

HARYANA ELECTRICITY REGULATORY COMMISSION

(Intra-State ABT Regulations)

<insert day>, <insert month>, 2010

CHAPTER I - SCOPE, EXTENT AND DEFINITIONS

1. SHORT TITLE, COMMENCEMENT AND EXTENT

- 1.1. These Regulations may be called the "Haryana Electricity Regulatory Commission (Intra-State ABT) Regulations, 2010.
- 1.2. The Regulations shall come into force from the date as may be notified by the Commission.
- 1.3. The Regulations shall extend to the whole state of Haryana.
- 1.4. The Punjab General Clause Act 1898 (Act 1 of 1898) as applicable to the state of Haryana shall apply to the interpretation of these Regulations

2. OBJECTIVE AND APPLICABILITY

- 2.1. The objective of these regulations is to maintain grid discipline as envisaged under the Grid Code through the commercial mechanism of Unscheduled Interchange Charges by controlling the users of the grid in scheduling, dispatch and drawal of electricity;
- 2.2. These Regulations shall apply to SGS, IPPs, Discoms and Intra-State Open Access Entities from the date of notification of these regulation and shall apply to such other Generators/ Entities from such date, as may be specified by the Commission separately by way of notification:

Provided that intra-state ABT regulations shall not be applied to nuclear, solar and wind power stations, and run of river hydro power stations with no storage capacity;

Provided that the SLDC in consultation with the Distribution Licensee(s) and Commission shall notify commercial mechanism for valuing Unscheduled Interchanges by Open Access Customers embedded in distribution network along with an implementation plan within three months of notification of these regulations.

3. IMPLEMENTATION OF THE REGULATIONS

- 3.1. These regulations shall come into effect after 3 months from the date of notification. During this period of 3 month, the current mechanism for balancing and settlement on account of unscheduled interchange and reactive energy shall be carried out by the SLDC. During this period the SLDC shall perform the following duties:

- a. A mock implementation of State Energy Account, State UI Account and State Reactive Account as per the principles and procedures mentioned in these regulations;
 - b. Identify and communicate the bottlenecks faced in preparing these accounts to the responsible entities for their redressal;
 - c. Develop operational procedures as required under regulation 19 and appropriately addressing the identified bottlenecks.
- 3.2. After 3 months from the notification, these regulations shall come into effect with amendments (if any) to these regulations as notified by the Commission.

4. DEFINITION AND INTERPRETATION

- 4.1. **"ABT"** means availability based tariff. ABT is a three-part tariff comprising of fixed charges, variable charges and UI charges;
- 4.2. **"Act"** means the Electricity Act, 2003 (36 of 2003) as amended from time to time;
- 4.3. **"Actual drawal"** in a time-block means electricity drawn by a beneficiary or a buyer, as the case may be, measured by the interface meters;
- 4.4. **"Actual injection"** in a time-block means electricity generated or supplied by the generating station or seller, as the case may be, measured by the interface meters;
- 4.5. **"CERC"** means the Central Electricity Regulatory Commission ;
- 4.6. **"Commission"** means the Haryana Electricity Regulatory Commission (HERC);
- 4.7. **"Day"** means a continuous period starting at 00.00 hours and ending at 24.00 hours;
- 4.8. **"Despatch Schedule"** means the ex-Power Plant MW and MWh output of a Generating Station, Scheduled to be exported to the Grid from time to time;
- 4.9. **"Distribution Licensee or Discom"** means a Licensee authorised to operate and maintain a Distribution System for supplying electricity to the consumers under the HERC in its area of supply;
- 4.10. **"Drawal Schedule"** means the ex-Power Plant, MW that a Discom or an Open Access Customer is Scheduled to receive from a Generating Station, including Bilateral and Collective transactions from time to time;
- 4.11. **"Entitlement"** means share of a Discom or an Open Access Customer (in MW and MWh) in the installed Capacity/output Capacity of a Generating Station;
- 4.12. **"Ex-Power Plant"** means net MW/MWh output of a Generating Station, after deducting Auxiliary consumption and Transformation losses;
- 4.13. **"Fixed Charges"** means charges which constitutes the fixed element of cost of the generating stations as determined by the HERC under regulations specified for generation plant. The recovery of fixed charges are linked to availability;
- 4.14. **"Indian Electricity Grid Code (IEGC)"** means the Grid Code specified by the CERC under Clause (h) of Sub-section(1) of Section 79 of the Act;

- 4.15. **"Interface meters"** means interface meters as defined by the Central Electricity Authority under the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, as amended from time to time;
- 4.16. **"Inter-State Generating Station (ISGS)"** means a Central/other Generating Station in which two or more States have shares and whose scheduling is to be coordinated by the Regional Load Despatch Centre (RLDC);
- 4.17. **"Intra-State Entity"** means a person whose metering and energy accounting is done by the State Load Despatch Centre (for the purpose of this Regulation, Intra-State Entities shall include HPGCL Stations, Independent Power Producers (IPPs), Distribution Licensees and Intra-State Open Access Customers);
- 4.18. **"Haryana Electricity Grid Code (HEGC)"** means the Grid Code specified by the HERC under Clause (h) of Sub-section(1) of Section 86 of the Act;
- 4.19. **"Net Drawal Schedule"** means the Drawal Schedule of a Discom or an Open Access Customer after deducting the apportioned Transmission Losses (estimated);
- 4.20. **"Open Access Customer"** means a person who has availed or intends to avail of Open Access under HERC (Open Access in Inter-State Transmission) Regulations 2008 (as amended from time to time) and includes a Short-term Transmission Customer as defined in any other Regulations specified by the HERC or a Generating Company (including Captive Generating Plant) or a Licensee or a Consumer permitted by the HERC to receive supply of electricity from a person other than Distribution Licensee of his area of supply, or a State Government Entity authorized to sell or purchase electricity;
- 4.21. **"State Load Despatch Centre (SLDC)"** means the Centre established under Sub-section(1) of Section 31 of the Act;
- 4.22. **"State"** means the State of Haryana;
- 4.23. **"State Energy Account (SEA)"** means monthly State Energy Account prepared by the SLDC for the billing and settlement of Capacity charges, Energy charges and Incentives;
- 4.24. **"State Reactive Charge Account (SRA)"** means weekly State Reactive Energy Account prepared by the SLDC for the billing and settlement of Reactive Energy Charges;
- 4.25. **"State Generating Station (SGS)"** means a generating station other than CGS whose entire generation of electricity is dedicated to the state;
- 4.26. **"State Transmission Utility (STU)"** means the Board or the Government Company specified as such by the State Government under Sub-section(1) of Section 39 of the Act;
- 4.27. **"State UI Account (SUA)"** means weekly State Unscheduled Interchange Account prepared by the SLDC for the billing and settlement of UI charges;
- 4.28. **"Seller"** means a person, other than a generating station, supplying electricity, through a transaction scheduled in accordance with the regulations applicable for short term open access, medium term open access and long term access;
- 4.29. **"Time Block"** is as defined in Haryana Electricity Grid Code.
- 4.30. **"Unscheduled Interchanges"** means the unscheduled interchange of energy as mentioned in the Indian Electricity Grid Code;
- 4.31.

- 4.32. **“Unscheduled Interchange Charge”** means charges accounted for any deviation in actual generation/drawal from scheduled generation/ drawal;
- 4.33. **“Unscheduled Interchange Rate (UI rate)”** means the rate corresponding to average Frequency of the Grid in a 15-minute Time Block as specified by the HERC in Appendix I to these regulations and as revised from time to time;
- 4.34. **“Variable Charges”** means the charges consisting of the fuel cost of energy generation by the State Generating Power Plants/IPPs. The allowable energy charge is determined either by the Commission under section 62 or through competitive bidding under section 63 of the EA 2003. These charges are determined station wise and are payable by the Distribution Licensees as per the generation scheduled issued by the SLDC. These charges will include any Fuel Price Adjustment (FPA) charges to be calculated as per the FPA formula approved by the HERC.
- 4.35. **“Week”** means a period of consecutive seven (7) days commencing from 00.00 hours on the Monday and ending at 24.00 hours on following Sunday as per the British Calendar.

Words and expressions used in this Code and not defined herein but defined in the Act or IEGC or HEGC shall have the meaning assigned to them under the Act or IEGC or HEGC, as the case may be.

5. ABBREVIATIONS

Following abbreviations are used in these regulations:

Abbreviations	Expansions
APM	Administered Pricing Mechanism
G-T	Generation-Transmission Interface
T-D	Transmission Distribution Interface
SGS	State Generating Station
SGS	State sector Generating station
ISGS	Inter State Generating Station
ISTS	Inter State Transmission System
NRLDC	Northern Region Load Despatch Centre
SEA	State Energy Account
SUA	State UI Account
IPP	Independent Power Producer
HPPC	Haryana Power Purchase Centre
UI	Unscheduled Interchange
HEGC	Haryana Electricity Grid Code

CHAPTER II - PRINCIPLES FOR SCHEDULING

6. GENERAL PRINCIPLES FOR SCHEDULING

- 6.1. All scheduling shall be done for 15 minutes time block. For purpose of scheduling each day starting from 00.00 hrs to 24.00 hrs shall be divided into 96 equal time blocks each of 15 minutes duration. The SLDC shall compile and intimate each Open Access Customer (including Distribution Licensee) their drawal schedule and to each Generator of the State (including Generating Stations of HPGCL) the Generation Schedule in advance.
- 6.2. Distribution Licensees shall submit requisitions to the SLDC for power from CGS/SGS/IPPs (in which they have allocations), arranging inter-state & intra-state bilateral exchanges and regulating their drawal to the entitlement given by the SLDC.
- 6.3. **Merit Order Scheduling:** Distribution Licensees shall give their requisitions based on their individual merit order i.e. on ascending order of variable cost of allocated share of generation available at the T-D interface from CGS/SGS/IPPs and bilateral exchanges.
- 6.4. The drawal schedule (including allocated transmission losses) issued by the SLDC for any Distribution Licensee shall be the sum of ex-power plant schedules from different allocated share in CGS/SGS/IPP and any bilateral exchange agreed by Distribution Licensees with any other agency inside/outside the State and drawal/ injection on behalf of Open Access Customers.
- 6.5. The generation schedule of each SGS shall be equal to the sum of the requisitions made by each Distribution Licensee (restricted to their entitlement) and subjected to maximum and minimum value criteria or any other technical constraints indicated by the SLDC.
- 6.6. The Open Access Customers (including Distribution Licensees) shall maintain their drawals within limits as specified in the clause 13.1 of these regulations other wise clauses 14, 15, and 16 of these regulations shall be applicable on them.
- 6.7. Similarly, the generators shall maintain their generation within limits as specified in clause 13.2 otherwise clauses 14 and 16 of these regulations will applicable on them.
- 6.8. Generation schedules and drawal Schedules issued/revised by the SLDC shall become effective from designated time block irrespective of communication success.
- 6.9. For any revision of scheduled generation of any generator, including post facto deemed revision; there shall be a corresponding revision of scheduled drawals (including transmission losses) of Open Access customers (including Distribution Licensees) so that at any point of time scheduled generation and drawals are balanced.
- 6.10. The SLDC shall consider the following while preparing the schedules:
 - a. The resulting power flows shall not cause any transmission constraint and there shall be sufficient operating margins (reserves). In case of any transmission constraints, the SLDC may moderate the schedule to the required extent by intimation to the concerned Open Access Customer (including Distribution Licensees);
 - b. The schedules shall be operationally reasonable particularly in terms of ramping up/ramping down rates and ratio between minimum and maximum generation levels. The SLDC shall moderate the schedule to the required extent by intimation to concerned Open Access Customer (including Distribution Licensee). The ramping up/ramping down rates shall be based on the technical data as substantiated by generating stations and as mutually agreed by concerned Open Access Customer (including Distribution Licensee).

- 6.11. For calculating the net Drawal Schedules of the Open Access Customers (including Distribution Licensees), the intra-state transmission losses shall be apportioned in proportion to their drawal schedules.
- 6.12. Availability declaration by SGS shall have a resolution of 0.1MW and 0.1MWh; all entitlements, requisitions and schedules shall be rounded off to the nearest decimal i.e. a resolution of 0.01 MW.
- 6.13. The SLDC shall properly document all the above information i.e. station-wise generation schedules advised by the generating stations, the drawal schedules advised by Distribution Licensees and Open Access Customers, all schedules issued by the SLDC, and all revisions/updating of the above.
- 6.14. The procedure for scheduling and the final schedules issued by the SLDC shall be open to all constituents for any checking/verification, for a period of not less than 5 days. In case any mistake/omission is detected the SLDC shall forthwith make a complete check and rectify the same.
- 6.15. Demonstration of Declared Capacity (DC): The Generator shall demonstrate the declared capacity of its generating station as and when asked by the SLDC. In the event of generator failing to demonstrate the DC within a tolerance specified by the SLDC, the capacity charge due to the generator shall be reduced as a measure of penalty. The Penalty for the first mis-declaration for any 24 hour period shall be equal to two days fixed charges. For second mis-declaration in the year, the penalty shall be equivalent to fixed charges for four days and so on. A procedure shall be evolved by the SLDC for testing the declared capacity as per IEGC/HEGC.
- 6.16. If a generating station is connected both to ISTS and the state network, and the state has more than 50% of share, then scheduling and other function of such generating plants shall be performed by the SLDC as mentioned in these regulations in consultation with the concerned RLDC. If the state has a share of 50% or less, the scheduling and other functions shall be performed by the concerned RLDC.
- 6.17. When the frequency falls below 49.7 Hz, the generation at all SGS and ISGS (except those on peaking duty) shall be maximized, at least upto the level to which can be sustained, without waiting for an advice from the SLDC as the case may be subject to the condition that such increase does not lead to unacceptable line loading or system parameters to deteriorate beyond permissible limit;
- 6.18. Distribution licensees, open access customers, state generators and the SLDC shall ensure that there is no over drawl or under injection from the grid whenever the grid frequency is 49.5 Hz or below. In case, over drawl or under injection is observed from the state entities, the pricing of such over drawl or under injection shall be subjected to UI pricing as mentioned in clause 11 of these regulations;
- 6.19. When the frequency is higher than 50.2 Hz, the actual net injection shall not exceed the scheduled despatch for that time block. Also, while the frequency is above 50.2 Hz, the SGS may (at their discretion) back down without waiting for an advice from the SLDC to restrict the frequency rise;
- 6.20. The operating log books of the generating stations which record machine operation and maintenance, reservoir level and spillway gate operation shall be made available to the SLDC for its review as per its requirement..
- 6.21. The SLDCs/Distribution Licensees shall regularly carry out the necessary exercises regarding short-term demand estimation to enable them to plan in advance as to how they would meet their consumers' load without overdrawing from the grid.

NOTE 1: The scheduling of state generating stations as mentioned above shall be done plant-wise as per the following categorization:

S.No	Plant
1	Panipat Unit 1 to 4
2	Panipat Unit 5 and 6
3	Panipat Unit 7 and 8
4	DCR TPS
5	Rajiv Gandhi TPS

7. SCHEDULING PRINCIPLES FOR THERMAL STATIONS

- 7.1. Each thermal station shall declare its capacity to deliver ex-bus MWh for each time block for the day ahead. This capacity as declared by generator shall form the basis of generation scheduling. The declaration in case of gas turbine / combined cycle stations to be the capacity which can be made available at 50.00 Hz.
- 7.2. The declared capacity shall not exceed the installed capacity.
- 7.3. While making or revising their declaration of capacity, the generating station shall ensure that it's declared capacity during peak hours is not less than that during other hours.

Provided that in case of tripping/resynchronization of units as a result of forced outage of units, exception to above regulation may be allowed by the SLDC. The SLDC shall record the reasons for allowing such deviations

8. SCHEDULING PRINCIPLES FOR RENEWABLE ENERGY SOURCES

- 8.1. All renewable energy power plants except for biomass power plants and non fossil fuel based cogeneration plants with installed capacity of 10 MW and above shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles;
- 8.2. All non-firm renewable energy generating stations, the biomass power generating stations and all non-fossil fuel based co-generation projects with installed capacity lower than 10 MW to furnish the tentative day-ahead generation forecast (MWh) in blocks of 1.5 hour duration for the energy availability on collective basis at inter-connection point (Pooling Station) to the SLDC to facilitate better grid co-ordination and management. The UI charges shall not be made applicable to these generators for deviation from the forecasts furnished by them.
- 8.3. The SLDC in consultation with the distribution licensee(s), open access customers, renewable energy generators in the state and state generators, and with approval of the Commission shall notify the scheduling and despatch code aligned with the Indian Electricity Grid Code (IEGC) and Central Electricity Regulatory Commission (Unscheduled Interchange and related matters) Regulations, 2009 for renewable energy sources;

9. OVER ALL SCHEDULING PROCESS AND THE APPLICABLE TIMELINES

- 9.1. Currently the power purchase process for both the Distribution Licensees is being managed by the Haryana Power Purchase Centre (HPPC). It is envisaged that this Committee will continue to discharge its functions and responsibilities till the Distribution

Licensees are ready to take over the role of the HPPC. The scheduling process mentioned in these regulations has been designed taking HPPC and its role into consideration.

9.2. The overall scheduling process and the applicable timelines shall be as per the Table below.

Time (Finish by)	Activity	Primary Responsibility
10.00 hrs	<ul style="list-style-type: none"> a. NRLDC intimates Haryana's share in each CGS to SLDC for each 15-minute time block for the next day starting from 00.00 hrs; b. Each power station of HPGCL shall furnish ex-bus MW availability to SLDC for each 15-minute time block for the next day starting from 00.00 hrs; c. Generator (Supplier to Open Access Customer), IPP and CPP shall furnish their MW injections to SLDC/HPPC for each 15-minute time block for the next day starting from 00.00 hrs. 	<p>NRLDC</p> <p>HPGCL/ HPPC</p> <p>IPP, CPP</p>
11.00 hrs	SLDC shall compile total ex-bus MW availability from HPGCL, CGS (schedule from NRLDC), IPPs, Generator (Open Access Customer) and CPPs for each 15-minute time block for the next day starting from 00.00 hrs.	SLDC
11:15 hrs	SLDC shall intimate Open Access Customer (including Distribution Licensee)-wise entitlements in various generation stations to the Open Access Customers (including Distribution Licensees)/HPPC.	SLDC
11.30 hrs	Each Open Access Customer (including Distribution Licensee)/HPPC shall provide their MW requisitions (at T-D periphery) to SLDC based on their day-ahead load forecasts for each 15-minute time block for the next day starting from 00.00 hrs.	Open Access Customer (including Distribution Licensee)/HPPC
14.30 hrs	<p>For each of the Distribution Licensee, HPPC shall compare:</p> <ul style="list-style-type: none"> a. MW entitlement (at T-D periphery) for a given Distribution Licensee b. MW requisition (at T-D periphery) for a given Distribution Licensee <p>For each of the Distribution Licensee, HPPC shall take following decisions:</p> <p>If (a)<(b), HPPC shall take appropriate decision on:</p> <ul style="list-style-type: none"> i. To buy deficit power from other sources OR ii. To curtail equivalent load in a given Distribution Licensee to match (a) & (b) OR iii. To despatch unrequisitioned generation (if any) in which Haryana has share iv. Any combination of above three options <p>If (a)>(b), HPPC shall take appropriate decision on:</p> <ul style="list-style-type: none"> i. To sell surplus power to other buyers OR ii. To back-down generator(s) keeping in view merit order despatch OR iii. To serve additional demand by removing supply restrictions if any in a given Distribution Licensee 	HPPC/Distribution Licensee

	<p>iv. Any combination of above three options</p> <p>Based on above decision, HPPC shall prepare Distribution Licensee-wise MW requisition after incorporating necessary changes (e.g. including Short Term Power Purchase) and shall intimate to the SLDC.</p> <p>Note: After HPPC is disbanded, its indicated responsibility may be taken over by the respective Distribution Licensee</p>	
15.00 hrs	Based on the requisition (for Distribution Licensees) submitted by HPPC, the SLDC shall intimate Haryana's requisition for each of the CGS (in which Haryana has shares), Long Term bilateral interchanges, approved Short Term bilateral interchanges and composite request for day ahead Open Access and scheduling of bilateral interchanges to NRLDC. The SLDC shall follow this process for other Open Access Customers as well based on the drawal schedule indicated by them.	SLDC
17.00 hrs	NRLDC intimates Haryana's final drawal schedule to SLDC for each 15-minute time block for the next day starting from 00.00 hrs	NRLDC
18.00 hrs	<p>a. The SLDC shall finalize MW generation schedule for each SGS (HPGCL, Generators, IPPs, CPPs, Intra-State bilateral exchange) and MW drawal schedule for each Open Access Customer (including Distribution Licensees).</p> <p>b. The SLDC shall intimate MW generation schedule to each SGS (HPGCL, Generators, IPPs, CPPs, Intra-State bilateral exchange) for each 15 min. time block for the next day starting from 00.00 hrs.</p> <p>c. The SLDC shall intimate MW drawal schedule to each Open Access Customer (including Distribution Licensee) for each 15 min. time block for the next day starting from 00.00 hrs. The drawal schedule to be net of apportioned intra-state transmission losses.</p>	<p>SLDC</p> <p>SLDC</p> <p>SLDC</p>
18.30 hrs	HPPC shall advice respective Distribution Licensees with details of curtailment of load, if required.	PPC
23.00hrs	<p>a. Respective SGS shall intimate forced outage of their generating units (if any, occurred between 18.00 hrs and 23.00 hrs) and consequent changes in their ex-bus MW availability to the SLDC;</p> <p>b. The SLDC shall revise and freeze injection schedules of all generating stations and drawal schedules of all Open Access Customer (including Distribution Licensees).</p>	<p>HPGCL/IPP, CPPs</p> <p>SLDC</p>
23.30 Hrs	The SLDC shall intimate final injection schedules to respective SGS and final drawal schedules to respective Open Access Customers (including Distribution Licensees).	SLDC

10. REVISION IN SCHEDULES DURING THE DAY

- 10.1. In case of forced outage of a unit, the SLDC shall revise the schedules on the basis of revised declared capacity. The revised declared capacity and the revised schedules shall become effective from the 4th time block, counting the time block in which the revision is advised by the SGS to be the first one.

- 10.2. In the event of bottleneck in evacuation of power due to any constraint, outage, failure or limitation in the transmission system, associated switchyard and sub-stations owned by the State Transmission Utility or any other Transmission Licensee involved in intra-state transmission (as certified by the SLDC) necessitating reduction in generation, the SLDC shall revise the schedules which shall become effective from the 4th time block, counting the time block in which the bottleneck in evacuation of power has taken place to be the first one. Also, during the first, second and third time blocks of such an event, the scheduled generation of the SGS may be deemed to have been revised to be equal to actual generation, and the scheduled drawals of the Open Access
- 10.3. Open Access Customers (including Distribution Licensees) shall be deemed to have been revised to be equal to their actual drawals.
- 10.4. In case of any grid disturbance, scheduled generation of all the SGS and scheduled drawal of all the Open Access Customers (including Distribution Licensees) shall be deemed to have been revised to be equal to their actual generation/drawal for all the time blocks affected by the grid disturbance. Certification of grid disturbance and its duration is to be done by the RLDC/SLDC.
- 10.5. Revision of declared capacity by the SGS(s) and requisition by Open Access Customer (s) (including Distribution Licensee (s)) for the remaining period of the day shall also be permitted with advance notice. Revised schedules/declared capacity in such cases to become effective from the 6th time block, counting the time block in which the request for revision has been received in the SLDC to be the first one.
- 10.6. In case any Open Access Customer (including Distribution Licensees) seeks a revision in the bilateral schedule, the same shall be confirmed by the Generator/Supplier within a period of one hour of such request. The revised schedule shall come in effect from 6th time block of the confirmation being received.
- 10.7. If, at any point of time, the SLDC observes that there is a need for revision of the schedules in the interest of better system operation, it may do so on its own, and in such cases, the revised schedules shall become effective from the 4th time block, counting the time block in which the revised schedule is issued by the SLDC to be the first one.
- 10.8. If a revision is received from any CGS stations and NRLDC flash the information in real time basis containing all the relevant information (needed for revising the drawal schedules) based on which the SLDC shall parallel process the revision. The implementation time of revision shall be the same for NRLDC and the SLDC.
- 10.9. After the operating day is over at 24.00 hours, the schedule finally implemented during the day (taking into account all before-the-fact changes in dispatch schedule of generating stations and drawal schedule of the Open Access Customer) shall be issued by the SLDC. These schedules shall be the datum for commercial accounting. The average ex-bus capacity for each SGS shall also be worked out based on all before-the-fact advice to the SLDC.

CHAPTER III – ENERGY ACCOUNTING AND SETTLEMENT OF CHARGES

11. STATE ENERGY ACCOUNT

- 11.1. The SLDC shall prepare and issue the weekly State Energy Account (SEA) by 2nd day of next week for the billing and settlement of UI charges and reactive energy charges and inter-alia shall contain the following information:
 - a. Details of declaration and mis-declaration of Declared capacity by SGS (if any) for each time block;
 - b. Details of Energy scheduled to Discoms from ISGS and SGS for each time block;
 - c. Details of Energy Scheduled to Discoms from ISGS and SGS beyond target Availability for the purpose of incentive payment;
 - d. Details of Energy drawal from Discoms for each time block of the weeks;
 - e. Details of Reactive energy drawal from Discoms at the interface meters for each time blocks of the week;
 - f. Details of Scheduled Bilateral transactions (Direct or through Traders) and Collective transactions through Power Exchanges;

- 11.2. The SLDC shall also prepare monthly State Energy Account for the billing and settlement of capacity charges and energy charges. The SLDC shall prepare and issue (to all Intra-State Entities) provisional monthly State Energy Account (SEA) by 7th day of the next month and shall finalise the same by 14th day of the next month considering the comments/objections received from state entities. The monthly SEA shall broadly contain the following information:
 - a. Details of Plant Availability Factor achieved during the Month in % for each SGS;
 - b. Applicable Fuel price Adjustment (FPA) as per the HERC orders;
 - c. Details of incentive for generating plants as per the HERC orders;
 - d. Any other details which SLDC feels necessary to complete the SEA;

- 11.3. The SLDC shall be responsible for computation of actual net MWh injection of each generating station and actual net drawal of open access customers including distribution licensee(s), 15 minute-wise, based on the above mentioned meter readings and for preparation of the State Energy Accounts;

- 11.4. Discoms (through HPPC) shall pay to the respective ISGS Capacity Charges corresponding to Plant Availability and Energy Charges and incentives (if any) as per the relevant orders of CERC for the corresponding period. The bills for these charges shall be issued to each Discom through HPPC on monthly basis;

- 11.5. Discoms (through HPPC) shall pay to the respective SGS Capacity Charges corresponding to Plant Availability and Energy Charges and incentives (if any) for the Scheduled Despatch (on ex-Power Plant basis), as per the relevant orders of HERC for the

corresponding period. The bills for these charges shall be issued by the respective SGS to each Discom (through HPPC) on monthly basis;

- 11.6. In-firm Power from any SGS shall be accounted as Unscheduled Interchange and paid for from the State UI Pool Account at the applicable Frequency-linked UI rate (subject to Cap as specified by CERC, if any).

12. STATE UI ACCOUNT

- 12.1. Settlement of UI charges shall be done through State UI Pool Account and shall be operated by the SLDC. The SLDC shall prepare and issue (to all Intra-State Entities) provisional weekly State UI Account (SUA) by 7th day of every week based on the State Energy Account. The SLDC shall open and maintain a separate Bank Account with a Nationalized/Scheduled Commercial Bank
- 12.2. Details of UI Payable (+) / UI Receivable (-) by the Haryana (state as a whole) in Regional UI Pool will be available from the weekly Regional Energy Account (UI Account) prepared and circulated by the NRLDC;
- 12.3. The UI energy (+/-) of each Open Access Customer (including the Distribution Licensees) shall be computed by deducting scheduled drawal from the actual drawal for each 15-minute time block.
- 12.4. Similarly the UI energy (+/-) for all State Generators/IPPs/CPPs (part of the ABT regime) shall be computed by deducting scheduled generation from the actual generation for each 15-minute time block.
- 12.5. The UI energy as calculated in regulation 11.3 and regulation 11.4 shall then be converted into UI charges (receivable/payable) by multiplying the UI rate for each time block corresponding to average grid frequency during that time block as per the table given in Appendix I. These calculations shall be done for all the time blocks in a week.
- 12.6. For the State UI Pool Account the following rules for settlement will be applicable:
- a. Over drawal from schedule is "Payable (+) by Participant";
 - b. Under drawal from schedule is "Receivable (-) by Participant";
 - c. Over generation from schedule is "Receivable (+) by Participant";
 - d. Under generation from schedule is "Payable (-) by Participant"
- 12.7. For computing the State UI Pool balance the SLDC shall carry out the following "imbalance settlement" for all the Open Access Customers (including distribution licensee(s)) and the Generators within the state on a day basis for the entire week: For a given day:
- a. UI Payable (+) / UI Receivable (-) by Haryana in the Regional UI Pool = Rs. X
 - b. UI Payable (-) / UI Receivable (+) by SGS = Rs. Y
 - c. UI Payable (-) / UI Receivable (+) by other Generators=Rs. Z
 - d. UI Payable (+) / UI Receivable (-) by UHVCN = Rs. W

- e. UI Payable (+) / UI Receivable (-) by DHVBN = Rs. C
 - f. UI Payable (+) / UI Receivable (-) by other Open Access Customer = Rs. E
- 12.8. The Balance amount payable/receivable from regional UI pool (X-Y-Z-W-C-E)=D (if any) shall be settled as following:
- a. The amount D shall be shared equally between the intra-state entities who are paying UI charges and who are receiving UI payment;
 - b. Intra-state entities who are paying UI charges shall share the amount D/2 in the ratio of their original UI charges;
- 12.9. Similarly, Intra-state entities who are receiving UI payments shall share the amount D/2 in the ratio of their original UI payments. The two Distribution Licensees and Generators shall open irrevocable, revolving, confirmed, unconditional and non-recourse Letter of Credit (LoC) in favour of the SLDC with a Nationalized/Scheduled Commercial Bank, having Branch Office in Jabalpur. The cost of LoC shall be borne by the respective Distribution Licensee or Generator. Initial amount of LoC for the first Quarter shall be equal to the average weekly UI payment in the last quarter per Intra-State Entity.
- 12.10. The amount of LoC shall be revised every Quarter and shall be equal to average Weekly UI payment in the last Quarter.
- 12.11. Payment of UI charges shall have a high priority and the concerned Entity shall pay the indicated amount, within ten (12) days of issue of SUA Statement, into a State UI Pool Account operated by the SLDC. The Entity which has to receive the money on account of UI charges would then be paid out from the State UI Pool Account within next three (3) working days;
- 12.12. In case of failure to pay into the "UI Pool Account Fund" within the specified time of 12 days from the date of issue of statement of UI charges, the SLDC shall be entitled to encash the LC of the concerned entity to the extent of the default and the concerned utility shall recoup the LC amount within 3 days.

13. LIMITS ON UI VOLUME FOR OVERDRAWAL AND UNDER-INJECTION

- 13.1. The over-drawal of electricity by any beneficiary or a buyer during a time block shall not exceed 12% of its scheduled drawal or 150 MW, whichever is lower, when frequency is below 49.7 Hz and 3% on a daily aggregate basis for all the time blocks when the frequency is below 49.7 Hz;
- 13.2. The under-injection of electricity by a generating station or a seller during a time-block shall not exceed 12% of the scheduled injection of such generating station or seller when frequency is below 49.7 Hz and 3% on daily aggregate basis for all the time blocks when the frequency is below 49.7 Hz;
- 13.3. The additional Unscheduled Interchange Charge for such over-drawals and under-injection shall be as prescribed by the Commission.

14. UNSCHEDULED INTERCHANGE CAP RATES

- 14.1. The unscheduled interchange charge for the injection by a generation station in excess of 105% of the declared capacity in any time block of 15 minutes and averaging up to 101% of the average declared capacity over a day shall not exceed the charges for the unscheduled interchange corresponding to grid frequency interval between 50.00-50.02 Hz;
- 14.2. The unscheduled interchange charge for the injection by a seller in excess of 105% of the installed capacity in any time block of 15 minutes and averaging up to 101% of the average installed capacity over a day shall not exceed the charges for the unscheduled interchange corresponding to grid frequency interval between 50.00-50.02 Hz;
- 14.3. The UI Cap Rate shall be 403.0 Paise/kWh for all generating stations using coal or gas supplied under Administered Price Mechanism (APM) as the fuel, in case when actual generation is higher or lower than the scheduled generation;
- 14.4. The UI Cap Rate shall be 403.0 Paise/kWh (UI rate corresponding to grid frequency between 49.68-49.70) for the under draws by the buyer or the beneficiaries in excess of 10% of the schedule or 250 MW whichever is less;
- 14.5. The UI Cap Rate shall be 403.0 Paise/kWh for the injection by any generator (not covered under regulation 13.1) in excess of 120% of the schedule subject to a limit of ex-bus generation corresponding to 105% of the Installed Capacity of the station in a time block and 101% of the Installed Capacity over a day.

15. ADDITIONAL UI CHARGES FOR OVERDRAWAL

- 15.1. The Additional Unscheduled Interchange Charge (in addition to UI charges indicated in Annexure 1 of these regulations) for over-drawal of electricity for each time-block when grid frequency is below 49.5 Hz and up to 49.2 Hz shall be equivalent to 40% of the Unscheduled Interchange Charge corresponding to the grid frequency of below 49.5 Hz;
- 15.2. The Additional Unscheduled Interchange Charge for over-drawal of electricity for each time-block when grid frequency is below 49.2 Hz shall be equivalent to 100% of the Unscheduled Interchange Charge corresponding to the grid frequency of below 49.5 Hz.

16. ADDITIONAL UI CHARGES FOR UNDER-INJECTION

- 16.1. The Additional Unscheduled Interchange Charge for under-injection of electricity (by generators) for each time-block when grid frequency is below 49.5 Hz and up to 49.2 Hz shall be equivalent to 20% of the Unscheduled Interchange Charge corresponding to the grid frequency of below 49.5 Hz;

Provided that for generating stations covered under APM, additional UI charge for under-injection of electricity (by generators) for each time-block when grid frequency is below 49.5 Hz and up to 49.2 Hz shall be equivalent to 20% of 403 Paise/kWh.
- 16.2. The Additional Unscheduled Interchange Charge for under-injection of electricity for each time-block when grid frequency is below 49.2 Hz shall be equivalent to

40% of the Unscheduled Interchange Charge corresponding to the grid frequency of below 49.5 Hz:

Provided that for generating stations covered under APM, additional UI charge for under-injection of electricity (by generators) for each time-block when grid frequency is below 49.2 Hz shall be equivalent to 40% of 403 Paise/kWh

17. ILLUSTRATIVE EXAMPLE

A detailed step by step description of settlement mechanism for intra state entities aligned with these regulations is provided as an example in Appendix II and Appendix III to these regulations.

18. STATE REACTIVE ENERGY CHARGE ACCOUNT

- 18.1. The SLDC shall prepare weekly State Reactive Energy Charge Account (SRA) based on the State Energy Account for billing and settlement of reactive charges.
- 18.2. All SGS and other Generators shall generate/absorb reactive power as per instructions of the SLDC, within capability limits of the respective generating units. No payments shall be made to the SGS, IPPs, CPPs and short term open access customers for such VAR generation/absorption. Similarly, SGS and other Generators are not required to make any payment for such VAR generation/absorption as specified in clause 6.6(6) of IEGC clause and clause 4.9 of HGC;
- 18.3. Reactive energy charges for net reactive energy injection/drawal during low voltage (<97%) and high voltage (>103%) periods shall be paid at rates to be decided by HERC from time to time;
- 18.4. The reactive energy settlement shall be carried out as per the following procedure:
 - RRC:** Regional Reactive Charges Payable (-) / Receivable (+) by Haryana.
 - SRCP:** Total State Reactive Charges Payable (+) by Distribution Licensees
 - SRCR:** Total State Reactive Charges Receivable (-) by Distribution Licensees
 - OACP:** Total State Reactive Charges Payable (+) by an Open Access Customer
 - OACR:** Total State Reactive Charges Receivable (-) by an Open Access Customer
 - RRA:** Reactive Reserve Amount available in State Reactive Account (surplus amount from earlier reactive settlements)
 - Case-I:** If RRC is Payable (-) by Haryana and $(RRC + SRCR + OACR) < (SRCP + OACP)$: Balance amount is to be kept as reserve (RRA) after paying out RRC, SRCR and OACR.
 - Case-II:** If RRC is Payable (-) by Haryana and $(RRC + SRCR + OACR) > (SRCP + OACP)$: Surplus amount, if any, available in reserve (RRA) is to be withdrawn to match $(RRC + SRCR + OACR)$ and SRCP. If there is no reserve or if it is inadequate to meet the gap, SRCR, OACR and SRCP are to be adjusted appropriately to match the payables and receivables.

Case-III: If RRC is Receivable (+) by Haryana and $(RRC + SRCP + OACP) > (SRCR + OACR)$: Balance amount is to be kept as reserve after paying out SRCR.

Case-IV: If RRC is Receivable (+) by Haryana and $(RRC + SRCP + OACP) < (SRCR + OACR)$: Surplus amount, if any, available in reserve (RRA) shall be withdrawn to match $(RRC + SRCP + OACP)$ and SRCR. If there is no reserve or if it is inadequate to meet the gap, SRCR and SRCP are to be adjusted appropriately to match the payables and receivables.

Case-V: If State Reactive Charges are receivable by Distribution Licensees and Other Open Access Customers and no Regional Reactive Charges are receivable and reserve has no balance then no State Reactive Charges are to be paid to the Distribution Licensees and other Open Access Customers.

- 18.5. Payment of Reactive Charges shall have a high priority and the concerned Entity shall pay the indicated amounts, within ten (10) days of SRA Statement issue, into a State Reactive Account operated by the SLDC. The Entity which has to receive the money on account of Reactive Charges would then be paid out from the State Reactive Account within next three (3) working days.
- 18.6. If payments against the Reactive Charges are delayed by more than two (2) days, i.e. beyond twelve (12) days from SRA Statement issue, the defaulting Entities shall have to pay Simple Interest @ 0.04% for each Day of delay. The Interest so collected shall be paid to the Entities which had to receive the amount, payment of which got delayed.

CHAPTER IV – REQUIREMENTS AND RESPONSIBILITIES

19. RESPONSIBILITIES AND REQUIRMENTS OF SLDC

- 19.1. Primarily, the SLDC will be the agency responsible for implementation of intra- state ABT, and coordination with NRLDC for inter-state ABT application in consultation with generators, transmission licensee, traders, distribution licensee and open access consumers. The SLDC shall process the metering data received from all the stations and will maintain the energy account on regular basis and shall take all measures necessary to prevent any possible gaming;
- 19.2. The SLDC shall be capable to provide efficient scheduling and despatch services to Open Access Customers, State Generating Stations and the Distribution Licensees;
- 19.3. The SLDC shall develop necessary infrastructure for monitoring Open Access Customers, State Generating Stations and Distribution Licensees as defined in these regulations;
- 19.4. The SLDC shall create Energy Accounting Group (EAG). SLDC shall use advanced software based accounting and settlement system for settlement of UI transactions among Regional Pool, State Generating Stations, Distribution Licensees and Open Access Customers through the State UI Pool.
- 19.5. The SLDC shall open new bank account for imbalance settlements and payment security.
- 19.6. The SLDC shall deploy adequate IT and communication infrastructure along with adequate staffing to cater to above needs.
- 19.7. The SLDC shall prepare the following Detailed Operating Procedures (DOP) (indicating all major and minor activities, timelines, responsibilities etc.) in line with these regulations, HERC (Terms and Conditions for Open Access in Intra-State Transmission and Distribution System) Regulations, 2010 and HERC Tariff Regulations (for Generation, Transmission and Distribution), 2010:
- a. Procedure for determining Available Transmission Capacity (ATC) in case of short term open access transactions;
 - b. Procedure for scheduling and despatch (this shall also include cases when Open Access Customer did not furnish schedule, non-compliance with directive etc.);
 - c. Procedure for investigating the failure of the market constituents to comply with the rules and regulations of the Intra-State market;
 - d. Procedure for managing IT & communication infrastructure at SLDC;
 - e. Procedure for Monitoring and managing associated infrastructure;
 - f. Procedure for Metering, data collection and communication,
 - g. Procedure for Energy accounting and settlement;
 - h. Procedure for Imbalance payments/pool payments;

- i. Dispute resolution mechanism (for disputes like ATC determination, accounting in case of failure/malfunctioning of metering system, recovery of applicable charges, payment issues etc.);
- j. Training manual and training schedule for state constituents;
- k. Any other procedure which SLDC would feel necessary for the successful implementation of intra-state open access regulations and this Code.

NOTE 1: The above operating procedures shall be applicable only after these regulations have been approved by the Commission.

NOTE 2: All expenses to upgrade necessary software, hardware, human resources for real time operations and communication of data to SLDC etc. as allowed by the Commission will be recovered as per the HERC (Transmission Regulation under MYT Framework) Regulations 2010;

20. RESPONSIBILITIES AND REQUIRMENTS OF SGS

- 20.1. All SGS shall prepare their 15 minutes time block power generation schedule on day-ahead basis and shall submit it to SLDC. All SGS shall comply with the SLDC direction and shall provide the required assistance in time on regular basis;
- 20.2. All State Generating Stations shall establish Control Centre with adequate IT infrastructure (Computers, printers etc.), Internet connectivity, at least one Phone-cum-Fax Machine with STD facility and adequate man-power for round-the-clock (shift) operation of the Control Centre;
- 20.3. All state generators shall settle respective energy accounts based on the SEA prepared by the SLDC;
- 20.4. All State Generators shall provide support in meter installation process;
- 20.5. All State Generators shall provide support in metered data collection process;
- 20.6. All State Generators shall monitor the actual generation by its power stations vis a viz the finalized schedule on a real time basis. HPGCL shall also monitor the prevailing frequency and the applicable UI charges. This real time information may be used by HPGCL to take a call on either to ramp up or ramp down the generation from a generating station depending on the variable cost of its generation and the prevailing UI charge.

21. RESPONSIBILITIES AND REQUIRMENTS OF THE STU

- 21.1. The STU shall be responsible for installing ABT compliant metering arrangements at all G-T, T-D and the interface points of Open Access Customers with the Transmission Licensees. The specification of ABT compliant Energy Meter shall as per the Metering Code (Installation and Operation of Meters) Regulations 2006 specified by the CEA;

- 21.2. The STU shall undertake procurement, installation, testing, operation and maintenance of main and check meters along with associated CTs, PTs, structures and lead cables;
- 21.3. For the purpose of UI settlement, CMRI based (or on-line) data downloads from ABT compliant meters shall be undertaken by the STU;
- 21.4. The STU shall download data from ABT complaint meters installed at all the interface points on weekly basis on every Monday and shall send to the SLDC for UI settlement.

22. RESPONSIBILITIES AND REQUIRMENTS OF DISTRIBUTION LICENSEE(S) & OPEN ACCESS CUSTOMERS

- 22.1. All Open Access customers shall prepare their 15 minutes time block power drawal on day-ahead basis and shall submit it to the SLDC. All Open Access customers including distribution licensee(s) shall comply with the SLDC direction and shall provide the required assistance in time on regular basis;
- 22.2. Open Access Customers and Distribution Licensee(s) shall settle respective energy accounts based on the SEA prepared by the SLDC;
- 22.3. Open Access Customers and Distribution Licensee(s) shall provide communication link and monitoring infrastructure at their premises. Distribution Licensee shall establish telecommunication connectivity between ALDC and the SLDC. The Distribution Licensee shall use the real time information to monitor actual drawal vis-à-vis scheduled drawal;
- 22.4. The Distribution Licensee(s) shall develop and equip a group at all Distribution Control Centres (DCCs) (similar to SLDC's Energy Accounting Group) for energy accounting of all open access transactions within its area of operation.

23. RESPONSIBILTIES OF HPPC

- 23.1. **Scheduling of Distribution Licensee(s):** As HPPC is the agency that presently procures power and does all the power procurement planning on behalf of the Distribution Licensees, HPPC shall prepare the MW drawal for each 15-minute time block for the next day starting from 00.00 hrs for both the Distribution Licensee(s).
- 23.2. **Inter Discom transfer of surplus power:** In case there is any situation/duration, where one Distribution Licensee has surplus power whereas the other is power deficit, HPPC shall be responsible for inter Distribution Licensee transfer. The deficit Distribution Licensee will have the first right of refusal over the surplus power that is available with the other Distribution Licensee
- a. For each of the Distribution Licensee, the HPPC shall compare:
- i. MW entitlement (at T-D periphery)
 - ii. MW requisition (at T-D periphery)

- b. The HPPC shall then determine the Distribution Licensees which have energy surplus/ deficit. If one Distribution Licensee is surplus and the other is energy deficit, HPPC shall perform the following steps:
 - i. Intimate energy surplus Distribution Licensee of the energy deficiency in the other Distribution Licensee;
 - ii. Intimate deficit Distribution Licensee of the surplus energy available with the other Distribution Licensee
- c. The deficit Distribution Licensee may then exercise its right to purchase the surplus energy available and intimate the energy surplus Distribution Licensee accordingly.
- d. The energy surplus Distribution Licensee shall inform the SLDC and the HPPC of its decision to the transfer surplus power to the deficit Distribution Licensee.
- e. The SLDC shall revise the requisition and entitlement of the Distribution Licensees accordingly.

NOTE 1: The Commission may recognize such energy transfers between the Distribution Licensees and the suggested principles for pricing of such transfers in the appropriate regulations. However, the transfer of surplus power (from the long term PPAs allocated by the State Government) to the deficit Distribution Licensee shall be done at cost and the power selling Distribution Licensee shall not be entitled to earn any profit on Inter Discom transfer of Power.

- 23.3. **Short-term power sale outside the State:** In case there is any situation/duration where the total entitlement of the two Distribution Licensees (state's own generation, share in other generating plants and bilateral contacted power) exceeds their requirements, Distribution Licensee(s) may decide to sell the power to other utilities outside the state. The HPPC shall be the nodal agency responsible for trading of power with utilities outside the State. The HPPC shall take following actions on identifying trading opportunities:
- a. Indicate the two Distribution Licensees of its intention to sale power outside the state;
 - b. Assessment of the demand & supply situations and the prices it is likely to discover in various power markets
 - c. Evaluation of the trading options available to it;
 - d. Decision to target a particular market (looking into risk and return trade off)
 - e. Prepare all documents required for entering into trading agreements

The accounting the income generated from the trade of surplus power outside the state in the ARR of the Distribution Licensees shall be done according to Distribution Regulations under MYT Regulations, 2010 notified by the Commission.

NOTE 2: After the HPPC is disbanded its indicated responsibility may be taken over by the respective Distribution Licensee.

NOTE 3: All stake holders shall comply with the SLDC directions and shall provide the required assistance in time on regular basis. SLDC is authorized to impose penalty not exceeding Rupees five lacs on the users, in case of non-compliance of the directions. SLDC shall direct HVPNL/ Distribution licensee(s) to disconnect or to effect curtailment of supply to the user in such a situation.

CHAPTER V - MISCELLANEOUS

24. STANDING COMMITTEE FOR MARKET AUDIT

- 24.1. A Standing Committee shall be appointed by the Commission for independent review and audit of market transactions and behaviour of Open Access Customers and their Generators/Suppliers in the Intra-State Market. The objectives of such audit are to check unfair transactions, minimise possibilities of gaming by any Open Access Customer (including the Generators/Suppliers) and accordingly incorporate appropriate safeguards in the market operating procedures. The Committee shall comprise of the following members:
- a. A Representative from the HERC (not below the rank of Director) – Chairman of the Standing Committee;
 - b. A Representative from the SLDC (not below the rank of Chief Engineer)- Convener of Standing Committee;
 - c. A Representative from the NRLDC;
 - d. A Representative from the STU (not below the rank of Chief Engineer);
 - e. An Economist nominated by the State Advisory Committee;
 - f. One Representative nominated by each Distribution Licensee (not below the rank of Superintending Engineer).
- 24.2. The audit shall be conducted twice in a year or as notified by the Commission. The chairman of the Committee shall submit the audit report within 60 days of the initiation of the audit. The proceeding of the audit shall be strictly confidential.
- 24.3. The Committee shall recommend modifications and suggestions (if any) in regulations or orders or procedures notified and/or approved by the Commission. The Commission may either approve or disapprove such modifications and suggestions.

25. ISSUE OF ORDERS AND PRACTICE DIRECTIONS

- 25.1. Subject to the provision of the Act and these Regulations, the Commission may, from time to time, issue Orders and Practice directions in regard to the implementation of these Regulations and procedure to be followed on various matters, which the Commission has been empowered by these Regulations to direct, and matters incidental or ancillary thereto.
- 25.2. Notwithstanding anything contained in these Regulations, the Commission shall have the authority to direct SLDC to determine the UI charges and penalties either suo motu or on a petition filed by any interested or affected party.

26. POWERS TO REMOVE DIFFICULTIES

- 26.1. If any difficulty arises in giving effect to any of the provisions of these Regulations, the Commission may, by a general or special order, not being inconsistent with the provisions of these Regulations or the Act, do or undertake to do things or direct the intra-state entities to do or undertake such things which appear to be necessary or expedient for the purpose of removing the difficulties.

27. POWER OF RELAXATION

27.1. The Commission may in public interest and for reasons to be recorded in writing, relax any of the provision of these Regulations.

28. INTERPRETATION

28.1. If a question arises relating to the interpretation of any provision of these Regulations, the decision of the Commission shall be final.

29. SAVING OF INHERENT POWERS OF THE COMMISSION

29.1. Nothing contained in these Regulations shall limit or otherwise affect the inherent powers of the Commission from adopting a procedure, which is at variance with any of the provisions of these Regulations, if the Commission, in view of the special circumstances of the matter or class of matters and for reasons to be recorded in writing, deems it necessary or expedient to depart from the procedure specified in these Regulations.

30. Enquiry and Investigation

30.1. All enquiries, investigations and adjudications under these Regulations shall be done by the Commission through the proceedings in accordance with the provisions of the Conduct of Business Regulations, 2004 as amended from time to time.

31. Power to Amend

31.1. The Commission, for reasons to be recorded in writing, may at any time vary, alter or modify any of the provision of these Regulations by specific order.

APPENDIX I – APPLICABLE UI RATES

The current applicable UI rates as notified by the CERC on 3rd May 2010, is indicated in table below. These rates shall be applied as UI rates while computing the UI charges for state entities as mentioned in regulation 11. The rates specified below shall be modified from time to time as per the UI rates notified by CERC:

Average Frequency of Time Block		UI Rate (Paisa/kWh)
Below	Not Below	
	50.20	0.00
50.20	50.18	15.50
50.18	50.16	31.00
50.16	50.14	46.50
50.14	50.12	62.00
50.12	50.10	77.50
50.10	50.08	93.00
50.08	50.06	108.50
50.06	50.04	124.00
50.04	50.02	139.50
50.02	50.00	155.00
50.00	49.98	170.50
49.98	49.96	186.00
49.96	49.94	201.50
49.94	49.92	217.00
49.92	49.90	232.50
49.90	49.88	248.00
49.88	49.86	263.50
49.86	49.84	279.00
49.84	49.82	294.50
49.82	49.80	310.00
49.80	49.78	325.50
49.78	49.76	341.00
49.76	49.74	356.50
49.74	49.72	372.00
49.72	49.70	387.50
49.70	49.68	403.00
49.68	49.66	450.00
49.66	49.64	497.00
49.64	49.62	544.00
49.62	49.60	591.00
49.60	49.58	638.00
49.58	49.56	685.00
49.56	49.54	732.00
49.54	49.52	779.00

49.52	49.50	826.00
49.50		873.00

APPENDIX II – BALANCING OF ENERGY ACCOUNT AND SETTLEMENT UI CHARGES

Ex-ante Settlement (on a day-ahead basis)

Step 1: Calculation of the Entitlement (By¹: SLDC)

a. **The availability (in MW) declared by the generators for a time block:**

Time block	SGS1	SGS2	SGS3	ISGS1	ISGS2	ISGS3	Total
00:00-00:15	2,200	4,000	1,500	2,500	500	300	11,000

Note: For ISGS it is assumed that the power availability at Haryana periphery is after deducting ISTS losses.

b. **Discoms requisition (in MW) at the Transmission – Discom Interface:**

Time block	D1	D2	Total
00:00-00:15	4,750	5,500	10,250

c. **Generator availability (in MW) at Haryana periphery is allocated to Discoms in proportion to their respective entitlements:**

Discom	SGS1	SGS2	SGS3	ISGS1	ISGS2	ISGS3	Total
D1	990	2000	450	1625	50	255	5370
D2	1210	2000	1050	875	450	45	5630
Total	2,200	4,000	1,500	2,500	500	300	11,000

Step 2: Calculation of loss adjusted requisition of Discoms (By: SLDC)

Discoms will furnish drawal requisition at their interface with transmission (i.e. T-D interface). In order to calculate the requisition at the generator or state periphery, notional state transmission losses are to be added to arrive at Discom drawal requisitions at SGS/state periphery (i.e. Loss Adjusted Requisition at G-T interface):

Discom	Requisition at Discom periphery [R] MW	% Loss in state transmission system [L] %	Loss Adjusted Requisition [LAR = R / (1 - (L))] MW
D1	4750	5%	5000
D2	5500	5%	5789
Total	10250		10789

Step 3: Calculation of the Discom-wise surplus / deficit (By: SLDC)

The surplus or deficit to each of the Discom is computed by taking the difference of the Entitlement and Loss Adjusted Requisition. At this step, it will be known that the State will need to purchase/sell deficit/surplus power or plan for load shedding.

Discom	Entitlement [E] MW	Loss Adjusted Requisition [LAR] MW	Surplus (+) / Deficit (-) [= E - LAR] MW
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¹ Indicates responsible entity for a given task

D1	5370	5000	+370
D2	5630	5789	-159
Total	11000	10789	+211

Step 4: Discom-wise Merit Order Scheduling (By: each Discom)

Each Discom will run its own merit order to meet its requisitioned demand. In this step, inter-Discom scheduled trade quantum will be worked out and source of generation for each Discom will be known along with associated variable costs.

The example given below shows a Discom wise merit order calculations:

Generators	Variable Cost (Rs./kWh)	D1 (MW)	D2 (MW)	Total Despatch [TD] MW	Balance unallocated power [= $\Sigma E - TD$] MW
SGS3	1.6	450	1050	1500	9500
SGS1	1.7	990	1210	2200	7300
ISGS1	1.8	1625	875	2500	4800
SGS2	2.3	2000	2000	4000	800
ISGS2	2.5	50	450	500	300
ISGS3	2.9	255	45	300	0
Total Discom allocation as per respective merit order [A]		5370	5630	11000	
Loss Adjusted Requisition [LAR]		5000	5789	10789	
Surplus / Deficit (-) [= A - LAR]		+370	-159	+211	

The following table indicates surplus MW available with Discoms after meeting its own requirement:

Generators	Variable Cost (Rs./kWh)	D1	D2
SGS3	1.6	0	0
SGS1	1.7	0	0
ISGS1	1.8	0	0
SGS2	2.3	65	0
ISGS2	2.5	50	0
ISGS3	2.9	255	0
TOTAL		370	0

Step 5: Inter-Discom and Inter-state Trading of surplus/deficit (By: each Discom)

At this stage, the inter-Discom and inter-state exchange quantum and the marginal variable cost of generation capacity will be known. In current example, Discom D1 is in deficit and will source power from other surplus Discoms (residual least cost power available after meeting self requirement) as shown in the table below. Also the quantum of power trading for inter-state transaction will be known.

Inter-Discom Trade		
Trade / Transaction	Trade Quantum (MW)	Price^ (Rs./kWh)

D1 (surplus from SGS2) to D2	65	2.3
D1 (surplus from ISGS2) to D2	50	2.5
D1 (surplus from ISGS3) to D2	=159-65-50	2.9
Total	147.51	
Inter State Trade		
Trade	Trade Quantum (MW)	Price* (Rs./kWh)
D1 (surplus from ISGS3) to D2	=370-159	Marginal Station (Rs. 2.9) at market price
Total	211	

^ assuming margin (profit) on inter-Discom trade as "nil"

* Inter-state trade shall happen at overall state marginal price (highest variable cost among all scheduled generators) after meeting state's own requirements

The Discom Schedule arrived by running merit order is at the generator periphery (G-T interface). This should be converted to Discom schedule at the Discom periphery (T-D interface). This is done by deducting the notional state transmission loss from this schedule:

Particular	D1	D2	Total
Final Discom Drawal Schedule at G-T interface (Ex-bus) (in MW)	5000	5789	10789
Final Discom Drawal Schedule at T-D interface* (in MW)	5370	5630	11000
Inter-state trade quantum** (in MW)	370	-159	211

* After inter-Discom trades

** balance power available with each of the Discoms

Ex-post Settlement (after the day of operation)

Settlement of active energy imbalances

Following table shows UI computations for SGS and ISGS (i.e. drawal from Regional Pool) for a given time block:

Particular	SGS1	SGS2	SGS3	ISGS (Regional Pool)
Scheduled generation at G-T interfaces (MW):	200	800	650	1350
Actual generation at G-T interfaces (MW):	180	775	710	1500
UI (MW) (UG(-)/OG(+)):	-20	-25	60	150
Frequency (00:00-00:15):	49.50 Hz			
UI Rate (as per CERC):	907 Paise/kWh			
UI Payable (-) / UI Receivable (+) by Participant (in Rs):	-45350	-56687.5	136050	340125

Following table shows UI computations for Discoms and open access customers for the given time block:

Particular	D1	D2	D3	Total
Scheduled drawal at T-D interfaces (MW):	1091	946	862	2899
Actual drawal at T-D interfaces (MW):	991	1146	962	3099
UI (MW) (UD(-)/OD(+)):	-100	200	100	200
Frequency (00:00-00:15):	49.50 Hz			
UI Rate (as per CERC):	345 Paise/kWh			
UI Payable (+) / UI Receivable (-) by Participant:	-226750	453500	226750	453500

Above calculations shall be done for all time blocks in a week.

A State UI Pool Account for settlement is created with following rules:

Over drawal from schedule is **"Payable (+) by Participant"**

Under drawal from schedule is **"Receivable (-) by Participant"**

Over generation from schedule is **"Receivable (+) by Participant"**

Under generation from schedule is **"Payable (-) by Participant"**

Applying above rules, net UI Payables / UI Receivables at the end of a week is calculated for each Participant of State UI Pool **for each day** in a week.

UI liability from the Regional UI Pool is also included in the State UI Pool as a 'net payable' or 'net receivable' for a week. UI liability from Regional UI Pool will be first adjusted against the total UI Receivables/UI Payables under State UI Pool. Residual UI amount in the State UI Pool will be settled among the participants by matching 'total UI Payables' and 'total UI Receivables' by participants taking average of the 'total UI Payables' and 'total UI Receivables'.

State UI Pool Account (for a given day in a week)			
Amount Payable by Participants		Amount Receivable by Participants	
Participant	Rs,000	Participant	Rs,000
D2	4,000	D1	4,000
Open Access customer	1,000	SGS3	3,500
SGS1	3,500		
SGS2	2,000		
Total (Payables)	10,500	Total (Receivables)	7,500

Regional UI Amount (payable by Haryana): 3500 thousand Rupees

Adjustment: Here the net amount payable from Haryana according to state Energy account is $(10,500,000 - 7,500,000) = 3,000,000$ rupees. However, according to the Regional account Haryana needs to pay 3,500,000 rupees on account of UI charges. Therefore there is a shortage of 500,000 rupees.

For the purpose of recovery of 500,000 rupees, this amount will be shared equally by state receiving UI participants and state paying UI participants. Which means now the state paying UI participants will need to pay $10,500,000 + 250,000 = 10,750,000$ and state Receiving UI participants will receive $7,500,000 - 250,000 = 6,750,000$. This additional amount will be shared by UI participants proportionally to their payment/ receivable according to State Energy Account as shown in above table. E.g. D2 will now pay $4000 + (4000/10,500)*250 = 4094.24$ thousands rupees. Similarly D1 will now receive $4000 - (4000/7500)*250 = 3866.67$ thousand rupees. Performing similar calculations the following table is achieved:

State UI Pool Account (for a given day in a week)			
Amount Payable by Participants		Amount Receivable by Participants	
Participant	Rs,000	Participant	Rs,000
D2	4095.24	D1	3866.67
Open Access customer	1023.81	SGS3	3383.33
SGS1	3583.33		
SGS2	2047.62		
Total (Payables)	10750	Total (Receivables)	7250

APPENDIX III – SETTLEMENT OF REACTIVE ENERGY CHARGES

Settlement of reactive energy imbalances

Reactive Energy Charges Settlement					
Particular		Case-I RRC: Payable, (RRC + SRC _R) < SRC _P	Case-II RRC: Payable, (RRC + SRC _R) > SRC _P	Case-III RRC: Receivable, (RRC + SRC _P) > SRC _R	Case-IV RRC: Receivable, (RRC + SRC _P) < SRC _R
Regional Reactive Charges Payable (-) / Receivable (+) (RRC)	a	-200000	-200000	200000	200000
Reactive Charges Payable (+)/ Receivable (-) by Discom D1	b	-100000	-100000	200000	100000
Reactive Charges Payable (+)/ Receivable (-) by Discom D2	c	180000	80000	-80000	-180000
Reactive Charges Payable (+)/ Receivable (-) by Discom D3	d	220000	120000	-120000	-220000
Total Reactive Charges Payable (+) by Discoms (SRC _P)	e	400000	200000	200000	100000
Total Reactive Charges Receivable (-) by Discoms (SRC _R)	f	-100000	-100000	-200000	-400000

Total Payable to the Pool	g	400000	200000	400000	300000
Total Receivable from the Pool	h	-300000	-300000	-200000	-400000
Reactive Reserve Amount (RRA) in the beginning of settlement period	j	0	100000	0	200000
Reactive Reserve Amount (RRA) at the end of settlement period	k	100000	0	200000	100000
Settlement	m	Payments as per calculations, balance amount deposited in RRA	Amount from RRA shall be drawn to match total payables and total receivables	Payments as per calculations, balance amount deposited in RRA	Amount from RRA shall be drawn to match total payables and total receivables