as under:

*The additional UI charge for over-drawal of electricity for each time-block when grid frequency is below 49.5 Hz and up to 49.2 Hz shall be equivalent to 40% of the Unscheduled Interchange Charge 873.0 Paise/kWh corresponding to the grid frequency of below 49.5 Hz.*

That the additional UI charges levied on the respondent for the months of May, June, July 2012 for overdrawing when grid frequency was below 49.5 Hz and 49.2 Hz was 6.62%, 8.50% and 13.52% respectively of the total UI charges payable during these months for overdawl.

- viii) PSTCL has stated that the total import through Unscheduled Interchange (UI) by PSPCL was about 21% of the aggregate import done under Short Term Open Access (STOA). It is evident that respondent has relied heavily on the unscheduled Interchange Mechanism to meet their energy requirements during the months of May, June and July 2012.
- ix) The petitioner PSTCL has stated that it is not possible for them to manually disconnect 66 KV supply from 220/132 KV S/Stns being controlled by the PSTCL (STU) as it may disturb the agriculture supply schedule and to avoid repeated power cuts on same set of NRS consumers. If SLDC switches off the supply of power, it would affect very large areas without any discrimination and sensitivity and would

also include in its sweep vital support and emergency services like transportation network, traffic signals, street lights, hospitals, day care centres, fire brigade stations, police stations and other sensitive establishments. It is only the distribution licensee which is alive as to which specific lines the load shedding can be done so as to cause minimum loss to vital networks and establishments.

- x) PSPCL being a composite utility responsible for power distribution and generation in the State of Punjab, decides the scheduling of power including running of its own generating units. Therefore, optimum scheduling /dispatch of electricity, power regulations and interstate UI accounting functions are being performed by the respondent and that respondent is fully aware of commercial implications of drawing power under low frequency conditions and also responsible to ensure grid discipline as per various provisions of IEGC as well as the State Grid Code.
- xi) The petitioner has further submitted that the respondent (PSPCL) has not initiated the implementation of automatic demand disconnection scheme despite of the directions issued by the Hon'ble Central Commission order dated 15.12.2009 and as per Regulations 5.4.2(d) and 6.4.8 of IEGC-2010.
- xii) The petitioner (PSTCL) has submitted that in the matter of Effecting proper load management by Northern Region constituents and curbing over-drawal in terms of the Indian Electricity Grid Code and Unscheduled Interchange charges Regulations, NRLDC filed Petition no.125/MP/2012 along with IA Nos. 25/2012, 35/2012, 38/2012 & 45/2012 in CERC wherein PSTCL/SLDC has been made one of the respondents.
- xiii) That while pursuing the NRLDC petition, as mentioned in the preceding Para, the Petitioner requested PSPCL (the Respondent) to supply requisite inputs regarding over draws including justification thereto, so as to submit suitable reply to the Hon'ble CERC. This includes submission of undertaking/affidavit in connection with status of

compliance of Regulations 5.4.2(d) and 6.4.8 before Hon'ble CERC, regarding Demand estimation and Demand disconnection, both under the purview of PSPCL, as per the Hon'ble Central Commission's order dated 10.7.12. The written requests made by the Petitioner from time to time were not replied by PSPCL. There has not been any official response from PSPCL end at any stage. Such non responsive attitude on the part of the respondent undermines the authority of SLDC under the Act.

- xiv) That the respondent (PSPCL) did not pay any heed to SLDC/PSTCL requests to associate /participate for explaining /pleading the matter before Hon'ble CERC in connection with above NRLDC Petition. Due to this reason and non supply of requisite inputs, as stated in preceding Para, the Respondent could not file suitable replies before the Hon'ble Central Commission and hence the Hon'ble Central Commission has initiated proceedings against PSTCL/SLDC for levy of penalties against the officers in-charge for non compliance of its directions. The Respondent (PSPCL) is therefore responsible for the consequences arising out of the Hon'ble Central Commission final order regarding imposition of penalty.

### **3. Reply of PSPCL (Respondent)**

- i) PSPCL filed its reply on 16<sup>th</sup> Nov. 2012. PSPCL submitted that the data of overdrawl and underdrawl as given by the petitioner (PSTCL) for the months of May, June and July is based on Special Energy Meter (SEM) data, which is available after 15 to 20 days after the occurrences of the events whereas the system is controlled on the real time basis on the basis of data displayed by the SCADA system. There is huge difference between the readings of SEM and SCADA and same has been brought to the knowledge to PSTCL time and again. According to the SCADA data the drawls made by Punjab during these months are well within reasonable limits keeping in view the action

taken with each event with the operating limitations of the power system control.

- ii) PSPCL (Respondent) has further stated that they planned its power purchase well in advance during the month of February by taking 5% average growth in the demand. For calculating the Short Term Power Purchase No power under UI has been taken into account. At the first instance 3167 MUs for Rs. 1222.5 Crores & after taking into consideration the meteorology IMD reports in the month of May an additional 1129 MUs for the Rs. 422.99 Crores was tied up for the paddy season of 2012-13.

PSPCL has purchased maximum short term power and imposed huge power cuts to remain within the limitations and is the most disciplined licensee in maintaining the grid security. The respondent took necessary actions as per data displayed by the SCADA system and has carried out the load shedding whenever required. It is only the mismatch between actual and SCADA readings which might have resulted in violations.

#### **4. Rejoinder of PSTCL (Petitioner)**

- i) The Petitioner PSTCL, in its rejoinder submitted on 03.12.2012, has stated that the respondent (PSPCL) has tried to confuse the issue by putting the entire blame of grid violations made by them on the accuracy of data as displayed at the SLDC through Supervisory Control and Data Acquisition (SCADA) System on real time basis. On the one hand, the respondent has contested the SEMs based Over drawl data as provided in the petition and on the other hand has claimed that they have managed the drawls within the permissible/reasonable limits, as per the real time data according to SCADA. Both of the statements/pleas made by the respondent are contradictory in itself.
- ii) PSTCL has submitted that the SCADA data as displayed at the SLDCs & RLDCs is acquired from RTUs provided at the interconnection/drawl points of State with CTU transmission

network/utility's own generating plants/interstate lines and used by the SLDC for real time monitoring of the system network and controlling the over draws. The SEMs data as acquired on weekly basis from ABT meters installed by the CTU (Power grid) at the interface / boundary points is used by NRLDC/NRPC for commercial settlement purpose. The online SCADA data at SLDC/RLDC is primarily dependent on telemetry of data from the scattered RTUs, the reliability/availability of the communication channels involved is therefore key issue for its accuracy, as the SCADA data of a particular measuring point gets stuck in the event of failure of its associated communication link.

- iii) PSTCL has stated that the IEGC and SGC very clearly provide for the limits of overdrawl from schedule on SCADA data with reference to prevailing frequency of the system on real time basis and respondent is required to maintain its drawl within its schedule as per IEGC. For this, it is his responsibility to keep a track of system availability as well as running load. SLDC is only required to inform in case of grid violations for maintaining safety & security of the grid.
- iv) PSTCL has stated that the respondent PSPCL in its reply has already submitted the details of its over-drawal/ under-drawal based on SCADA data (Annexure-B of reply). It may be seen that though the over-drawal of respondent as worked out from SCADA data is slightly lesser as compared to that of SEM data, yet the Over-Drawal is in the range of 2.20% to 6.92% of the scheduled drawal, which is still a violation of regulation 6.4.8 of the IEGC, 2010.
- v) That during the period 1<sup>st</sup> May 2012 to 31<sup>st</sup> July 2012, there were 990 time blocks when the frequency of the NEW Grid was 49.5 Hz or below and that during the above period, the respondent was overdrawing around 2 to 3% of the scheduled power from the grid on real time, when the frequency was 49.5 Hz or below. This is a violation of Regulation 5.4.2(b) of the IEGC, 2010, as explained under Para-3 of the petition, which provided that there should be no overdrawl when frequency is 49.5 HZ or below.

That during the 92 days (1<sup>st</sup> May 2012 to 31<sup>st</sup> July 2012), there were - 4085 time blocks when the frequency was below 49.7 Hz and that out of these time blocks, the Unscheduled Interchange of respondent was more than 12% of the scheduled drawal for 22.68% to 49.41% of the time blocks. Likewise Unscheduled over-drawal of respondent was more than 3% of the scheduled drawal on an aggregate daily basis (percentage 9.68% to 30%).

- vi) There have been grid violations due to over draws by the Respondent, whether the same are worked out on SCADA or SEM data basis, as far as post analysis is concerned. It may be added here that A,B and C messages are issued on SCADA based real time data and the fact that B and C messages have indeed been issued to Punjab SLDC which were further immediately reissued to PSPCL representative in SLDC control room establish that Respondent was overdrawing on SCADA also and violating the Grid Discipline.
- vii) PSTCL has submitted that the contention of the respondent (PSPCL) as per Para 26 of the reply that SLDC has not been allowing over drawal when frequency is more than 50 Hz is in violation of the grid code and UI Regulations is wrong and hence denied. PSTCL have stated that as per the directions from NRLDC subsequent to the Grid Failure on 30th/31st July, 2012, there are strict instructions to SLDCs for not allowing the over drawals irrespective of the frequencies. SLDC is bound to follow the instructions of NRLDC as per the provisions under the Act.

After hearing the petitioner and respondent on 08.01.2013, further hearing was closed. Order was reserved.

5. **Decision of the Commission:**

The Commission has gone carefully through the submissions of petitioner and respondent. After considering the same, the Commission decides to issue following directions to both the Utilities:

- i. PSPCL is directed to take necessary measures for more accurate demand estimates and plan in advance for power procurement to meet

with the energy requirements of the State and they should make best efforts to avoid unscheduled interchange/ overdrawl from the grid.

- ii. PSPCL is directed to cooperate with PSTCL in letter and spirit while defending important matters in Hon'ble CERC and other courts. PSPCL's failure to provide requisite inputs regarding overdrawls and its justification in NRLDC petition No. 125/ MP / 2012 alongwith IA No(s) 25/2012, 35/2012, 38/2012 and 45/2012 (under consideration of Hon'ble CERC) in the matter of Effecting Proper Load Management by Northern Region Constituents being defended by PSTCL is not acceptable. Such non-responsive attitude on the part of PSPCL undermines the authority of SLDC vested under the Electricity Act, 2003.
- iii. PSPCL should ensure timely action for complying with the instructions issued by NRLDC/ SLDC for giving required load relief when the State is over drawing and grid is over-stressed so as to avoid situations under which NRLDC issues Messages for Grid Protection, namely messages of the "A", "B" and "C" type.
- iv. Both PSPCL and PSTCL in consultation with the "Operation and Coordination Committee" constituted under the provisions of the Punjab State Grid Code (PSGC), should identify such Sub-stations which can be disconnected under critical grid conditions from their respective ends and formulate suitable Automatic Demand Management Schemes as per the provisions laid down under Regulations 5.4.2 (d) of the IEGC-2010.
- v. PSTCL should take necessary steps to ensure proper functioning of RTUs/ Telemetry system so as to minimize the difference between the recording of parameters through SCADA & SEM.
- vi. Govt. of Punjab is advised Under Section 31 of the Electricity Act, 2003 to separate SLDC from PSTCL to make it a separate company on the lines of Power Operation System Co. Ltd. (POSOCO) formed by Government of India.

The petition is disposed of with the directions as above.

**Sd/-**  
**(Gurinderjit Singh)**  
**Member**  
**Chandigarh**  
**Dated: 16.01.2013**

**Sd/-**  
**(Virinder Singh)**  
**Member**

**Sd/-**  
**(Romila Dubey)**  
**Chairperson**