



**SCHEDULING & DESPATCH
PROCEDURE FORMULATED AS
PER PROVISION 31.1 OF DELHI
GRID CODE**

SLDC, DELHI

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1. INTRODUCTION

Central Electricity Regulatory Commission (CERC) approved the concept of implementation of Availability Based Tariff (ABT) vide its order dated 04.01.2000. Northern Regional Electricity Board (NREB) in the meeting held on 16.9.2002 decided to implement the Availability Based Tariff w.e.f. 1st December 2002 in Northern Region. The Northern Grid was subsequently integrated with North East–East–West grid in August 2006 forming NEW Grid. On 31.12.2013, the NEW Grid also got synchronized with the southern grid forming a whole single electrical grid in the country.

After the formation of NEW Grid, the frequency regime has also improved a lot. However, the formation of the NEW Grid has necessitated monitoring of other parameters such as inter regional transmission line loadings, voltage profiles etc. apart from frequency. The country has seen two major disturbances on 30.07.2012 and 31.07.2012. The reason of the Grid disturbances was not low frequency operation of the grid but the reasons like crossing of line loading limits of Inter-Regional transmission lines, voltage variation etc. Further, Central Commission has tightened the permissible frequency band for normal operation from time to time as follow:

Duration	Permissible Frequency Band
1 st July 2002 – 30 th March 2009	49.0Hz – 50.5 Hz
1 st April 2009 – 2 nd May 2010	49.2Hz – 50.3 Hz
3 rd May 2010 – 16 th September 2012	49.5Hz – 50.2 Hz
17 th September 2012 – 16 th February 2014	49.7Hz – 50.2 Hz
17 th February 2014 – till date	49.90Hz – 50.05 Hz

2. SALIENT FEATURES OF TARIFF UNDER ABT REGIME

In the ABT regime, the tariff is based on following:-

- i. Capacity charges are payable to Generators in the ratio of MW allocation from the station to the declared capacity irrespective of drawal. These charges are to be paid to generators at the target availability fixed by the appropriate Electricity Regulatory Commission. In case the generators could not achieve the said target availability fixed for recovery of full fixed charges the same would be reduced on pro-rata basis to the availability achieved by the generator. In case the generator achieved more availability than the target availability fixed for recovery of full fixed charges incentive would be paid to the generators.
- ii. Variable charges are payable to the Generators on the scheduled energy from the station.
- iii. Deviation charges - the difference between actual drawal and scheduled drawal in case of State utilities where as difference between actual Ex-bus generation and scheduled Ex-bus generation in case of generators.

The Deviation amount is computed on the basis of CERC regulations in this regard.

The charges for the Deviations for all the time-blocks shall be payable for over drawal by the buyer and under-injection by the seller and receivable for under-drawal by the buyer and over-injection by the seller and shall be worked out on the average frequency of a

time-block at the rates (as per CERC notification dated 06.01.2014 applicable from 17.02.2014) as reproduced hereunder:-

5. Charges for Deviations:

- (1) The charges for the Deviations for all the time-blocks shall be payable for over drawal by the buyer and under-injection by the seller and receivable for under-drawal by the buyer and over-injection by the seller and shall be worked out on the average frequency of a time-block at the rates specified in the table below as per the methodology specified in clause (2) of this regulation:

The charges for Deviation according to the above regulation are as under:

Average Frequency of the time block(Hz)		Charges for Deviation
Below	Not Below	Paise/kWh
	50.05	0.00
50.05	50.04	35.60
50.04	50.03	71.20
50.03	50.02	106.80
50.02	50.01	142.40
50.01	50.00	178.00
50.00	49.99	198.84
49.99	49.98	219.68
49.98	49.97	240.52
49.97	49.96	261.36
49.96	49.95	282.20
49.95	49.94	303.04
49.94	49.93	323.88
49.93	49.92	344.72
49.92	49.91	365.56
49.91	49.90	386.40
49.90	49.89	407.24
49.89	49.88	428.08
49.88	49.87	448.92
49.87	49.86	469.76
49.86	49.85	490.60
49.85	49.84	511.44
49.84	49.83	532.28
49.83	49.82	553.12
49.82	49.81	573.96
49.81	49.80	594.80
49.80	49.79	615.64
49.79	49.78	636.48
49.78	49.77	657.32
49.77	49.76	678.16
49.76	49.75	699.00
49.75	49.74	719.84
49.74	49.73	740.68
49.73	49.72	761.52
49.72	49.71	782.36
49.71	49.70	803.20
49.70		824.04

Provided that-

- (i) the charges for the Deviation for the generating stations regulated by Commission using coal or lignite or gas supplied under Administered Price Mechanism (APM) as fuel, when actual injection is higher or lower than the scheduled generation, shall not exceed the Cap Rate of 303.04 Paise/kWh as per the methodology specified in clause (3) of this regulation:
 - (ii) Provided that no cap rate shall be applicable with effect from 1.4.2014 on the charges for the Deviation for the generating stations regulated by consumer using gas supplied under Administered Price Mechanism (APM) as the fuel.
 - (iii) The charges for the Deviation for the under drawals by the buyer in a time block in excess of 12% of the schedule or 150 MW, whichever is less, shall be zero.
 - (iv) The charges for the Deviation for the over-injection by the seller in a time block in excess of 12% of the schedule or 150 MW, whichever is less, shall be zero, except in case of injection of infirm power, which shall be governed by the clause (5) of this Regulation.
- (2) The Charge for Deviation shall be determined in accordance with the following methodology:
- (a) The Charge for Deviation shall be zero at grid frequency of 50.05Hz and above.
 - (b) The Charge for Deviation corresponding to grid frequency interval of "below 50.01 Hz and not below 50.0 Hz" shall be based on the median value of the average energy charge of coal/lignite based generating stations regulated by the Commission for any six month period preferably from July to December of previous year or from January to June for the year or any other six month period if deemed necessary and suitably adjusted upward to coincide with the Deviation Price Vector.
 - (c) The Deviation Price Vectors shall accordingly, be in steps for a frequency interval of 0.01 Hz between grid frequency of (i) 50.05 Hz and 'below 50.01 Hz and not below 50.0 Hz' and (ii) 'below 50.01 Hz and not below 50.0 Hz' and below 49.70 Hz.
 - (d) The Charge for Deviation at grid frequency "below 49.70 Hz" shall be based on the highest of the average energy charges of generating stations regulated by Commission on RLNG for any six month period preferably from July to December of previous year or from January to June for the year or any other six month period if deemed necessary and suitably adjusted upward to coincide with the Deviation Price Vector.
- (3) The Cap rate for the charges for the Deviation for the generating stations regulated by CERC using coal/lignite or gas supplied under Administered Price Mechanism (APM) as the fuel, shall be the value coinciding with the energy charges on imported coal on Deviation Price Vector.
- (4) The Charges for Deviation may be reviewed by the Commission from time to time and shall be re-notified accordingly.

- (5) The infirm power injected into the grid by a generating unit of a generating station during the testing, prior to COD of the unit shall be paid at Charges for Deviation for infirm power injected into the grid, consequent to testing, for a period not exceeding 6 months or the extended time allowed by the Commission in the Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium-term Open Access and related matters) Regulations, 2009, as amended from time to time, subject to ceiling of Cap rates corresponding to the main fuel used for such injection as specified below:

Domestic coal/ Lignite/ Hydro	Rs 1.78 / kWh sent out
APM gas as fuel	Rs 2.82/ kWh sent out up to 31.3.2014 and thereafter, Rs 5.64/ kWh sent out
Imported Coal	Rs 3.03 / kWh sent out
RLNG	Rs 8.24 / kWh sent out

7. Limits on Deviation volume and consequences of crossing limits

- (1) The over-drawals / under-drawals of electricity by any buyer during a time block shall not exceed 12% of its scheduled drawal or 150 MW, whichever is lower, when grid frequency is "49.70Hz and above"

Provided that no overdrawal of electricity by any buyer shall be permissible when grid frequency is "below 49.70 Hz".

Explanation: The limits specified in this clause shall apply to the sum total of over-drawal by all the intra-State entities in the State including the distribution companies and other intra-State buyers, and shall be applicable at the inter-State boundary of the respective State.

- (2) The under-injection / over-injection of electricity by a seller during a time-block shall not exceed 12% of the scheduled injection of such seller or 150 MW, whichever is lower when frequency is "49.70 Hz and above".

Provided that -

- (i) No under injection of electricity by a seller shall be permissible when grid frequency is "below 49.70 Hz" and no over injection of electricity by a seller shall be permissible when grid frequency is "50.10 Hz and above".
- (ii) Any infirm injection of power by a generating station prior to COD of a unit during testing and commissioning activities shall be exempted from the volume limit specified above for a period not exceeding 6 months or the extended time allowed by the Commission in accordance with the Connectivity Regulations.
- (iii) Any drawal of power by a generating station prior to COD of a unit for the startup activities shall be exempted from the volume limit specified above when grid frequency is '49.70' Hz and above".
- (3) In addition to Charges for Deviation as stipulated under Regulation 5 of these regulations, Additional Charge for Deviation shall be applicable for over-drawal as well as under-injection of electricity for each time block in excess of the volume limit specified in Clause (1) and (2) of this regulation when average grid frequency of the time block is "49.70 Hz and above" at the rates specified in the table A & B below in accordance with the methodology specified in clause (7) of this regulation:

Table-(A)

When 12% of Schedule is less than or equal to 150 MW		
(i)	For over drawal of electricity by any buyer in excess of 12% and up to 15% of the schedule in a time block	Equivalent to 20% of the Charge for Deviation corresponding to average grid frequency of the time block.
(ii)	For over drawal of electricity by any buyer in excess of 15 % and up to 20% of the schedule in a time block	Equivalent to 40% of the Charge for Deviation corresponding to average grid frequency of the time block.
(iii)	For over drawal of electricity by any buyer in excess of 20 % of the schedule in a time block	Equivalent to 100% of the Charge for Deviation corresponding to average grid frequency of the time block.
(iv)	For under injection of electricity by any seller in excess of 12% and up to 15% of the schedule in a time block	Equivalent to 20% of the Charge for Deviation corresponding to average grid frequency of the time block.
(v)	For under injection of electricity by any seller in excess of 15 % and up to 20% of the schedule in a time block	Equivalent to 40% of the Charge for Deviation corresponding to average grid frequency of the time block.
(vi)	For under injection of electricity by any seller in excess of 20 % of the schedule in a time block	Equivalent to 100% of the Charge for Deviation corresponding to average grid frequency of the time block.
B	When 12% of Schedule is more than 150 MW	
(i)	For over drawal of electricity by any buyer is above 150 MW and up to 200 MW in a time block	Equivalent to 20% of the Charge for Deviation corresponding to average grid frequency of the time block.
(ii)	For over drawal of electricity by any buyer is above 200 MW and up to 250 MW in a time block	Equivalent to 40% of the Charge for Deviation corresponding to average grid frequency of the time block.
(iii)	For over drawal of electricity by any buyer is above 250 MW in a time block	Equivalent to 100% of the Charge for Deviation corresponding to average grid frequency of the time block.
(iv)	For under injection of electricity by any seller is above 150 MW and up to 200 MW in a time block	Equivalent to 20% of the Charge for Deviation corresponding to average grid frequency of the time block.
(v)	For under injection of electricity by any seller is above 200 MW and up to 250 MW in a time block	Equivalent to 40% of the Charge for Deviation corresponding to average grid frequency of the time block.
(vi)	For under injection of electricity by any seller is above 250 MW in a time block	Equivalent to 100% of the Charge for Deviation corresponding to average grid frequency of the time block.

Table-(B)

When 12% of Schedule is less than or equal to 150 MW		
(i)	For under injection of electricity by any seller in excess of 12% and up to 15% of the schedule	Equivalent to 20% of the Cap Rate for Deviations of 303.04 Paise /kWh or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
(ii)	For under injection of electricity by any seller in excess of 15 % and up to 20% of the schedule	Equivalent to 40% of the Cap Rate for Deviations of 303.04 Paise /kWh or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
(iii)	For under injection of electricity by any seller in excess of 20 % of the schedule	Equivalent to 100% of the Cap Rate for Deviations of 303.04 Paise /kWh or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
B When 12% of Schedule is more than 150 MW		
(i)	For under injection of electricity by any seller is above 150 MW and up to 200 MW in a time block	Equivalent to 20% of the Cap Rate for Deviations of 303.04 Paise /kWh or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
(ii)	For under injection of electricity by any seller is above 200 MW and up to 250 MW in a time block	Equivalent to 40% of the Cap Rate for Deviations of 303.04 Paise /kWh or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.
(iii)	For under injection of electricity by any seller is above 250 MW in a time block	Equivalent to 100% of the Cap Rate for Deviations of 303.04 Paise /kWh or the Charge for Deviation corresponding to average grid frequency of the time block, whichever is less.

Provided that-

- (i) Additional Charge for Deviation for under-injection of electricity, during a time-block in excess of the volume limit specified in clause (1) and (2) of this regulation when grid frequency is "49.70 Hz and above", by the generating stations regulated by the CERC using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be at the rates specified below in accordance with the methodology specified in clause (9) of this regulation:
- ii) Any drawal of power by a generating station prior to COD of a unit for the start up activities shall be exempted from the levy of additional Charges of Deviation.
- (4) In addition to Charges for Deviation as stipulated under Regulation 5 of these regulations, Additional Charge for Deviation shall be applicable for over-injection/under drawal of electricity for each time block by a seller/buyer as the case may be when grid frequency is "50.10 Hz and above" at the rates equivalent to charges of deviation corresponding to the grid frequency of "below 50.01 Hz but not below 50.0Hz".

- (6) In addition to Charges for Deviation as stipulated under Regulation 5 of these Regulations, Additional Charge for Deviation shall be applicable for over-drawal or under-injection of electricity when grid frequency is "below 49.70 Hz" in accordance with the methodology specified in clause (8) of this regulation and the same shall be equivalent to 100% of the Charge for Deviation of 824.04 Paise/kWh corresponding to the grid frequency of "below 49.70 Hz".

Provided further that Additional Charge for Deviation for under-injection of electricity by a seller, during the time-block when grid frequency is "below 49.70 Hz", by the generating stations regulated by CERC using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel in accordance with the methodology specified in clause 8 of this regulation shall be equivalent to 100% of the Cap Rate for Deviations of 303.04 Paise/kWh.

- (7) The Additional Charge for Deviation for over-drawal and under-injection of electricity for each time block in excess of the volume limit specified in clause (1) and (2) of this Regulation when grid frequency is "49.70 Hz and above" shall be as specified by the Commission as a percentage of the charges for the Deviation corresponding to average grid frequency of the time block with due consideration to the behavior of the buyers and sellers towards grid discipline:

Provided that the Commission may specify different rates for additional Charges for Deviation for over drawals and under injections depending upon different % deviation from the schedule in excess of the volume limit specified in clause (1) and (2) of this Regulation.

- (8) The additional Charge for Deviation for over-drawals and under-injection of electricity for each time block when grid frequency is "below 49.70 Hz" shall be as specified by the Commission as a percentage of the charges for the Deviation corresponding to average grid frequency of the time block with due consideration to the behavior of the buyers and sellers towards grid discipline:

Provided that the Commission may specify different rates for Additional Charges for Deviation for over drawals and under injections and for different ranges of frequencies "below 49.70 Hz".

- (9) The Additional Charge for Deviation for under-injection of electricity during the time-block in excess of the volume limit specified in Clause (2) of this regulation when grid frequency is "49.70 Hz and above", by the generating stations regulated by CERC using coal/lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be as specified by the Commission as a percentage of the Cap Rate or the Charges for Deviation corresponding to the grid frequency of the time block, or both with due consideration to the behavior of the generating stations regulated by CERC towards grid discipline:

- (10) In the event of sustained deviation from schedule in one direction (positive or negative) by any regional entity, such regional entity (buyer or seller) shall have to make sign of their deviation from schedule changed, at least once, after every 12 time blocks. To illustrate, if a regional entity has positive deviation from schedule from 07.30 hrs to 10.30 hrs, sign of its deviation from schedule shall be changed in the 13th time block i.e. 10.30 to 10.45 hrs from positive to negative or negative to positive as the case may be.

- (11) Payment of Charges for Deviation under Regulation 5 and the Additional Charges for Deviation under Clauses (3) and (4) of this regulation, shall be levied without prejudice to any action that may be considered appropriate by the Commission under Section 142 of the Act for contravention of the limits of over-drawal/ under drawal or under-injection /over-injection as specified in these regulations, for each time block or violation of provision of clause 10 of these regulations.
- (12) The charges for over-drawal/ under-injection and under-drawal/ over-injection of electricity shall be computed by the respective Regional Power Committee in accordance with the methodology used for preparation of "Regional Energy Accounts".
- (13) The Regional Load Dispatch Centre shall, on monthly basis, prepare and publish on its website the records of the Deviation Accounts, specifying the quantum of over-drawal/ under-injection and corresponding amount of Charges for Deviation payable/receivable for each buyer and seller for all the time-blocks when grid frequency was "49.90Hz and above" and "below 49.90" Hz separately."

9. Accounting of Charges for Deviation

- (1) A statement of Charges for Deviations including Additional Charges for Deviation levied under these regulations shall be prepared by the Secretariat of the respective Regional Power Committee on weekly basis based on the data provided by the concerned RLDC(s) by the Thursday of the week and shall be issued to all constituents by next Tuesday, for seven day period ending on the penultimate Sunday mid-night.
- (2) All payments on account of Charges for Deviation including Additional Charges for Deviation levied under these regulations and interest, if any, received for late payment shall be credited to the funds called the "Regional Deviation Pool Account Fund", which shall be maintained and operated by the concerned Regional Load Dispatch Centre in each region in accordance with provisions of these regulations.

Provided that -

- (i) The Commission may by order direct any other entity to operate and maintain the respective "Regional Deviation Pool Account Fund":
 - (ii) Separate books of accounts shall be maintained for the principal component and interest component of Charges for Deviation and Additional Charges for Deviation by the Secretariat of the respective Regional Power Committee.
- (3) All payments received in the "Regional Deviation Pool Account Fund" of each region shall be appropriated in the following sequence:
 - (a) First towards any cost or expense or other charges incurred on recovery of Charges for deviation.
 - (b) Next towards over dues or penal interest, if applicable.
 - (c) Next towards normal interest.
 - (d) Lastly, towards charges for deviation and additional charges for deviation.

3 INTRASTATE ABT OPERATION IN DELHI

In the second phase of Power Reforms undertaken in Delhi, the Power Purchase responsibilities have been entrusted to Distribution Licensees / Deemed Distribution licensees from 01.04.2007. The PPAs entered into with various supply agencies by erstwhile DESU / DVB / DTL have been reassigned to these licensees by the order of Delhi Electricity Regulatory Commission (DERC) dated 31.03.2007.

The Intrastate ABT has also been introduced in Delhi from 01.04.2007.

4. IMPLEMENTATION OF DEVIATION SETTLEMENT MECHANISM IN DELHI (FOR INTRA STATE UTILITIES)

In consonance with the above Deviation Settlement Mechanism of CERC, the same regulation will be applicable for intra state operations vide DERC order dated 03.08.2010.

The limits on over-drawal and under drawal by the beneficiaries shall be as follows:

For Overdrawal in 3 slabs are there:

S. No.	Name of the Utility	Over-drawal			
		% of its scheduled drawal	For 150 MW	For 200 MW	For 250 MW
1.	BRPL	12%	57	76	95
2.	BYPL	12%	35	47	58
3.	TPDDL	12%	38	50	63
4.	NDMC	12%	17	23	29
5.	MES	12%	03	4	5
TOTAL		12%	150	200	250

For Under Drawal:

S. No.	Name of the Utility	Under-drawal	
		% of its scheduled drawal	MW
1.	BRPL	12%	57
2.	BYPL	12%	35
3.	TPDDL	12%	38
4.	NDMC	12%	17
5.	MES	12%	03
TOTAL		12%	150

All the above limits shall be applicable simultaneously and for the purpose of calculation of Deviation charges, additional Deviation charges and invoking of penal provisions as per the Act/Regulation/Orders/IEGC/State Grid Code.

5. NETWORK SECURITY AND SYSTEM OPERATION

In order to maintain the Security of the Power System in real time operation Grid Parameters viz frequency, voltage etc. should remain close to normal values. It is also important that adequate margins are available in all transmission corridors (inter regional as well as intra regional) to take care of large contingencies in any region of the North – East –West-South Grid.

A. Frequency Control

- Each Licensee / Generating Station shall make all possible efforts to ensure maintenance of System frequency within the allowable band i.e. 49.90Hz to 50.05 Hz as per IEGC (Second Amendment) w.e.f. 17.02.2014.
- Action by Distribution Licensees: As per the provisions of Indian Electricity Grid Code (IEGC), Delhi Grid Code (DGC), Distribution / Deemed Distribution Licensees shall restrict their demand so that difference between scheduled drawal and actual drawal should be within the respective limits fixed by DERC vide its order dated 03.08.2010.

All distribution/deemed distribution licensees should ensure that state as a whole do not deviate actual drawal from scheduled beyond the stipulated quantum. If deviation is more than limit then overdrawing utilities should maintain their drawal considering total overdrawal and individual drawal of the utilities. In case Automatic Demand Management Scheme (ADMS) is not in operation due to any reason, manual load shedding should be carried out to maintain the limits.

In case of certain system contingencies and/or threat to system security, the State Load Despatch Centre (SLDC) may direct the Distribution / Deemed Distribution Licensees to decrease their drawals and such Distribution / Deemed Distribution Licensees shall act upon such directions immediately. SLDC shall advise the utilities to restore the system as soon as normalization of system parameters takes place.

Distribution / Deemed Distribution Licensees shall make arrangements that will enable manual disconnection to take place as instructed by the SLDC.

As mentioned in clause 5.4.2(d) of IEGC, Distribution Licensees shall formulate and implement state-of-the-art demand management schemes for automatic demand management like rotational load shedding, demand response (which may include lower tariff for interruptible loads), to reduce overdraw in order to comply para 5.4.2(a) and (b).

- (a) *SLDC/ SEB/distribution licensee and bulk consumer shall initiate action to restrict the drawal of its control area, from the grid, within the net drawal schedule.*
- (b) *The SLDC/ SEB/distribution licensee and bulk consumer shall ensure that requisite load shedding is carried out in its control area so that there is no overdrawal.*

The directions of SLDC shall be verbal at 1st instance followed by in writing. In case of emergency situations Licensees should not insist for writing directions. However, the written directions would be issued when normalcy returns, for the records.

■ **Action by Generating Companies (GENCOs):**

The Generating Stations are normally expected to generate power according to the daily schedules advised to them barring any inadvertent deviations. Maximum deviation allowed during a time block shall not exceed the limits specified in the Deviation Settlement Mechanism Regulations. Such deviations should not cause system parameters to deteriorate beyond permissible limits and should not lead to unacceptable line loadings.

Inadvertent deviations, if any, from the ex-power plant generation schedules shall be appropriately priced in accordance with Deviation Settlement Mechanism Regulations. In addition, deviations from schedules causing congestion, shall also be priced in accordance with the Central Electricity Regulatory Commission (Measure to relieve congestion in real time operation) Regulations, 2009." (This is as per amended IEGC clause 6.4.10).

■ **Action by SLDC:**

One of significant clauses of the Deviation Settlement Mechanism stipulations:

“In the event of sustained deviation from schedule in one direction (positive or negative) by any regional entity, such regional entity (buyer or seller) shall have to make sign of their deviation from schedule changed, at least once, after every 12 time blocks. To illustrate, if a regional entity has positive deviation from schedule from 07.30 hrs to 10.30 hrs, sign of its deviation from schedule shall be changed in the 13th time block i.e. 10.30 to 10.45 hrs from positive to negative or negative to positive as the case may be.”

In this regard SLDC would observe the drawal pattern of the Delhi State as a whole.

In case of Delhi is overdrawing continuously for 3 hour, then real time operator will have to curtail the load and the polarity of drawal will have to be reversed.

In case of Delhi is under drawing continuously for 3 hour, then real time operator will have to back down the generation in merit order dispatch so that the under-drawal reverses.

SLDC would observe the drawal pattern of the buyers/sellers & attention would also be drawn to avert willful over drawal/under generation. SLDC shall also be duty-bound to observe the relevant clauses of IEGC and DGC for maintaining the system stability. The relevant clauses of IEGC and DGC in this regard are reproduced hereunder:-

IEGC Clauses

5.4 Demand Management

5.4.1 Introduction

This section is concerned with the provisions to be made by SLDCs to effect a reduction of demand in the event of insufficient generating capacity, and inadequate transfers from external interconnections to meet demand, or in the event of breakdown or congestion in intra-state or inter-state transmission system or other operating problems (such as frequency, voltage levels beyond normal operating limit, or thermal overloads , etc.) or overdrawal of power vis-à-vis of the regional entities beyond the limits mentioned in DEVIATION regulation of CERC

5.4.2 Demand Disconnection

- (a) *SLDC/ SEB/distribution licensee and bulk consumer shall initiate action to restrict the drawal of its control area, from the grid, within the net drawal schedule.*
- (b) *The SLDC/ SEB/distribution licensee and bulk consumer shall ensure that requisite load shedding is carried out in its control area so that there is no overdrawal.*

- c) *Each User/STU/SLDC shall formulate contingency procedures and make arrangements that will enable demand disconnection to take place, as instructed by the RLDC/SLDC, under normal and/or contingent conditions. These contingency procedures and arrangements shall regularly be / updated by User/STU and monitored by RLDC/SLDC. RLDC/SLDC may direct any User/STU to modify the above procedures/arrangement, if required, in the interest of grid security and the concerned User/STU shall abide by these directions.*
- d) *The SLDC through respective State Electricity Boards/Distribution Licensees shall also formulate and implement state-of-the-art demand management schemes for automatic demand management like rotational load shedding, demand response (which may include lower tariff for interruptible loads) etc. before 01.01.2011, to reduce overdrawal in order to comply para 5.4.2 (a) and (b). A Report detailing the scheme and periodic reports on progress of implementation of the schemes shall be sent to the Central Commission by the concerned SLDC.*
- e) *In order to maintain the frequency within the stipulated band and maintaining the network security, the interruptible loads shall be arranged in four groups of loads, for scheduled power cuts/load shedding, loads for unscheduled load shedding, loads to be shed through under frequency relays/ df/dt relays and loads to be shed under any System Protection Scheme identified at the RPC level. These loads shall be grouped in such a manner, that there is no overlapping between different Groups of loads. In case of certain contingencies and/or threat to system security, the RLDC may direct any SLDC / SEB/ Distribution Licensee or bulk consumer connected to the ISTS to decrease drawal of its control area by a certain quantum. Such directions shall immediately be acted upon. SLDC shall send compliance report immediately after compliance of these directions to RLDC.*
- f) *To comply with the direction of RLDC, SLDC may direct any SEB/ distribution licensee/bulk consumer connected to the STU to curtail drawal from grid. SLDC shall monitor the action taken by the concerned entity and ensure the reduction of drawal from the grid as directed by RLDC.*
- g) *RLDCs shall devise standard instantaneous message formats in order to give directions in case of contingencies and/or threat to the system security to reduce deviation from schedule by the bulk consumer, SLDC/StateUtility/ ISGS/Regional Entity/Injecting Utility at different overdrawal/under-drawal/over-injection/under-injection conditions depending upon the severity. The concerned SLDC/other regional entity shall ensure immediate compliance with these directions of RLDC and send a compliance report to the concerned RLDC..*
- h) *All Users, SLDC/ SEB/distribution licensee or bulk consumer shall comply with direction of RLDC/SLDC and carry out requisite load shedding or backing down of generation in case of congestion in transmission system to ensure safety and reliability of the system. The procedure for application of measures to relieve congestion in real time as well as provisions of withdrawal of congestion shall be in accordance with Central Electricity Regulatory Commission (Measures to relieve congestion in real time operation) Regulations, 2009.*
- i) *The measures taken by the User's, SLDC SEB/distribution licensee or bulk consumer shall not be withdrawn as long as the frequency remains at a level lower than the limits specified in para 5.2 or congestion continues, unless specifically permitted by the RLDC/SLDC.*

Delhi Grid Code Clauses

23 Demand forecast

23.1 *The SLDC shall set out the responsibilities for short term (one day to 52 weeks) demand estimation of active power as well as reactive power. It shall also provide for procedures as well as timelines to be followed for exchange of information between concerned entities for arriving at these estimates/forecasts:*

Provided that the SLDC shall refer to the demand forecast considered by the STU while developing the transmission system plan under Regulation 9 of these Regulations.

23.2 *The demand estimation shall cover the time scales as applicable for operational purposes. The time scales should be decided after giving due considerations to the requirements under other existing Regulations for furnishing demand forecast related information.*

24 Manual Demand Disconnection

24.1 *Users shall endeavor to restrict their actual drawal within their respective drawal schedules (As per amended IEGC w.e.f 17.02.2014):*

Provided that, in case of frequency falling below 49.9 Hz. (changed in consonance with IEGC 2010), the SLDC shall direct the concerned Users to effect manual load shedding to curtail over-drawal:

Provided further that such directions shall include the time period or the system conditions until which the issued directions shall be applicable.

24.2 *In case of certain contingencies and/or threat to system security, the State Load Despatch Centre may direct Users to decrease their drawals and such Users shall act upon such directions immediately:*

Provided that any non-compliance with such directions shall be dealt with as per provisions of Regulation 35 of these Regulations.

24.3 *Users shall make arrangements that will enable manual disconnection to take place as instructed by the SLDC.”*

In IEGC and Deviation Mechanism Settlement, the State as a whole is taken as one control area. In the context of maintenance of Grid discipline, if the State as whole falls in the Grid violation range as stipulated above, necessary load regulations needs to be carried out by the Intrastate Utilities.

No load regulation shall take place in case any Discom (s) overdraw when Delhi as a whole underdraws from the grid under low frequency conditions stipulated in IEGC.

B. Voltage Control

- Each Distribution / Deemed Distribution Licensee / Generating Station shall make all possible efforts to ensure maintenance of System voltage within the

normal range. As per DGC, the users and transmission licensees shall make all possible efforts to ensure grid voltage always remain with the following operating range:

	Voltage- (kV rms)		
	Nominal	Maximum	Minimum
	400	420	380
	220	245	198
	66	72	60
	33	36	30
	11	11.4	10.6

Subject to changes in IEGC / DGC provisions.

■ **Action by Transmission / Distribution / Deemed Distribution Licensees**

The licensees are expected to provide local VAR compensation so that they do not draw any VARs from the grid during low voltage conditions and do not inject any VARs to the grid during high voltage conditions. Licensees shall also resort to load management for controlling voltage. The On-Load Tap Changers (OLTCs) on the transformers wherever available, should also be used to maintain voltage profile.

■ **Action by Generating Companies (GENCO)**

In order to improve the overall voltage profile, the generators shall run in a manner so as to have counter balancing action corresponding to low / high system voltage and to bring it towards the nominal value. Generators shall generate reactive power during low voltage conditions and absorb reactive power during high voltage conditions as per the capability limits of machines.

- **Action by SLDC:** In case Licensees and the GENCOs do not take the requisite measures and voltage drops down to critically low levels, then SLDC may resort to regulatory measures by opening lines feeding load in the areas of defaulting licensees.

6. DEMAND ESTIMATION AND CONTROL

- Demand estimation and control is essentially the responsibility of Distribution / Deemed Distribution Licensees. SLDC would give instructions to Licensees on demand control whenever the same has a bearing on security of the grid and such instructions would have to be complied forthwith by all Licensees.
- To maintain the balance between availability and requirement proper scheduling is to be carried out for which each Distribution / Deemed licensees will intimate their load projections for the succeeding day in each 15 minutes time block. If no schedule is received, the previous days schedule taken into consideration of normal days / holidays etc, will be taken into account for compiling the consolidated daily requirement to be forwarded to NRLDC. In case no schedule is received from GENCOs, the present day actual generation shall form the despatch schedule for GENCOs for the succeeding day.

- While requisitioning power requirement, the Distribution / Deemed Distribution licensees should keep in mind the minimum technical requirement to ensure the continuity of the generation of the running machines of the generating stations and the maximum availability. More precisely, the maximum requirement to minimum requirement should not be less than 70% of the respective available capacity in case of Thermal Stations of Central Sector Generating Stations except Badarpur Thermal Power Station (BTPS). The requisition from Central Sector Gas stations should not be less than 60% of the available capacity on the normal conditions and 50% under extreme emergency conditions. The requisition from Center Sector Hydro and Nuclear stations would depend upon the generation schedule fixed by RLDC with no conditions attached. However RLDC adjusts the schedule of the hydro source depending upon storage capacity and requirement of the grid. For Nuclear stations, no variation is possible due to technical constraints associated to the stations.
- As far as BTPS is concerned, the requisition should not be less than 80% ex-bus capacity of the running machines.
- The Pragati Power Corporation Ltd. can not go below 80% ex-bus capacity of the running machines of Pragati Gas Station-I due to the pollution stipulations (NOX level).
- Bawana CCGT can also not go beyond 75% Ex-bus capacity of running machines due to pollution stipulations.
- The full requisition of RPH availability should be maintained considering the age of the stations as well as being the core generation. As far as IPGCL's Gas station is concerned the requirement should not be less than 70% ex-bus capacity of the running machines due to technical constraints and pollution stipulations.

7 (A). TIME TABLE FOR EXCHANGE OF INFORMATION IN RESPECT OF SCHEDULING

TIME	ACTIVITY				
By 09.00Hrs.	ISGS shall declare NRLDC the station wise MW and MWh capabilities.				
By 09.00Hrs.	1.BTPS, IPGCL , PPCL shall declare the availability in 15 minutes time block in terms of MW and MWH. in the following formats to SLDC				
Action by- Genco	Statement indicating declared capacity for.....				
	Time Block in hrs.	AVAILABILITY IN MW AND MWH			
		RPH	GT	PRAGATI	BTPS
	00.00-00.15				
	00.15 - 0030				

	23.45-24.00				
	Total in Mus				
By 10.00Hrs.	Entitlement of state shall be posted by NRLDC in their website www.nrldc.in for Central Sector				
By. 10.00Hrs.	SLDC shall post the State generators availability in its website www.delhisldc.org .				
By. 10.30Hrs.	Distribution/Deemed Licensees shall indicate their shortages/surplus for IDT on day ahead basis.				
By 11.00Hrs.	SLDC shall post the DISCOMs entitlement in its website				
By 11.15 Hrs.	Inter Discom transfer of power would be finalized by SLDC for the next day.				
By 13.00Hrs.	Licensees namely, BSES Yamuna Power Ltd, BSES Rajdhani Power Ltd, North Delhi Power Ltd., NDMC and MES shall intimate the SLDC power requirement for succeeding day in terms in MW and MWH in 15 minutes time block. Statement showing source wise requirement for dated..... Name of the Utility.....				
	Time Block in hrs.	Power Requirement in MW	Energy requirement in MWh		
	00.00 - 00.15				
	00.15 - 00.30				

	23.45-24.00				
	Total in Mus.				
By 15.00Hrs. Action by - SLDC	SLDC shall assess the requirement of power from all sources and intimate the same to NRLDC				
By 17.00Hrs.	NRLDC shall convey the net drawal schedule for Delhi and posted in the website.				
By 18.00hrs.	SLDC shall post on the website the provisional drawal schedule of Discoms and generation schedule of Gencos based on provisional drawal schedule of Delhi as a whole posted in NRLDC website.				
By 19.00Hrs. Action by Genco/Licensees	The generating stations of Genco / licensees shall under extreme emergency alter the schedule of generation / requirement and intimate the same to SLDC for forwarding the same to NRLDC for incorporation in final drawal schedule of Delhi.				
By 22.00Hrs. Action by- SLDC	SLDC shall inform the modification if any, for incorporating in the final drawal schedule to NRLDC.				
By 23.00Hrs. Action by NRLDC	NRLDC shall issue the final drawal schedule of Delhi state along with other states and posted in their website.				
By 23.30Hrs. Action by- SLDC	SLDC shall compute and post on the web site the drawal schedule of Discoms and generation schedule of generating stations within Delhi based upon the availability from Central Sector stations bilateral agreements entered into by various distribution licensees for the next day.				

B. For Bawana CCGT project the day ahead scheduling procedures are as under :

Process for Scheduling (for succeeding day)

- By 09:00 Hrs -** Bawana CCGT shall advise Delhi SLDC MW and MWh Capabilities of the station as per IEGC provisions.
- By 10:00 Hrs -** Delhi SLDC shall post entitlement of the beneficiaries from Bawana in the Delhi SLDC's website www.delhisldc.org
- By 13:00 Hrs -** Beneficiaries shall intimate Delhi SLDC the requirement of power from Bawana CCGT in terms of MW and MWh in 15 minutes time block.
- By 15:00 Hrs -** SLDC shall assess the requirement of power from all beneficiaries and intimate the same to Bawana CCGT through website.

NRLDC and other respective SLDCs shall also be intimated regarding the drawal schedule of States outside Delhi from Bawana CCGT by the time.

In case of persistent under drawal or over drawal SLDC shall intimate the concern utilities restrict the same and in case no action is taken within half an hour SLDC shall initiate necessary corrective actions such as scheduling power or reduce the power scheduled on merit order, and in case no other option except load shedding, the same has to be carried out in case of over drawal.

While computing Generation Schedule, Delhi SLDC shall take care the minimum requirement to run the units of the station. However Discoms can revise their requisition from different stations at any time .It will be implemented from 4th time block. In case of Central sector generating stations two additional blocks may be allowed for getting the requirement implemented by RLDC. Utilities need to send their final requisition/Declared Capacities including total revisions through out the day on daily basis for reconciliation purpose at the time of preparation of implemented schedule.

In case of discrepancy in the last revision of a particular day is noticed, the same will be brought in the notice of SLDC within 3 days by all the utilities, otherwise it will be treated as implemented schedule. However SLDC can make the corrective changes.

In addition to above intraday scheduling changes also take place as per the provisions of IEGC which should be incorporated by SLDC in the scheduling on real time basis and distribution licensees shall follow these revise schedules for regulation of the drawal as per the system parameters.

Apart from above the real time NRLDC/SLDC instructions shall be binding to all, in order to maintain the normal grid parameters. Even though discoms are free to place requisition from various sources, the following methodology would be adopted for scheduling to ensure secure operation of the grid.

Case 1: When requirement is less than minimum technical limit of a generator

Example:

DC of BTPS : 650 MW

Total requirement of Utilities: 280MW

Minimum requirement to run the plant to ensure secure grid operation: 400 MW (may change as per grid conditions)

Description:

The total requirement of the utilities is 280MW. To ensure minimum technical requirement to run the station, additional 120MW is required to be booked to the utilities.

In this case the utility (ies) whose requisition(s) is / are more than the technical minimum limit, they would get full schedule as per their requirement. The rest of the additional power required to be scheduled to ensure minimum technical limit will be scheduled to other utilities. A sample example of scheduling is given as under:-

UTILITY	Requirement	Entitlement		MW Share to run the technical limit	Drawal schedule in MW
	MW	%	MW		
BRPL	100	33.2	216	133	128
BYPL	70	20.17	131	81	78
TPDDL	0	21.81	142	87	84
NDMC	80	17.73	115	71	80
MES	30	7.09	46	28	30
TOTAL	280	100	650	400	400

Case 2: When generation schedule is less than total requirement

DC of BTPS: 650 MW
 Sum of requisition from all utilities: 550 MW
 Running DC (Injection Schedule): 400 MW

In this case power would be scheduled to the utilities in the proportion to their requirements.

C. Scheduling of Un-Requisitioned Surplus (URS) power:

Un-Requisitioned Surplus power is the power left over in the source(s) due to non-utilization of the full entitlement by the utilities. It disappears, when the original beneficiary schedules the full entitlement.

Delhi Power Procurement Group in its meeting held on 17.06.2014 has decided the methodology of URS as under:

The URS power available for Delhi utilities by virtue of not utilizing the full entitlement from the plants would be scheduled to the needy utilities as per the requirement placed before SLDC. The SLDC shall book the same in proportion to the requirement and would draw out monthly schedule of URS power booked to each utility. The availing utility would pay the variable charges according to the schedule and also pay 50% of the fixed charges calculated on normative availability factor fixed for recovery of full fixed charges as per relevant tariff regulations.

SLDC shall issue the monthly accounts of URS along with the State Energy Accounts. The allocation for recovery of fixed charges would also be indicated in the accounts considering the 50% fixed charges each for the availing utility and original allottee corresponding to the URS energy availed. It was also decided to implement the scheme from today onwards i.e. 17.06.2014. It was also decided that the availing utility of URS would place the requisition through E mail to SLDC control room on real time basis and also provide a copy of the same to Energy Accounting Division of SLDC through the e mail (dtldata@gmail.com) for having proper records for accurate account preparation of URS energy.

8. SYSTEM CONTIGENCIES

A. OUTAGE OF MAJOR GENERATING UNITS

In the event of outage of major generating Units in the region resulting into lesser availability the situation would be controlled by the following methods.

i) Action by Gencos

To maximize the availability from the generating stations within the permissible safe parameters of the machine as per the directions of SLDC.

ii) Action by Distribution / Deemed Distribution Licensees

Licensees shall resort to frequency/voltage based Load management as per the directions of SLDC to maintain the grid parameters as provided in Delhi Grid Code / IEGC.

iii) Action by SLDC

SLDC shall manage the availability and requirement by issuing instructions to GENCOs and Distribution / Deemed Distribution Licensees to maximize the generation and reduce the load respectively to maintain the grid parameters within normal limits as per the provisions of Delhi Grid Code / IEGC.

B. SUDDEN REDUCTION OF LOAD

In the event of load crash in the System due to weather changes or other reasons, the situation would be controlled by the following methods:

i) Action by Gencos

Backing down or closing down of generating units (as per the advice of SLDC).

ii) Action by Distribution / Deemed Distribution Licensees

Lifting of the load restrictions, if any

9. DATA REQUIREMENT AND VERIFICATION IN RESPECT OF ABT METERING & ACCOUNTS

The State Transmission Utility (STU) shall install and maintain ABT compliant meters in all energy exchange points. The installation, maintenance, testing and data transfer etc shall be as per the provisions drawn out in detailed Metering Procedures formulated and notified by the STU (now DTL) with the approval of the State Electricity Regulatory Commission. SLDC shall prepare the weekly Deviation Settlement accounts based on the meter readings provided by the STU and injection schedules of generating utilities and drawal schedule of Distribution utilities based on daily implemented schedules drawn out by SLDC and other utilities involved in Intra state

ABT operation in same line with that being prepared by RLDCs / RPCs at Regional level. The meter readings, Deviation Settlement accounts shall be posted in the website of SLDC. The data shall be made available in the website for five days for verification and redress. Indian Electricity Grid Code (IEGC) also mandates RLDCs to keep such data in the website of respective utilities for five days.

The utilities involved shall check the meter data and weekly Deviation Settlement accounts and if any discrepancy observed either in meter data or in the Deviation Settlement accounts, the same shall be brought to the notice of Metering and Protection Department of the STU (now DTL) and SLDC within 20 days of issue of Deviation Settlement accounts. SLDC shall revise Deviation Settlement accounts, if found necessary, and adjustment arising out of the revision of Deviation Settlement accounts shall be reflected in subsequent weekly Deviation Settlement accounts / Accounts. If no discrepancy reports received by the completion of 20 days from the date of issue of weekly Deviation Settlement accounts, the same would be treated as final.

10 COMPLEMENTARY COMMERCIAL MECHANISM FOR INTRASTATE ABT OPERATION AND REACTIVE POWER TRANSACTION.

At present there are eleven intra-state ABT utilities in Delhi namely BRPL, BYPL, NDPL, NDMC, MES, BTPS, IP, RPH, IPGCL's GT station, PPCL's Gas Turbine station and Bawana Station. The Energy Accounting and other commercial mechanism is as under:-

- a) The intra state ABT utilities shall pay to the respective Inter State Generating Stations (ISGSs) capacity charges corresponding to plant availability and Energy charges for the scheduled dispatch, as per the relevant notifications and orders of CERC. The bills for these charges shall be issued by the respective ISGS to each beneficiary on monthly basis based on Regional Energy Accounts (REAs) issued by Regional Power Committees (RPCs). For State generating stations (SGS), the relevant notifications and order of DERC shall be applicable payment of capacity charges and Energy charges and other charges shall be paid on monthly basis based on State Energy Accounts (SEAs) issued by SLDC.
- b) The sum of the above two charges from all intra state ABT utilities shall fully reimburse the ISGSs / SGSs for generation according to the given dispatch schedule. In case of a deviation from the dispatch schedule, the concerned ISGS/SGS shall be additionally paid for excess generation through the Deviation Settlement mechanism approved by CERC/DERC. In case of actual generation being below the given dispatch schedule the concerned ISGS/SGS shall pay back through the Deviation Settlement accounts for the shortfall in generation.
- c) The summation of station wise ex-power plant dispatch schedules from ISGSs / SGSs and any bilaterally agreed interchanges of each intra state ABT utility shall be adjusted for transmission losses, and the net drawal schedule so calculated shall be compared with the actual net drawal of the beneficiary. In case of excess drawal, the intra state ABT utility shall pay through the Deviation Settlement mechanism for the excess energy. In case of under-drawal, the beneficiary shall be paid back through the Deviation Settlement mechanism, for the energy less drawn.
- d) When requested by an intra state ABT utility, SLDC shall assist the beneficiary in coordination with NRLDC in locating a buyer/seller and arranging a scheduled interchange within the State or Region or across the regional boundary. The SLDC and RLDC shall act only as a facilitator (not a trader/broker),, and shall assume no liabilities under the agreement between the two parties, except (i) ascertaining that no

component of the power system of any other intra state ABT utility shall be overstressed by such interchange/trade, and (ii) incorporating the agreed interchange/trade in the net interchange schedules for the concerned intra state ABT utilities.

- e) State Energy Accounts shall be prepared and issued on monthly basis. Provisional Accounts shall be issued by 6th of every month for the preceding month. Final accounts shall be issued as and when the SEM data for the entire month is made available to SLDC.
- f) The statement of Deviation Settlement accounts shall be prepared by the SLDC on a weekly basis and these shall be issued to all intra state ABT utilities after the issue of regional Deviation Settlement accounts for the seven day period ending on the previous Sunday mid-night. Payment of Deviation charges shall have a high priority and the concerned intra state ABT utility shall pay the indicated amounts within 8 (eight) days of the statement issue into the intra state Deviation pool accounts being operated by the SLDC.
- g) If payments against the above Deviation charges are delayed beyond ten (10) days from issue of statement, the defaulting beneficiary shall have to pay simple interest at the rates mentioned in IEGC / Deviation Regulations from the Eleventh (11th) day of due date for each day of delay. The interest so collected shall be paid to the beneficiary(ies) who has to receive the payment amount, The methodology of Interstate computation of outstanding Deviation payment is as under :-
 - a) The interest for delayed payment would be calculated from the 15th day of issue of intra-State Deviation A/c. for the receivable utilities at intra-State level.
 - b) The interest for delayed payment would be calculated from the 11th day of issue of intra-State Deviation A/c. for the payable utilities at intra-State level.
 - c) In case the interest payable to NR, the same would have to be paid by the paying utilities interest liability.
 - d) In case of Deviation payments made in part or non payment the any payment made towards Deviation accounts shall be adjusted as per the stipulations made in Deviation Settlement regulation notified by CERC.
 - e) The payment security mechanism as per Deviation Settlement Mechanism regulation is as under:

10. Schedule of Payment of Deviation Settlement Charges and Payment Security

- (1) *The payment of charges for Deviation shall have a high priority and the concerned constituent shall pay the indicated amounts within 10 (ten) days of the issue of statement of Charges for Deviation including Additional Charges for Deviation by the Secretariat of the respective Regional Power Committee into the “Regional Deviation Pool Account Fund” of the concerned region.*
- (2) *If payments against the Charges for Deviation including Additional Charges for Deviation are delayed by more than two days, i.e., beyond twelve (12) days from the date of issue of the statement by the Secretariat of the respective Regional Power Committee, the defaulting constituent shall have to pay simple interest @ 0.04% for each day of delay.*

- (3) All payments to the entities entitled to receive any amount on account of charges for Deviation shall be made within 2 working days of receipt of the payments in the “Regional Deviation Pool Account Fund” of the concerned region.

Provided that –

- (i) in case of delay in the Payment of charges for Deviations into the respective Regional Deviation Pool Account Fund and interest there on if any, beyond 12 days from the date of issue of the Statement of Charges for Deviations the regional entities who have to receive payment for Deviation or interest thereon shall be paid from the balance available if any, in the Regional Deviation Pool Account Fund of the region. In case the balance available is not sufficient to meet the payment to the Regional Entities, the payment from the Regional Deviation Pool Accounts Fund shall be made on pro rata basis from the balance available in the Fund.
- (ii) the liability to pay interest for the delay in payments to the “Regional Deviation Pool Account Fund” shall remain till interest is not paid; irrespective of the fact that constituents who have to receive payments have been paid from the “Regional Deviation Pool Account Fund” in part or full.
- (4) All regional entities which had at any time during the previous financial year failed to make payment of Charges for Deviation including Additional Charges for Deviation within the time specified in these regulations shall be required to open a Letter of Credit (LC) equal to 110% of its average payable weekly liability for Deviations in the previous financial year, in favour of the concerned RLDC within a fortnight from the date these Regulations come into force.

Provided that –

- (i) if any regional entity fails to make payment of Charges for Deviation including Additional Charges for Deviation by the time specified in these regulations during the current financial year, it shall be required to open a Letter of Credit equal to 110% of weekly outstanding liability in favor of respective Regional Load Dispatch Centre within a fortnight from the due date of payment.
- (ii) LC amount shall be increased to 110% of the payable weekly liability for Deviation in any week during the year, if it exceeds the previous LC amount by more than 50%.

Illustration:

If the average payable weekly liability for Deviation of a regional entity during 2009-10 is `20 crore, the regional entity shall open LC for 22 crore in 2010-11. If the weekly payable liability during any week in 2010-11 is `35 crore which is more than 50% of the previous financial year's average payable weekly liability of Rs 30 Crore, the concerned regional entity shall increase the LC amount to `38.5 Crore (1.1×35.0) by adding `16.5 Crore.

- (5) In case of failure to pay into the “Regional Deviation Pool Account Fund” within the specified time of 12 days from the date of issue of statement of charges for Deviations, the RLDC shall be entitled to encash the LC of the concerned constituent to the extent of the default and the concerned constituent shall recoup the LC amount within 3 days.

The above stipulations are proposed to be implemented in toto at intrastate level.

- f) Persistent payment defaults, if any, shall be reported by the SLDC to the Grid Co-ordination Committee (GCC) initiating remedial action. The State Electricity Regulatory Commission shall also be informed of the persistent default.
- g) The SLDC shall table the complete statement of the intra state Deviation accounts in the GCC through its Commercial sub-committee, on a quarterly basis, for audit by the latter.
- h) All 15-minute energy figures (net scheduled, actually metered and Deviation) shall be rounded off to the nearest 0.01 MWh.
- i) The Reactive Power Transactions Charges shall be according to the decision taken by State Regulatory Commission vide its order dated 16.07.2010. The operative part of the order is reiterated hereunder:-
 - 1. *The Commission in its interim Order dated 6th August, 2009 permitted the DTL to charge for Reactive Energy as per the existing rate of 2P/KVARh and also directed the Discoms to pay the reactive energy charges @2P/KVARh with effect from 1.4.2010 which was applicable between the Regional Entity, except generating stations and the regional pool account for VAR interchanges.*
 - 2. *Consequent upon revision of Reactive Energy Charges vide CERC order dt. 26.04.2010 (CERC Indian Electricity Grid Code Regulations, 2010), the Reactive Energy Charges is being revised in line with the said CERC order. The charge for VARh shall be at the rate of 10 paise/KVarh & this will be applicable between the State Entity, except Generating Stations, and the regional pool account for VAR interchanges. This rate shall be escalated at 0.5 paise / KVARh per year thereafter, unless otherwise revised by the CERC.*
 - 3. *Reactive power compensation should ideally be provided locally, by generating reactive power as close to the reactive power consumption as possible. The State Entities except Generating Stations are therefore expected to provide local VAR compensation/generation such that they do not draw VARs from the EHV grid, particularly under low-voltage condition as per IEG Code.*
 - 4. *Other conditions shall be in line with CERC orders referred above.*
 - 5. *This order shall come into force with immediate effect.*

The State Electricity Regulatory Commission's order is defacto implementation of IEGC provisions. The significant IEGC provisions on Reactive Power charges and other related issues are as under :

6.6 Reactive Power and Voltage Control

- 1. *Reactive power compensation should ideally be provided locally, by generating reactive power as close to the reactive power consumption as possible. The Regional Entities except Generating Stations are therefore expected to provide local VAR compensation/generation such that they do not draw VARs from the EHV grid, particularly under low-voltage condition. To discourage VAR drawals by Regional Entities except Generating Stations, VAR exchanges with ISTS shall be priced as follows:*

- *The Regional Entity except Generating Stations pays for VAR drawal when voltage at the metering point is below 97%*
- *The Regional Entity except Generating Stations gets paid for VAR return when voltage is below 97%*
- *The Regional Entity except Generating Stations gets paid for VAR drawal when voltage is above 103%*
- *The Regional Entity except Generating Stations pays for VAR return when voltage is above 103%*

Provided that there shall be no charge/payment for VAR drawal/return by a Regional Entity except Generating Stations on its own line emanating directly from an ISGS.

2. *The charge for VARh shall be at the rate of 10 paise/kVARh w.e.f. 1.4.2010, and this will be applicable between the Regional Entity, except Generating Stations, and the regional pool account for VAR interchanges. This rate shall be escalated at 0.5paise/kVARh per year thereafter, unless otherwise revised by the Commission.*
3. *Notwithstanding the above, RLDC may direct a Regional Entity except Generating Stations to curtail its VAR drawal/injection in case the security of grid or safety of any equipment is endangered.*
4. *In general, the Regional Entities except Generating Stations shall endeavor to minimize the VAR drawal at an interchange point when the voltage at that point is below 95% of rated, and shall not return VAR when the voltage is above 105%. ICT taps at the respective drawal points may be changed to control the VAR interchange as per a Regional Entity except Generating Stations' request to the RLDC, but only at reasonable intervals.*
5. *Switching in/out of all 400 kV bus and line Reactors throughout the grid shall be carried out as per instructions of RLDC. Tap changing on all 400/220 kV ICTs shall also be done as per RLDCs instructions only.*
6. *The ISGS and other generating stations connected to regional grid shall of the respective generating units, that is without sacrificing on the active generation required at that time. No payments shall be made to the generating companies for such VAR generation/absorption.*

As decided in the 5th GCC meeting held on 25.10.2010, the same methodology of Reactive Energy Pricing envisaged in IEGC has been implemented from 01.04.2010. The billing shall be done on monthly basis. The payable utility has to pay the charges within 08 days of the issue of the bill failing which late payment surcharge at the rates mentioned in IEGC would be levied from 11th day of the issue of the Reactive Energy Transaction Bill would be charged.

11 COMPLEMENTARY COMMERCIAL MECHANISM FOR INTERDISCOM SURPLUS POWER TRANSFER ARISING OUT OF ALLOCATION FROM CENTRAL SECTOR GENERATING STATIONS / STATE SECTOR GENERATING STATIONS AND LONG TERM BILATERAL ARRANGEMENTS.

At present the inter discom surplus power transaction is regulated on the basis of DERC's order dated 28.11.2013 on the subject. The procedures adopted are as under:

- a) Any excess capacity in the hands of any of the distribution companies / agency, at any time, shall be offered to other distribution companies in Delhi, before it is sold outside the state.
- b) Inter Discom surplus would be assessed considering all long-term sources including state generating stations, inter-state generating stations, DVC allocation on long term basis, Maithon Right Bank TPS, CLP Jhajjar and Aravali Jhajjar etc.
- c) The Distribution Licensees would place the requisition by 10.30hrs. for next day and the same would be booked to them depending upon the surplus power available with the power surplus discoms declared by them on day ahead basis.
- d) SLDC shall distribute the individual surplus to needy discom based on weighted average entitlements as per DERC order dated 31.03.2007 amended time to time and to extent of requirement by the utilities. Inter Discom power transfer would be finalized by SLDC and uploaded in its website of SLDC by 11:15 hrs for the next day IDT transfer of power. Once the IDT is finalized as per above process the same will be binding on all parties and subsequently there will be no change.
- e) In case of no information regarding the requirement of power is received from any of discom, it will be treated as no requirement of power for sale/purchase by that discom for the purpose of IDT. Similarly if SLDC fails to upload the IDT by 11.15, it will be treated as nil IDT among the Discoms.
- f) The Inter Discom transfer shall take place at the rate of IEX + 10Ps/unit. The DPPG meeting held on 10.01.2014 considering the procedural difficulties for settlement of payment strictly as per Power Exchange methodology, the payment settlement mechanism has been finalized as "The next bank working day from the date of delivery of power"
- g) SLDC shall issue Monthly Accounts of the Inter Discom Transfer of surplus power scheduled on day-ahead basis and utilities shall reconcile the accounts after making proper payment and final payment as per monthly accounts issued by SLDC in this regard. This is also as per the decision taken in the DPPG meeting held on 10.01.2014.
- h) Delhi Power Procurement Group in its meeting held on 17.06.2014 has decided the methodology of Payment Security Mechanism (PSM) for the Inter Discom Transfer as under:

All Discoms which had at any time during the previous financial year failed to make payment of Charges for the power transferred through the IDT mechanism within the time specified shall be required to open a Letter of Credit (LC) equal to 110% of its average payable daily liability for the IDT in the previous financial year, in favour of the concerned Discom within a fortnight from the date of approval of DERC for implementation of the scheduling procedure.

Provided that –

- (i) if any Discom fails to make payment of Charges for the power transferred through the IDT mechanism by the time specified during the current financial year, it shall be required to open a Letter of Credit equal to 110% of daily outstanding liability in favour of respective Discom within a fortnight from the due date of payment.
- (ii) LC amount shall be increased to 110% of the payable daily liability for IDT in any day during the year, if it exceeds the previous LC amount by more than 50%.

Illustration:

If the average payable daily liability for the IDT of a Discom during 2013-14 is Rupees 20 crore, the Discom shall open LC for Rupees 22 crore in 2014-15. If the daily payable liability during any day in 2014-15 is Rupees 35 crore which is more than 50% of the previous financial year's average payable daily liability of Rupees 30 Crore, the concerned Discom shall increase the LC amount to Rupees 38.5 Crore (1.1* Rupees 35.0) by adding Rupees 16.5 Crore.”

12 COMPLEMENTARY COMMERCIAL MECHANISM FOR INTER DISCOM TRANSFER OF SURPLUS POWER TO BE WITHIN THE STIPULATIONS CONTAINED IN DEVIATION SETTLEMENT MECHANISM.

To avoid the penalties for overdrawal and underdrawal as stipulated in the Deviation Settlement Mechanism Regulation notified by CERC, it is proposed to draw out inter Discom Transfer of surplus energy as under:

- a) SLDC shall draw out the surplus / shortages of individual Discoms from their Final implemented schedule and actual based on SEM reading. Based on this shortage/surplus SLDC shall distribute the individual surplus to the needy discoms *when both surplus and needy discoms violate the limits specified in Deviation Settlement Mechanism Regulations*. The rates would be as per the rates mentioned in Deviation Settlement mechanism at each frequency regime.
- b) SLDC shall issue monthly accounts indicating such interdiscom transfers after getting the SEM data for the entire month.
- c) All utilities shall settle the accounts within 8 days of issue of such accounts, failing which a late payment surcharge of 0.04% per day applicable on the outstanding dues.
- d) Delhi Power Procurement Group in its meeting held on 17.06.2014 has decided the methodology of Payment Security Mechanism (PSM) for the Inter Discom Transfer as under:

All Discoms which had at any time during the previous financial year failed to make payment of Charges for the power transferred through the IDT mechanism within the time specified shall be required to open a Letter of Credit (LC) equal to 110% of its average payable monthly liability for the IDT in the previous financial year, in favour of the concerned Discom within a fortnight from the date of approval of DERC for implementation of the scheduling procedure.

Provided that –

- (i) if any Discom fails to make payment of Charges for the power transferred through the IDT mechanism by the time specified during the current financial year, it shall be required to open a Letter of Credit equal to 110% of monthly outstanding liability in favour of respective Discom within a fortnight from the due date of payment.
- (ii) LC amount shall be increased to 110% of the payable monthly liability for IDT in any month during the year, if it exceeds the previous LC amount by more than 50%.

Illustration:

If the average payable monthly liability for the IDT of a Discom during 2013-14 is Rupees 20 crore, the Discom shall open LC for Rupees 22 crore in 2014-15. If the monthly payable liability during any month in 2014-15 is Rupees 35 crore which is more than 50% of the previous financial year's average payable monthly liability of Rupees 30 Crore, the concerned Discom shall increase the LC amount to Rupees 38.5 Crore (1.1* Rupees 35.0) by adding Rupees 16.5 Crore.”

13 COMPLEMENTARY COMMERCIAL MECHANISM FOR CONGESTION CHARGES BEING LEVIED FOR VIOLATION OF INTER REGIONAL TRANSFER CAPACITY.

CERC vide order dated 17.03.2010 in the **matter rate of Congestion charge in real time operation in inter-State transmission of electricity** decided the rate of congestion charges in the event of congestion of Inter Regional Links due to variation of drawal / generation. The operating part of the order is reiterated hereunder:-

22 *In view of the discussion in the foregoing paragraphs, we find that there is no objection to the proposed rate of congestion charge. Therefore, based on the rationale given in our order dated 8.1.2010, the following directions are issued:*

- (a) *The rate of congestion charge has been fixed at a rate higher than the difference between maximum DEVIATION charge and DEVIATION charge at 50 Hz which is expected to serve as deterrent against over drawal by the regional entities at a frequency below 50 Hz through a congested transmission corridor and to incentivize the utilization of all generation on liquid fuel in the over-drawing Region/State, if any, thus relieving congestion.*
- (b) *At frequency below 50 Hz, congestion charge would be levied for overdrawal in the importing control area and at frequencies above 50Hz, congestion charge would be levied for under-drawal in the exporting control area.*
- (c) *No congestion charge shall be levied for congestion in a transmission corridor, if the power flow on the corridor is as per the schedule, but the congestion has been caused by forced outages of a line in the corridor, which occurs after the drawal schedule has been fixed.*
- (d) *Such contingencies would have to be tackled through emergency instructions by the concerned SLDCs / RLDCs / NLDC to the concerned regional entities in order to relieve the congestion on the considerations of grid security.*

The congestion charges levied or paid by the RLDC has to be apportioned among the utilities involved in intra state ABT namely BRPL, BYPL, NDPL, NDMC, MES, IP, RPH, GT, PPCL, BTPS or any other Intrastate ABT Utility. The quantum of congestion charges would be derived from the over drawal / underdrawal of distribution utilities and over generation / under generation of the generating utilities during the period of congestion charges imposed by RLDC. The adjustment would be done on the same way as that of Deviation account to match with the congestion charges imposed by RLDC. The settlement of congestion charges would also be in the same way that of Intrastate Deviation Account settlement.

A separate account has been opened by SLDC for dealing with the congestion charges. This is also prioritizing payment like Deviation and the paying utilities have to pay the amount within ten (10) days of the bill to the account.

14 SCHEDULING PROCEDURE FOR NON CONVENTIONAL ENERGY SOURCES.

In IEGC 2010 version, the issue of scheduling of non conventional energy sources has been addressed. For clarity, the same is reiterated here under:-

5.2 (ii)(u) Special requirements for Solar/ wind generators

System operator (SLDC/ RLDC) shall make all efforts to evacuate the available solar and wind power and treat as a must-run station. However, System operator may instruct the solar /wind generator to back down generation on consideration of grid security or safety of any equipment or personnel is endangered and Solar/ wind generator shall comply with the same.

For this, Data Acquisition System facility shall be provided for transfer of information to concerned SLDC and RLDC

- (i) SLDC/RLDC may direct a wind farm to curtail its VAR drawal/injection in case the security of grid or safety of any equipment or personnel is endangered.*
- (ii) During the wind generator start-up, the wind generator shall ensure that the reactive power drawal (inrush currents incase of induction generators) shall not affect the grid performance*

1.4(i)v Part 6: Scheduling and Despatch Code

This section deals with the procedure to be adopted for scheduling and Despatch of generation of the Inter-State Generating Stations (ISGS) and scheduling for other transactions through long-term access, medium-term and short-term open access including complementary commercial mechanisms, on a day-ahead and intra-day basis with the process of the flow of information between the ISGS, National Load Despatch Centre (NLDC), Regional Load Despatch Centre (RLDC), Power Exchanges and the State Load Despatch Centres (SLDCs), and other concerned persons.

Most of the wind and solar energy sources are presently connected and in future are likely to be connected to the STU or the State's distribution utility. However, keeping in view the variable nature of generation from such sources and the effect such variability has on the inter- state grid, and in view of the large-scale integration of such sources into the grid envisaged in view of the Government of India's thrust on renewable sources of energy, scheduling of wind and solar energy sources has been incorporated in this Code.

6.2 Objective

This code deals with the procedures to be adopted for scheduling of the net injection / drawals of concerned regional entities on a day ahead basis with the modality of the flow of information between the NLDC / RLDCs / SLDCs/Power Exchange and regional entities. The procedure for submission of capability declaration by each ISGS and submission of requisition / drawal schedule by other regional entities is intended to enable RLDCs to prepare the dispatch schedule for each ISGS and drawal schedule for each regional entity. It also provides methodology of issue real time despatch /drawal instructions and rescheduling, if required, to regional entities along with the commercial arrangement for the deviations from schedules, as well as, mechanism for reactive power pricing. This code also provides the methodology for rescheduling of wind and solar energy on three (3) hourly basis and the methodology of compensating the wind and solar energy rich State for dealing with the variable generation through a Renewable Regulatory charge. For this, appropriate meters and Data Acquisition System facility shall be provided for accounting of Deviation charges and transfer of information to concerned SLDC and RLDC.

3. Special dispensation for scheduling of wind and solar generation

- (i) *With effect from 1.1.2011 (It has not been implemented sofar) Scheduling of wind power generation plants would have to be done for the purpose of DEVIATION where the sum of generation capacity of such plants connected at the connection point to the transmission or distribution system is 10 MW and above and connection point is 33 KV and above, and where PPA has not yet been signed. For capacity and voltage level below this, as well as for old wind farms (A wind farm is collection of wind turbine generators that are connected to a common connection point) it could be mutually decided between the Wind Generator and the transmission or distribution utility, as the case may be, if there is no existing contractual agreement to the contrary . The schedule by wind power generating stations may be revised by giving advance notice to SLDC/RLDC, as the case may be. Such revisions by wind power generating stations shall be effective from 6th time-block ,the first being the time –block in which notice was given. There may be maximum of 8 revisions for each 3 hour time slot starting from 00:00 hours during the day.*
- (ii). *The schedule of solar generation shall be given by the generator based on availability of the generator, weather forecasting, solar insolation, season and normal solar generation curve and shall be vetted by the RLDC in which the generator is located and incorporated in the inter-state schedule. .. If RLDC is of the opinion that the schedule is not realistic, it may ask the solar generator to modify the schedule.*
- (iii) *Concerned RLDC and SLDC shall maintain the record of schedule from renewable power generating stations based on type of renewable energy sources i.e wind or solar from the point of view of grid security. While scheduling generating stations in a region, system operator shall aim at utilizing available wind and solar energy fully*

Complementary Commercial Mechanisms

- 1 *The sum of the above two charges from all beneficiaries shall fully Reimburse the ISGS for generation according to the given dispatch schedule. In case of a deviation in actual generation from the dispatch schedule, the concerned ISGS shall receive or shall pay in accordance with Deviation regulation of CERC. Similarly, the deviation of actual drawal by any regional entity from the net drawal schedule shall be treated as Deviation. All 15-minute energy figures (net scheduled, actually metered and Deviation) shall be rounded off to the nearest 0.01 MWh. The Deviation charges and the modalities of settlement of DEVIATION shall be in accordance with Deviation Regulation of CERC .*
- 2 *Wind energy being of variable nature, needs to be predicted with reasonable accuracy for proper scheduling and dispatching of power from these sources in the interconnected system. Hence wind generation forecasting is necessary for increased penetration. Wind generation forecasting can be done on an individual developer basis or joint basis for an aggregated generation capacity of 10 MW and above connected at a connection point of 33 kV and above. If done jointly, the wind forecasting facility shall be built and operated by wind developers in the area and sharing of the cost shall be mutually discussed and agreed.*
- 3 *The wind energy forecasting system shall forecast power based on wind flow data at the following time intervals:*
 - i) *Day ahead forecast: Wind/ power forecast with an interval of 15 minutes for the next 24 hours for the aggregate Generation capacity of 10 MW and above.*
 - ii) *The schedule by such wind power generating stations supplying interstate power under long-term access and medium-term and short-term open access may be revised by giving advance notice to RLDC. Such revisions by wind power generating stations shall be effective from 6th time-block ,the first being the time -block in which notice was given. There may be maximum of 8 revisions for each 3 hour time slot starting from 00:00 hours during the day.*
4. *The wind generators shall be responsible for forecasting their generation upto an accuracy of 70%. Therefore, if the actual generation is beyond +/- 30% of the schedule, wind generator would have to bear the Deviation charges. For actual generation within +/- 30% of the schedule, no Deviation would be payable/receivable by Generator, The host state , shall bear the Deviation charges for this variation, i.e within +/- 30%. However, the Deviation charges borne by the host State due to the wind generation, shall be shared among all the States of the country in the ratio of their peak demands in the previous month based on the data published by CEA, in the form of a regulatory charge known as the Renewable Regulatory Charge operated through the Renewable Regulatory Fund (RRF). This provision shall be applicable with effect from 1.1.2011, (though has not been implementd so far)for new wind farms with collective capacity of 10 MW and above connected at connection point of 33 KV level and above , and who have not signed any PPA with states or others as on the date of coming into force of this IEGC. Illustrative calculations in respect of above mechanism are given in Appendix.*
5. *A maximum generation of 150% of the schedule only, would be allowed in a time block, for injection by wind, from the grid security point of view. For any generation above 150% of schedule, if grid security is not affected by the generation above 150%, the only charge payable to the wind energy generator would be the Deviation charge applicable corresponding to 50- 50.02 HZ .*

6. *In case of solar generation no Deviation shall be payable/receivable by Generator. The host state , shall bear the Deviation charges for any deviation in actual generation from the schedule. However, the net Deviation charges borne by the host State due to the solar generation, shall be shared among all the States of the country in the ratio of their peak demands in the previous month based on the data published by CEA , in the form of regulatory charge known as the Renewable Regulatory Charge operated through the Renewable Regulatory Fund as referred to in clause 5 above.. This provision shall be applicable ,with effect from 1.1.2011, (though has not been implemented so far)for new solar generating plants with capacity of 5 MW and above connected at connection point of 33 KV level and above and , who have not signed any PPA with states or others as on the date of coming into force of this IEGC. Illustrative calculations in respect of above mechanism are given in Appendix.*
7. *NLDC shall prepare, within one month of notification of these regulations, a detailed procedure for implementation of the mechanism of Renewable Regulatory Fund and submit the same for approval by the Commission.*
- A. ***Illustrative examples for commercial settlement for Wind Generation (WG) (Reference – Para 5 of Annexure-I of the IEGC) The commercial settlement procedure is explained below:***

Case 1: Actual as per generation schedule

<i>Schedule (MW)</i>	<i>Actual Generation (MW)</i>	<i>Implication on purchaser</i>	<i>Deviation</i>	
			<i>Implication on host state</i>	<i>Implication on wind generator</i>
<i>100</i>	<i>100</i>	<i>Purchaser to pay Wind Generator for 100MW at contracted rate</i>	<i>No implication on host state.</i>	<i>No implication on wind generator</i>

Case 2: Under Injection by the Wind Generator within 30% variation

<i>Schedule (MW)</i>	<i>Actual Generation (MW)</i>	<i>Implication on purchaser</i>	<i>Deviation</i>	
			<i>Implication on host state</i>	<i>Implication on wind generator</i>
<i>100</i>	<i>70</i>	<i>Payment to be made by purchaser for 70MW (as per actual) at contracted rate and for 30MW to Renewable Regulatory Fund (RRF) at DEVIATION rate of his region.</i>	<i>For 30MW Deviation liability on the host state, as a result of under generator by the Wind Generator embedded in the State System, the same shall be received by the host State from the RRF</i>	<i>No implication on Wind Generator</i>

Case 3: Under Injection by the Wind Generator beyond 30% variation

Schedule (MW)	Actual Generation (MW)	Implication on purchaser	Deviation	
			Implication on host state	Implication on wind generator
100	60	To pay for 70MW to Wind Generator (since, in this range, the Wind Generator comes under DEVIATION mechanism) at contracted. 30MW by purchase at DEVIATION rate in his Region, to RRF	Out of 40MW liability of Deviation on Host State on account of under generation by Wind Generator, Deviation for 30MW shall be received by the Host State from RRF and DEVIATION for 10Mw would be received from the DEVIATION pool.	Deviation rate for 10MW payable by Wind Generator to DEVIATION Pool.

Case 4: Over Injection by the Wind Generator within 30% variation

Schedule (MW)	Actual Generation (MW)	Implication on purchaser	Deviation	
			Implication on host state	Implication on wind generator
100	130	To pay for 130MW to Wind Generator at contracted rate. Purchaser shall receive payment for 30MW from RRF at DEVIATION rate of his region.	For 30MW, Deviation benefit for the Host State on account of over generation by wind Generator to be passed on to the RRF	No implication on Wind Generator.

Case 5: Over Injection by the Wind Generator from 130% to 150% generation (as compared to schedule)

Schedule (MW)	Actual Generation (MW)	Implication on purchaser	Deviation	
			Implication on host state	Implication on wind generator
100	140	To pay for 130MW at contracted rate. Purchaser shall receive payment for 30MW from RRF at DEVIATION rate on his region.	For 40MW, Deviation benefit for the Host State on account of over generation by Wind Generator, Deviation for 30MW to be passed on to the RRF and DEVIATION for 10MW to be passed to Deviation pool.	Deviation for 10MW to be received from DEVIATION pool

Case 6: Over Injection by the Wind Generator beyond 150% variation (as compared to schedule)

Schedule (MW)	Actual Generation (MW)	Implication on purchaser	Deviation	
			Implication on host state	Implication on wind generator
100	160	To pay for 130MW at contracted rate. Purchaser shall receive payment for 30MW from RRF at DEVIATION rate of his region.	For 60MW benefit for the Host State from Deviation Pool on account of higher generation by Wind, Deviation for 30MW to be passed on to RRF and Deviation for 3.MW to be passed on to Deviation Pool.	Deviation for 20MW to be received by Wind Generator from Deviation Pool at the Deviation rate applicable at that particular time and for 10MW Deviation to be received by Wind Generator from Deviation Pool at the Deviation rate applicable for frequency interval below 50.02Hz and not below 50.00Hz.

Note:

- (1) For all of the above scenarios, the Deviation rate shall be the normal Deviation rate applicable at that particular time block except in case 6 i.e. for over injection beyond 50 %. In this case the wind generator shall get Deviation for injection beyond 50% of the schedule at the Deviation rate applicable for frequency interval below 50.02 and not below 50.00 Hz, in accordance with the CERC regulations.
- (2) The balance in the Renewable Regulatory Fund (RRF) on account of DEVIATION by the wind generators in all states, whether surplus or deficit, shall be shared by all the states of India in the ratio of their peak demands in the previous month. The RRF shall be operated by the NLDC on a national basis.
- (3) For all cases above it is assumed that Purchasers drawal is as per schedule.

B. Illustrative examples for commercial settlement for Solar Generation (Reference – Para 7 of Annexure-I of the IEGC)

Solar generator to give schedule to the concerned SLDC and RLDC. Purchasing state to pay to solar generator at contracted rate for whatever power Deviation is generated by the solar generation. Remaining under drawal / over-drawal to be settled in DEVIATION mechanism and RRF.

Case 1: Actual as per generation schedule

Schedule (MW)	Actual Generation (MW)	Implication on purchaser	(DEVIATION)	
			Implication on host state	Implication on Solar generator
5	5	Purchaser to pay Solar Generator for 5MW at contracted rate	No implication on Host State.	No implication on Solar Generator

Case 2: Under Injection by the Solar Generator

Schedule (MW)	Actual Generation (MW)	Implication on purchaser	(DEVIATION)	
			Implication on host state	Implication on Solar generator
5	4	Payment to be made by purchaser for 4MW (as per actual) at contracted rate and for 1MW to RRF at Deviation charge rate	For 1MW, Deviation charge liability on the Host State, as a result of under generation by the Solar Generator embedded in the State System, the same shall be received by the Host State from RRF at Deviation charge rate.	No implication on Solar Generator.

Case 3: Over Injection by the Solar Generator

Schedule (MW)	Actual Generation (MW)	Implication on purchaser	(DEVIATION)	
			Implication on host state	Implication on Solar generator
5	6	To pay for 6MW to Solar Generator at contracted rate. Purchaser shall receive payment for 1MW from RRF at contracted rate.	For 1MW, Deviation charge benefit for the Host State on account of over generation by Solar Generator be passed on to RRF at Deviation charge rate.	No implication on Solar Generator.

Since IEGC is binding on all Stakeholders in Power Sector, the above methodology shall be adopted in Intrastate level.

In the 10th Grid Coordination Committee held on 29.01.2014, it was decided to meet the payment liabilities by SLDC to RRF and the same would be reimbursed from discoms based on last month's drawal for DTL at the time of occurrence of monthly peak on the basis of SEM data as and when make available with SLDC.

15 Accounting Methodology for Renewable Energy Sources.

The Accounting methodology of renewable energy sources was discussed in the meeting chaired by Director (Operations), DTL at SLDC on 06.04.2010. The accounting methodology proposed as per the decision is as under :-

3 Accounting of Energy being generated from renewable energy sources.

After detailed discussions, the following has been finalized:

- i) *ABT Meters at generation points will be installed by the Distribution utility, installing the Renewable energy sources. The meters shall be jointly tested and sealed by DTL and the utility.*
- ii) *Metering Deptt. of DTL will download the data from these meters weekly as being done for all other boundary meters and downloaded data will be provided to SLDC.*
- iii) *Since, as per CERC Regulations, all the renewable energy power plants are 'MUST RUN' plants, the scheduling is to be done on post facto basis as per the actual generation.*
- iv) *No transmission losses or transmission charges will be applicable and actual ex-bus generation will be considered as schedule and actual energy.*
- v) **Energy accounting of Renewable Energy shall be done as under:**
 - a) **Generating Station is installed by the distribution utility in its own area** - Energy generated from these plants will not be considered in the Deviation Bill calculation. However, SLDC will indicate the energy generated from these sources in the monthly State Energy Account as per the downloaded data of DTL, once the data of entire month is received.
 - b) **Generating Station is installed by the distribution utility in other distribution utility's area** – The energy made available in 15 minutes time block would be adjusted as energy available to the distribution utility from these sources and accordingly added in the scheduled energy. The same quantum of energy would be added to the actual energy of the distribution utility, in whose area the plant have installed, to arrive the drawal of the utility from the grid. This schedule and actual energy will be considered in the Deviation Bill accounting.

These adjustments would be done on post facto basis.

The above mentioned procedure is applicable only for the renewable energy generating sources installed by the distribution utilities or renewable energy purchased by distribution utility from third party and not for the 'Roof Top Solar Plants' to be installed by the consumers.