

Bhopal, 23rd day of October 2009

No.2299/MPERC/2009 - In exercise of the powers conferred by Section 181 read with Sections 39(2)(d)(i), 40(c)(i), 66, 86(1)(c) and 86(2)(i) of the Electricity Act 2003, the Madhya Pradesh Electricity Regulatory Commission hereby makes the following Code:

MADHYA PRADESH ELECTRICITY REGULATORY COMMISSION

Balancing and Settlement Code (BSC)

1. Preamble

- 1.1 The National Electricity Policy (NEP) envisages implementation of the Availability Based Tariff (ABT) at State level to establish a credible settlement mechanism for Intra-day power transfers among Intra-State Entities. As per the Tariff Policy, this framework should be extended to Generating Stations (including Grid connected Captive Plants of capacities as determined by the SERC). This Code has been specified to give effect to the intentions of Section 5.7.1(b) & (d) of the NEP as well as Section 6.2(1) & 6.3 of the Tariff Policy.

2. Short title, extent of application and commencement

- 2.1 This Code shall be called “**Madhya Pradesh Electricity Balancing and Settlement Code, 2009 (G-34 of 2009)**”.
- 2.2 This Code shall apply within the geographical area of the State of Madhya Pradesh and shall apply to Intra-State Entities (excluding Intra-State Open Access Entities) in Madhya Pradesh in a manner as specified in this Code.
- 2.3 This Code shall come into force from the first of the month proceeding the month of publication in the Official Gazette of Madhya Pradesh.

3. Definitions

- 3.1 In this Code, unless the context otherwise requires:
1. “Act” means the Electricity Act, 2003 (36 of 2003);
 2. “CERC” means the Central Electricity Regulatory Commission referred to in Section 76 of the Act;
 3. “CMRI” means Common Meter Reading Instrument used for downloading and storage of data from electronic energy meters of multiple make;

4. “Commission” means the Madhya Pradesh Electricity Regulatory Commission (MPERC) constituted under Section 82 of the Act;
5. “Day” means a continuous period starting at 00.00 hours and ending at 24.00 hours;
6. “Despatch Schedule” means the ex-Power Plant net MW and MWh output of a Generating Station, Scheduled to be exported to the Grid from time to time;
7. “Detailed Procedure” means the detailed operating procedure issued by the State Load Desptach Centre under this Code;
8. “Discom Control Centre (DCC)” means the Control Room established at each Discom Headquarters with necessary Infrastructure and Human Resources for implementation of this Code (*DCC shall be built, owned, operated and maintained by respective Discom*);
9. “Discom Energy Accounting Group (DEAG)” means the group to be formed by each Discom (at DCC) which would be responsible for implementation of this Code in co-ordination with SLDC (wherever required);
10. “Distribution Licensee or Discom” means a Licensee authorised to operate and maintain a Distribution System for supplying electricity to the consumers in his area of supply;
11. “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;
12. “Energy Accounting Group (EAG)” means the group to be formed at the SLDC which would be responsible for implementation of this Code;
13. “Entitlement” means share of a Discom or an Open Access Customer (in MW and MWh) in the installed Capacity/output Capability of a Generating Station;
14. “Ex-Power Plant” means net MW/MWh output of a Generating Station, after deducting Auxiliary consumption and Transformation losses;
15. “Generator Control Centre (GCC)” means the control room established at MPPGCL Headquarters with necessary Infrastructure and Human Resources for implementation of this Code (*GCC shall be built, owned, operated and maintained by MPPGCL*);
16. “Grid” means the high Voltage backbone system of inter-connected Transmission lines, Sub-Stations and Generating plants;

17. “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;
18. “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);
19. “Intra-State Entity” means a person whose metering and energy accounting is done by the State Load Despatch Centre (*for the purpose of this Code, Intra-State Entities shall include MPPGCL Stations, Indira Sagar Project, Omkareshwar Hydro-Electric Project (HEP), any other future Stations, Shared Stations, Independent Power Producers (IPPs), Distribution Licensees and Intra-State Open Access Customers*);
20. “Madhya Pradesh Electricity Grid Code (MPEGC)” means the Grid Code specified by the MPERC under Clause (h) of Sub-section(1) of Section 86 of the Act;
21. “Month” means a Calendar month as per the British Calendar;
22. “MPTradeCo.” means Madhya Pradesh Power Trading Company Ltd. notified by the Government of Madhya Pradesh on 7th June 2006;
23. “Net Drawal Schedule” means the Drawal Schedule of a Discom or an Open Access Customer after deducting the apportioned Transmission Losses (estimated);
24. “Open Access Customer” means a person who has availed or intends to avail of Open Access under CERC (Open Access in Inter-State Transmission) Regulations 2008 (as amended) and includes a Short-term Transmission Customer as defined in any other Regulations specified by the MPERC or a Generating Company (including Captive Generating Plant) or a Licensee or a Consumer permitted by the MPERC 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;
25. “State Load Despatch Centre (SLDC)” means the Centre established under Sub-section(1) of Section 31 of the Act;
26. “State” means the State of Madhya Pradesh;
27. “State Energy Account (SEA)” means monthly State Energy Account prepared by SLDC for the billing and settlement of Capacity charges, Energy charges and Incentives;
28. “State Reactive Account (SRA)” means weekly State Reactive Energy Account prepared by SLDC for the billing and settlement of Reactive Energy Charges;

29. “State UI Account (SUA)” means weekly State Unscheduled Interchange Account prepared by SLDC for the billing and settlement of UI charges;
30. “State Sector Generating Station (SSGS)” means any Power Station within the State, except Inter-State Generating Stations (ISGS) located within the State *(for the purpose of this Code, Indira Sagar Project, Omkareshwar Hydro Electric Project (HEP), and other Shared Stations in which Madhya Pradesh has a share shall be treated as SSGS)*;
31. “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;
32. “Time Block” means Block of 15-minute each for which special energy meters record specified electrical parameters and quantities with first Time Block starting and 00.00 hours;
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 CERC from time to time;
34. “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.
- 3.2 Words and expressions used in this Code and not defined herein but defined in the Act or IEGC or MPEGC shall have the meaning assigned to them under the Act or IEGC or MPEGC, as the case may be.
- 3.3 Following abbreviations are used in this Code:

Abbreviation	Expansion
MPPGCL	Madhya Pradesh Power Generating Company Limited
MPPTCL	Madhya Pradesh Power Transmission Company Limited
WRLDC	Western Regional Load Despatch Centre
WRPC	Western Regional Power Committee
IPP	Independent Power Producer

4. Infrastructure and Capability Requirements

- 4.1 Respective Entity shall ensure adequate Infrastructure and Capability Development to fully implement this Code:
- 4.2 Subject to provisions of this Code, the SLDC, with prior approval of the Commission shall issue a detailed procedure covering relevant and residual matters not detailed in this Code such as:

- (a) Detailed procedure for Scheduling and Despatch;
 - (b) Detailed procedure for Energy Metering (including data collection, data processing, data transfer, data archiving, etc.);
 - (c) Detailed procedure for Energy Accounting, UI Accounting, Reactive Accounting and Settlement (including management of dedicated Bank Account, management of Letters of Credit, payments/receipts, etc.);
 - (d) Any other procedure which SLDC feels necessary for the successful implementation of this Code.
- 4.3 Each Discom shall fully develop and equip Discom Energy Accounting Group (DEAG) at respective Discom Control Centre (DCC) for undertaking various activities required for implementation of this Code. Each Discom shall file monthly compliance report to this directive on 1st day of every month.

5. Scheduling and Despatch

- 5.1 This Section describes general Principles of Scheduling and Despatch. The basic idea behind Scheduling is to match the Supply and Demand on a day-ahead basis. This Section shall be read in conjunction with the IEGC, MPEGC and MPERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2009:

General Principles: Scheduling

- 5.2 All the Scheduling shall be done on 15-minutes Time Block. For this 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. SLDC shall compile and intimate each Discom the Drawal Schedule and to each SSGS the Generation Schedule in advance.
- 5.3 **Merit Order Operation:** Discoms, will give their requisitions based on their individual Merit Order i.e. in ascending order of cost of energy (i.e. variable cost) of ISGS, SSGS, Bilateral and Collective transactions allocated to individual Discom.
- 5.4 The Net Drawal Schedule of any Discom issued by SLDC would be sum of ex-Power Plant Schedules from different SSGS, share from ISGS and any Bilateral transactions agreed by the Discoms with any other agency inside / outside the Region, Collective transactions through Power Exchanges and Drawal / Injection on behalf of Open Access Customers.
- 5.5 The Generation Schedule of each SSGS shall be sum of the requisitions made by each Discom, restricted to their Entitlement and subjected to maximum and minimum Value criteria or any other technical constraints indicated by SLDC.

- 5.6 Discoms shall endeavour to maintain their Drawals in such a manner that they do not over-draw from the Grid whenever the Frequency is below normal Value and do not under-draw whenever Frequency is above the normal value. Similarly, each SSGS shall also endeavour to maintain their generation in such a manner that they do not generate above Schedule during the period when the Frequency is above the normal Value and do not generate below Schedule, whenever Frequency falls below normal Value.
- 5.7 Generation Schedules and Drawal Schedules issued / revised by SLDC shall become effective from designated Time Block irrespective of communication success.
- 5.8 For any revision of scheduled Generation of any Generator (including post facto deemed revision), there shall be a corresponding revision of scheduled Drawals of the Discoms.
- 5.9 A procedure for recording the communication regarding changes to Schedules duly taking into account the time factor shall be evolved by SLDC (Voice recorder with time stamping).
- 5.10 Generator shall ensure that Declared Capacity (DC) during Peak shall not be less than that of during Off-Peak period of the day. [Exception: Tripping/Re-synchronisation of units due to Forced Outage]
- 5.11 The following specific points would be taken into consideration while preparing the Schedules:
- (a) SLDC shall check that the resulting power flows do not give rise to any Transmission constraint. In case of any constraints, SLDC shall moderate the Schedule to the required extent by intimation to concerned Discoms; and
 - (b) SLDC shall check that Schedules are operationally reasonable particularly in terms of ramping-up / ramping-down rates and ratio between minimum and maximum generation levels. SLDC shall moderate the Schedule to the required extent by intimation to concerned Discoms. The ramping up / ramping down rates in respect of different categories of Stations would be based on the technical data as substantiated by Generating Stations and as mutually agreed by Discoms.
- 5.12 While preparing Generation Schedules, SLDC shall keep in view the Transmission system constraints and provision of operating margins (reserves).
- 5.13 For calculating the Net Drawal Schedules of Discoms, the Average Pooled Transmission Losses shall be apportioned in proportion to their Drawal Schedules. Following process shall be adopted to compute weekly losses:

- (a) State Transmission loss for a given Week = (Total net injection into the State Grid in a week) - (Total net Drawal from the State Grid in a Week);
 - (b) Loss of nth Week shall be computed by the 5th day of the (n+1)th Week;
 - (c) This loss figure shall then be used in the Scheduling process from the beginning of the (n+2)th Week;
 - (d) SLDC shall round-off actual loss of nth Week to nearest 0.25% for the purpose of Scheduling for the (n+2)th Week (e.g. 4.70% is rounded-off to 4.75%, 4.35% is rounded off to 4.25% and so on);
 - (e) Events in the Grid of an exceptional nature could result in abnormally high or low losses in any Week. This could be either a Load crash in the State due to a Weather disturbance or closure of any Major Hydro Power Station during the monsoon for flushing of silt/debris from the Reservoir or Outage of any major Transmission Line(s) etc. The losses for these abnormal weeks shall generally be ignored as far as the Scheduling process is concerned. SLDC's decision in this regard will be final.
- 5.14 While availability declaration by SSGS may have a Resolution of 0.1 MW and 0.1 MWh, all Entitlements, Requisitions and Schedules shall be rounded-off to the nearest decimal, to have a Resolution of 0.01 MW.
- 5.15 SLDC shall properly document all the information mentioned under Clauses 5.2 to 5.14 on its Website including Station-wise foreseen ex-Power Plant capabilities advised by the Generating Stations, Entitlements in ISGS, Drawal Schedules advised by Discoms, all Schedules issued by the SLDC and all revisions/updating of such information be hosted on Website.

General Principles: Revision in Schedules

- 5.16 In case of forced outage of a Generating unit, the SLDC shall revise the Schedules on the basis of revised Declared Capability by SSGS. The revised Declared Capability and the revised Schedules shall become effective from the 4th Time Block, counting the Time Block in which the revision is advised by the SSGS to be the First one.
- 5.17 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 STU 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 SSGS shall be deemed to have been revised to be equal to actual generation, and

the Scheduled Drawals of the Discoms shall be deemed to have been revised to be equal to their Actual Drawals.

- 5.18 In case of any Grid disturbance, Scheduled Generation of all the SSGS and Scheduled Drawal of all the Discoms 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. The exact duration of such Grid disturbance would be declared by the RLDC/SLDC on the basis of mutually agreed guidelines.
- 5.19 Revision of Declared Capability by the SSGS(s) and requisition by Discom(s) for the remaining period of the day shall also be permitted with advance notice. Revised Schedules/Declared Capability in such cases shall 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.
- 5.20 Similarly, in case any Discom seeks a revision in the Bilateral Schedules, the same would have to be confirmed by the other Entity within a period of one hour. The revised Schedule shall 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.
- 5.21 If, at any point of time, the SLDC observes that there is 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.
- 5.22 If a revision is received from any ISGS, RLDC will flash the information (as per the requirements of CERC Regulations/Orders) in real-time basis containing all the relevant information needed to the Schedule based on which SLDC will process the revision in parallel. The implementation time of revision will be same for RLDC and SLDC.

Implemented Schedules

- 5.23 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 Despatch Schedule of Generating Stations and Drawal Schedule of the other Intra-State Entities) shall be issued by SLDC within three (3) days. These Schedules shall form the basis for Commercial accounting. The average Ex-bus capability for each SSGS shall also be worked out based on all before-the-fact advice to SLDC.
- 5.24 The procedure for Scheduling and the final implemented Schedules issued by SLDC, shall be open to all Intra-State Entities for any checking/verification, for a period of five (5) days. In case any mistake/omission is detected, the SLDC shall forthwith make a complete check and rectify the same.

Timelines and responsibility matrix

Time (finish by)	Activity	Primary Responsibility
10.00 hrs	<p>(i) WRLDC intimates MW and MWh Entitlements of MP in each ISGS to SLDC for the next day i.e. between 00.00 hrs to 24.00 hrs of the following day, in each 15-minute Time Block</p> <p>(ii) MPPGCL* shall advise SLDC the Station wise ex-Power Plant MW and MWh Capabilities foreseen for the next day i.e. between 00.00 hrs to 24.00 hrs of the following day, in each 15-minute Time Block</p> <p>(iii) IPP shall advise SLDC the Station wise ex-Power Plant MW and MWh Injections for the next day i.e. between 00.00 hrs to 24.00 hrs of the following day, in each 15-minute Time Block</p> <p>(iv) Indira Sagar Project, Omkareshwar Hydro-Electric Project, Shared Stations and any other Stations not covered under above Sr. No. (i), (ii) and (iii) shall advise SLDC the Station wise ex-Power Plant MW and MWh Capabilities foreseen for the next day i.e. between 00.00 hrs to 24.00 hrs of the following day, in each 15-minute Time Block</p>	<p>WRLDC</p> <p>MPPGCL/ GCC</p> <p>IPP</p> <p>Respective Station</p>
12.00 hrs	<p>(i) SLDC shall compile total ex-Power Plant MW and MWh availability from all the Generating Stations</p> <p>(ii) SLDC shall compute Station wise and total MW and MWh Entitlement of each Discom for the next day in each 15-minute Time Block and shall intimate to MPTradeCo.</p>	<p>SLDC</p> <p>SLDC</p>
12.00 hrs	Each Discom shall intimate to MPTradeCo. its total MW demand in each 15-minute Time Block for the next day based on day-ahead demand forecasts grossed up for actual State Transmission Losses for the previous Financial Year.	Respective Discom
13.00 hrs	<p>MPTradeCo. on behalf of Discoms shall run Merit Order Despatch for <u>each</u> Discom separately to meet its ex-Power Plant MW demand. MPTradeCo. shall compute quantum of surplus/deficit MW for each Discom:</p> <p>For <u>each</u> Discom, MPTradeCo. shall compare (for each Time Block):</p> <p>(a) Total ex-Power Plant MW Entitlement of a given Discom</p> <p>(b) Total ex-Power Plant MW Demand of a given Discom</p> <p>For <u>each</u> Discom, MPTradeCo. shall take following decisions in consultation with the Discoms:</p> <p>If (a) < (b), MPTradeCo. shall take appropriate decision on:</p> <p>(i) To buy deficit Power from other Sources (other Discom/State/Trader) or</p> <p>(ii) To curtail equivalent Load in a given Discom to match (a) & (b) or</p> <p>(iii) To despatch un-requisitioned Generation (if any) or</p> <p>(iv) Any combination of above options</p> <p>If (a) > (b), MPTradeCo. shall take appropriate decision on:</p> <p>(i) To sell surplus power to other Buyers (other Discom/State/Trader) or</p> <p>(ii) To back-down Generator(s) keeping in view Merit Order Despatch or</p> <p>(iii) To serve additional Demand by removing supply restrictions or</p> <p>(iv) Any combination of above options</p> <p>Based on above decisions, MPTradeCo. shall prepare Discom-wise ex-Power Plant MW requisition in each of the Generating Stations and intimate the same to SLDC.</p>	<p>MPTradeCo. in consultation with Discoms</p> <p>MPTradeCo.</p>
14.00 hrs	MPTradeCo. shall intimate to SLDC, the Discom-wise ex-Power Plant MW requisition in each of the Generating Stations along with Long-term Bilateral transactions, approved Short-term Bilateral transactions and	MPTradeCo. in consultation-

Time (finish by)	Activity	Primary Responsibility
	Collective transactions through Power Exchanges	SLDC in coordination with Discoms
15.00 hrs	SLDC shall intimate to WRLDC, MP's composite requisition in each of the ISGS along with Long-term Bilateral transactions, approved Short-term Bilateral transactions and Collective transactions through Power Exchanges.	SLDC
17.00 hrs	WRLDC intimates to SLDC, MP's Drawal Schedule (at CTU-STU Interface) in each 15-minute Time Block for the next day	WRLDC
18.00 hrs	(i) SLDC shall finalize ex-Power Plant MW Generation Schedules of each SSGS and MW Drawal Schedules (at ex-Power Plant and STU-Discom Interface) of each Discom (ii) SLDC shall intimate Generation Schedules to respective SSGS (iii) SLDC shall intimate Drawal Schedules to MPTradeCo. / respective Discom	SLDC SLDC SLDC
21.30 hrs	SSGS/Discoms may inform the modifications to be made, if any, in the above Schedules to SLDC	SSGS/Discom
22.00 hrs	SLDC shall intimate to WRLDC, all the modifications pertaining to ISGS Schedules and Inter-State transactions (if any)	SLDC
23.30 hrs	After receipt of final Drawal Schedule of MP from WRLDC at 23.00 hrs and taking into account all the modifications indicated by Discoms, SLDC shall issue the final Generation Schedules to respective SSGS and final Drawal Schedules to MPTradeCo. / respective Discom	SLDC
During the day of operation	SLDC may revise Schedule of any Intra-State Entity as per the provisions of this Code	SLDC
Within 3 days	SLDC shall prepare implemented Schedules and final ex-Power Plant Capability for each SSGS after incorporating all post-facto revisions	SLDC

** All Hydro Power Stations of MPPGCL shall furnish day ahead Declared Capacity(DC) as per MPERC (Terms and conditions for determination of Generation Tariff) Regulation 2009. The Generation Schedule shall be issued by the SLDC on the basis of DC of Hydel Power Stations furnished by MP Genco.*

6. Energy Metering

- 6.1 The STU shall install Special Energy Meters on all Interface points with Intra-State Entities for recording of actual net MWh Interchanges and MVARh Drawals. The type of Meters to be installed, metering Scheme, metering capability, testing and calibration requirements and the scheme for collection and dissemination of metered data shall be as specified under Annexure 2 to Chapter 6 of IEGC. All concerned Intra-State Entities (in whose premises the Special Energy Meters are installed) shall fully cooperate with the STU/SLDC and extend the necessary assistance by taking weekly meter readings and transmitting them to the SLDC.
- 6.2 The SLDC shall be responsible for computation of actual net MWh Injection of each SSGS and actual net Drawal of each Discom on 15-minute Time Block-wise, based on meter readings and for preparation of the State Energy Accounts. All 15-minute Energy figures (net Scheduled, actually metered and UI) shall be rounded off to the nearest 0.01 MWh. All computations carried out by SLDC shall be open to all Intra-State Entities for checking/verifications for a period of

fifteen (15) days. In case any discrepancy is pointed out regarding energy metering, State Energy Accounts, State UI Accounts and State Reactive Accounts, the SLDC shall make a complete check and rectify the same.

- 6.3 The SLDC shall periodically review the actual deviation from the Despatch and Net Drawal Schedules being issued. In case any such deviation is detected, the matter shall be referred to Standing Committee formed as per the provisions of this Code.

7. Energy Accounting and Settlement

State Energy Account (SEA)

- 7.1 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 21st day of the month. SEA shall broadly contain the following information:
- (a) Details of PAFM (Plant Availability Factor achieved during the Month in %) for each SSGS;
 - (b) Details of mis-declaration of Declared Capability by SSGS (if any);
 - (c) Details of Energy scheduled to Discoms from ISGS and SSGS;
 - (d) Details of Energy Scheduled to Discoms from ISGS and SSGS beyond target PLF (based on Scheduled Generation) for the purpose of incentive payment;
 - (e) Details of Scheduled Bilateral transactions (Direct or through Traders) and Collective transactions through Power Exchanges;
 - (f) Any other details which SLDC feels necessary to complete the SEA;
- 7.2 Discoms (through MPTradeCo.) shall pay to the respective ISGS Capacity Charges corresponding to Plant Availability and Energy Charges and PLF incentives (if any) for the Scheduled Despatch (on ex-Power Plant basis), as per the relevant notifications and orders of CERC. The bills for these charges shall be issued by the respective ISGS to each Discom (through MPTradeCo.) on monthly basis.
- 7.3 Discoms (through MPTradeCo.) shall pay to the respective SSGS Capacity Charges corresponding to Plant Availability and Energy Charges and PLF incentives (if any) for the Scheduled Despatch (on ex-Power Plant basis), as per the relevant notifications and orders of MPERC. The bills for these charges shall be issued by the respective SSGS to each Discom (through MPTradeCo.) on monthly basis.

State Energy UI Account (SUA)

- 7.4 The SLDC shall prepare and issue (to all Intra-State Entities) provisional Weekly State UI Account (SUA) within ten (10) days from the last day of the Week and shall finalise the same within another five (5) days. SUA shall broadly contain the following information:
- (a) Details of UI Tariff Structure currently in force;
 - (b) Details of Day-wise and total UI transactions for each Entity (details shall include Scheduled Energy, actual Energy, UI payment (unadjusted) and UI payment (matched));
 - (c) Summary table listing all paying Entities (along with net amount payable by them) on left-hand side and all receiving Entities (along with net amount receivable by them) on right-hand side;
 - (d) Details of Time-Blocks of suspension of UI due to Transmission constraints and Grid disturbances;
 - (e) Any other details which SLDC feels necessary to complete the SUA.
- 7.5 Composite UI amount payable/receivable by the Madhya Pradesh in the Regional UI Pool Account shall be obtained from the Weekly Regional UI Account prepared and circulated by WRPC.
- 7.6 Comparison of the Actual Drawal and Scheduled Drawal for each Discom will be carried out to calculate Unscheduled Interchanges. The UI energy of each Discom is calculated by deducting Scheduled Drawal from the Actual Drawal on 15-minute basis. Similarly, UI Energy of each Generating Station is calculated by deducting Scheduled Injection from the Actual Injection on 15-minute basis. This UI Energy is then converted into UI amount by multiplying the UI rate for each Time Block corresponding to average Grid Frequency in that Time Block. Similar calculations are to be carried out for all the Time Blocks in a Week.
- 7.7 Following rules shall apply for Active Energy transactions in the State:
- (a) Amount payable (+) by Intra-State Entity for Over-Drawal;
 - (b) Amount receivable (-) by Intra-State Entity for Under-Drawal;
 - (c) Amount payable (+) by Intra-State Entity for Under-Generation;
 - (d) Amount receivable (-) by Intra-State Entity for Over-Generation.
- 7.8 For a given day, amount payable/receivable by each Intra-State Entity and Regional UI amount payable/receivable by the Madhya Pradesh shall be matched with the average of total payables and total receivables. Net UI

payable (+) / receivable (-) for any Intra-State Entity for a given Week shall be the Arithmetic sum of matched UI payable (+) / receivable (-) for all the days in a Week.

- 7.9 In-firm Power from any SSGS 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). Till further order by the Commission, UI Mechanism shall not be applied to multi-purpose Hydro Power Stations of MPPGCL.
- 7.10 Imbalances of Inter-State Open Access Customers (if any) embedded in the State system shall be settled as per the methodology specified in CERC (Open Access in Inter-State Transmission) Regulations, 2008. Till such time the Commission specifies the details of settlement of imbalances of Intra-State Open Access Customers (if any), the UI rate of Intra State Entity shall be 105% (for Over-Drawal or Under-Generation) and 95% (for Under-Drawals or Over-Generation) of UI rate at the periphery of Regional Entity. UI payable / receivables to / from on the basis of rates applicable to Generating Companies shall be capped at 406 paise per kWh for all Generating Stations using Coal or Lignite or Gas supplied under Administered Price Mechanism (APM) as the fuel, in case when actual Generation is higher than the Scheduled Generation.

Provided that any generation from the Generating Stations upto 105% of Declared Capacity (DC) in any Time Block of 15-minutes and averaging upto 101% of the DC over the day shall not be considered as 'Gaming'. Accordingly, 105% of the Injection Schedule in any Time Block of 15-minutes and averaging upto 101% of the Injection Schedule has been allowed to Captive Power Plants for UI.

- 7.11 Settlement of UI charges shall be done through State UI Pool Account to be operated by SLDC. SLDC shall open and maintain a separate Bank Account with a Nationalized/Scheduled Commercial Bank (having Branch Office in Jabalpur).
- 7.12 Payment of UI charges shall have a high priority and the concerned Entity shall pay the indicated amount, within ten (10) days of SUA Statement issue, 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.
- 7.13 If payments against the UI Charges are delayed by more than two (2) days, i.e. beyond twelve (12) days from SUA 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 who had to receive the amount and whose payment has got delayed.
- 7.14 In addition, all the three Discoms and those Generators whose Capacity and Energy Charges are not being paid by the Discoms shall open irrevocable, revolving, confirmed, unconditional and non-recourse Letter of Credit (LoC) in

favour of “MPSLDC - UI FUND - MPPTCL” with a Nationalized/Scheduled Commercial Bank, having Branch Office in Jabalpur. The cost of LoC shall be borne by the respective Discom or Generator. Initial amount of LoC for the first Quarter shall be Rs. 10 lakh per Intra-State Entity which shall be revised every Quarter and shall be equal to average Weekly UI payment in the last Quarter.

State Reactive Account (SRA)

7.15 The SLDC shall prepare and issue (to all Intra-State Entities) provisional Weekly State Reactive Account (SRA) complying with the requirements of IEGC and MPERC Grid Code within ten (10) days from the last day of the Week and shall finalise the same within another five (5) days. SRA shall broadly contain the following information:

- (a) Details of day-wise net Reactive Energy Injection/Drawal during low Voltage (<97%) and high Voltage (>103%) for each Discom;
- (b) Summary of weekly total net Reactive Energy Injection/Drawal during low Voltage (<97%) and high Voltage (>103%) for each Discom;
- (c) Summary of Reactive Charges payable/receivable by the Discom [**Note:** rate of Reactive Energy shall be taken as 5.75 paise/kVARh (w.e.f. 1st April, 2009) with escalation @ 0.25 paise/annum subject to revision by the MPERC through an order from time to time]; and
- (d) Any other details which SLDC feels necessary to complete the SRA.

7.16 Following rules shall apply for Reactive Energy transactions in the State:

- (a) Amount payable (+) by Discom for Drawal when $V < 97\%$;
- (b) Amount receivable (-) by Discom for Injection when $V < 97\%$;
- (c) Amount payable (+) by Discom for Injection when $V > 103\%$;
- (d) Amount receivable (-) by Discom for Drawal when $V > 103\%$.

7.17 Notwithstanding the above, SLDC may direct a Discom to curtail its Reactive Drawal/Injection in case the security of Grid or safety of any equipment is endangered. All SSGSs shall generate/absorb Reactive power as per instructions of SLDC, within capability limits of the respective Generating Units that are without sacrificing on the active generation required at that time. No payments shall be made to the SSGS for such VAR generation/absorption. Also, SSGS will not be required to make any payment for such VAR generation / absorption.

7.18 The Reactive Energy Settlement shall be carried out as per following procedure:

Nomenclature:

RRC: Regional Reactive Charges payable (+) / receivable (-) by MP

SRC_P: Total State Reactive Charges payable (+) by Discoms

SRC_R: Total State Reactive Charges receivable (-) by Discoms

RRA: Reactive Reserve Amount available in State Reactive Account (i.e. surplus balance amount after settlement of all earlier Reactive transactions)

- (a) **Case-I:** If RRC is payable (+) by MP and $(RRC + SRC_R) < SRC_P$: Balance amount shall be kept as reserve (RRA) after paying out RRC and SRC_R;
- (b) **Case-II:** If RRC is payable (+) by MP and $(RRC + SRC_R) > SRC_P$: Surplus amount, if any, available in reserve (RRA) shall be withdrawn to match $(RRC + SRC_R)$ and SRC_P. If there is no reserve or if it is inadequate to meet the gap, SRC_R and SRC_P shall be reduced appropriately to match the total payables and total receivables;
- (c) **Case-III:** If RRC is receivable (-) by MP and $(RRC + SRC_P) > SRC_R$: Balance amount shall be kept as reserve (RRA) after paying out SRC_R;
- (d) **Case-IV:** If RRC is receivable (-) by MP and $(RRC + SRC_P) < SRC_R$: Surplus amount, if any, available in reserve (RRA) shall be withdrawn to match $(RRC + SRC_P)$ and SRC_R. If there is no reserve or if it is inadequate to meet the gap, SRC_R and SRC_P shall be reduced appropriately to match the total payables and total receivables;
- (e) **Case-V:** If State Reactive Charges are receivable by Discoms and no Regional Reactive Charges (RRC) are receivable and reserve (RRA) has no balance available then no Reactive Charges shall be payable to the Discoms.

7.19 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.

7.20 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.

8. Illustrative example

8.1 Appendix to this Code provides illustration of Balancing and Settlement Mechanism for Intra-State Entities in line with this Code.

9. Data Archiving Requirements

9.1 All Entities shall properly preserve respective record of documents / information / data for the period as specified in following table. The records shall be easily retrievable at any time for the purpose of Audit by the MPERC or any other independent Audit Agency appointed by the MPERC.

Sr. No.	Documents / information / data	Mode and period of storage	Responsibility
1.	Short term Open Access and associated contracts/agreements by Intra-State Entities	Electronic – 12 months Paper – 6 months	SLDC
2.	Declared Capacity of all SSGS and Entitlements in all ISGS (all revisions)	Electronic – 12 months Paper – 6 months	SLDC, GCC
3.	Demand, Entitlement and Requisition of each Discom (all revisions)	Electronic – 12 months Paper – 6 months	SLDC, DCC
4.	Short-term Open Access transactions: Bilateral transactions (direct and through Traders) and Collective transactions through Power Exchanges	Electronic – 12 months Paper – 6 months	SLDC, DCC
5.	Schedules of ISGS, SSGS, Discoms, Open Access Customers (all revisions)	Electronic – 12 months Paper – 6 months	SLDC, GCC, DCC
6.	ABT meter data from Interfaces with SSGS, Discoms, Open Access Customers in 15-minute Time Block	Electronic – 12 months	SLDC
7.	Details of SLDC instructions to SSGS, Discoms, Open Access Customers	Electronic – 12 months Paper – 6 months	SLDC
8.	Details of requests from SSGS, Discoms, Open Access Customers to SLDC	Electronic – 12 months Paper – 6 months	SLDC
9.	Any other information deemed necessary for Operational, Commercial or Market Audit purpose	Electronic – 12 months Paper – 6 months	SLDC, GCC, DCC

10. Standing Committee for Market Audit

10.1 The Commission may appoint a Standing Committee (SC) for independent review and audit of market transactions and behaviour of Intra-State Entities to which Balancing and Settlement Code is applied. The Committee shall comprise of following members:

- (a) A Representative from SLDC (not below the rank of Chief Engineer) - Chairperson of the Standing Committee;
 - (b) A Representative from STU (not below the rank of Chief Engineer); and
 - (c) An Eminent Engineer nominated by State Advisory Committee.
- 10.2 The Audit may be conducted twice a Year and the Committee shall submit the Audit Report to the Commission within sixty (60) days of the initiation of the Audit.
- 10.3 The Committee shall recommend modifications and suggestions (if any) to the Commission. The Commission may accordingly amend and notify, if required, the concerned Section or Order or Procedure.

11. Applicability of Code

- 11.1 This Code shall apply only to SSGS, IPPs (if any), Discoms and Inter-State Open Access Entities from the date of coming into force and shall apply to such other Generators/ Entities from such date, as may be specified by the Commission separately by way of notification.

12. Powers to remove difficulties

- 12.1 If any difficulty arises in giving effect to any of the provisions of this Code, the Commission may, by general or special order, direct SLDC, STU and/or any of the Intra-State Entities to take suitable action, not being inconsistent with the provisions of the Act, which appears to the Commission to be necessary or expedient for the purpose of removing the difficulties.
- 12.2 SLDC, STU and/or any of the Intra-State Entities may also make an application to the Commission and seek suitable orders to remove any difficulties that may arise in implementation of this Code.

13. Power to amend

- 13.1 The Commission may from time to time add, vary, alter, modify or amend any provisions of this Code after following the necessary procedure.

14. Savings

- 14.1 Nothing in this Code shall be deemed to limit or otherwise affect the inherent power of the Commission to make such orders as may be necessary to meet the ends of justice or to prevent abuses of the process of the Commission.
- 14.2 Nothing in this Code shall bar the Commission from adopting, in conformity with the provisions of the Act, a procedure, which is at variance with any of the provisions of this Code, if the Commission, in view of the special circumstances

of a matter or class of matters and for reasons to be recorded in writing, deems it necessary or expedient for dealing with such a matter or class of matters.

- 14.3 Nothing in this Code shall, expressly or impliedly, bar the Commission dealing with any matter or exercising any power under the Act for which no Regulations or Code have been framed, and the Commission may deal with such matters, powers and functions in a manner it thinks fit.

By Order of the Commission

Ashok Sharma, Commission Secretary

Appendix : Illustration of Balancing and Settlement Mechanism

Sl. No.	Parameter	Unit	Discom	SSGS1	SSGS2	SSGS3	ISGS1	ISGS2	ISGS3	CTU Loss:	4.00%	STU Loss:	5.00%	Surplus(+)/Deficit(-) (at Discom periphery)	
										Total (at Ex-power plant)	Total (at STU periphery)	Total (at Discom periphery)			
a	Installed Capacity	MW	--	2,000.0	1,000.0	1,500.0	2,100.0	3,200.0	600.0	--	--	--	--	--	
b	Energy Charge / Variable Cost	paaise/kWh	--	160.0	220.0	150.0	80.0	140.0	280.0	--	--	--	--	--	
	Merit order	--	--	4	5	3	1	2	6	--	--	--	--	--	
A EX-ANTE SETTLEMENT (ON A DAY-AHEAD BASIS)															
1	Declared Capacity (Ex-power plant)	MW	--	1,800.0	700.0	1,300.0	1,900.0	2,600.0	580.0	--	--	--	--	--	
2	Capacity Allocation (%)	MW	D1	30.0	30.0	15.0	10.0	15.0	25.0	--	--	--	--	--	
			D2	25.0	20.0	50.0	5.0	10.0	5.0	--	--	--	--	--	
			D3	45.0	50.0	35.0	15.0	5.0	0.0	--	--	--	--	--	
			TOTAL	100.0	100.0	100.0	30.0	30.0	30.0	--	--	--	--	--	--
3	Entitlements (Ex-power plant)	MW	D1	540.0	210.0	195.0	190.0	390.0	145.0	1,670.0	1,641.0	1,559.0	--	--	
			D2	450.0	140.0	650.0	95.0	260.0	29.0	1,624.0	1,608.7	1,528.3	--	--	
			D3	810.0	350.0	455.0	285.0	130.0	0.0	2,030.0	2,013.4	1,912.7	--	--	
			TOTAL	1,800.0	700.0	1,300.0	570.1	780.0	174.0	5,324.1	5,263.1	5,000.0	--	--	
4	Expected Demand	MW	D1	--	--	--	--	--	--	--	--	1,400.0	159.0	--	
			D2	--	--	--	--	--	--	--	--	1,800.0	-271.7	--	
			D3	--	--	--	--	--	--	--	--	2,300.0	-387.3	--	
			TOTAL	--	--	--	--	--	--	--	--	--	5,500.0	-500.0	--
5	Requisition (Ex-power plant) [Note: Highlighted values indicate reduced requisition based on merit order]	MW	D1	540.0	181.8	195.0	190.0	390.0	0.0	1,496.8	1,473.6	1,400.0	0.0	--	
			D2	450.0	140.0	650.0	95.0	260.0	29.0	1,624.0	1,608.7	1,528.3	-271.7	--	
			D3	810.0	350.0	455.0	285.0	130.0	0.0	2,030.0	2,013.4	1,912.7	-387.3	--	
			TOTAL	1,800.0	671.8	1,300.0	570.1	780.0	29.0	5,150.9	5,095.7	4,840.9	-659.1	--	
6	Schedule*	MW	PP	1,800.0	671.8	1,300.0		1,323.9		--	--	--	--	Load shedding need	
			D1	--	--	--	--	--	--	--	1,496.8	--	1,400.0	0.0	
			D2	--	--	--	--	--	--	--	--	1,624.0	--	1,528.3	271.7
			D3	--	--	--	--	--	--	--	--	2,030.0	--	1,912.7	387.3
7	Schedule*	MWh	PP	450.0	168.0	325.0		331.0		--	--	--	--	--	
			D1	--	--	--	--	--	--	--	--	--	350.0	--	
			D2	--	--	--	--	--	--	--	--	--	382.1	--	
			D3	--	--	--	--	--	--	--	--	--	478.2	--	
B EX-POST SETTLEMENT (AFTER THE DAY OF OPERATION)															
1	Metered Energy	MWh	PP	430.0	150.0	350.0		347.0		--	--	--	--	--	
			D1	--	--	--	--	--	--	--	--	--	300.0	--	
			D2	--	--	--	--	--	--	--	--	--	--	410.0	--
			D3	--	--	--	--	--	--	--	--	--	--	500.0	--
2	Over-drawal (+) / Under-drawal (-) / Over-generation (-) / Under-generation (+)	MWh	PP	20.0	18.0	-25.0		16.0		--	--	--	--	--	
			D1	--	--	--	--	--	--	--	--	--	-50.0	--	
			D2	--	--	--	--	--	--	--	--	--	--	27.9	--
			D3	--	--	--	--	--	--	--	--	--	--	21.8	--
3	Average grid frequency in a block	Hz					49.50								
4	Corresponding UI rate	paaise/kWh					550.00								
5	Amount payable by entity (+) / receivable by entity (-) in a time block	Rs.	PP	110,000.0	98,725.0	-137,500.0		-88,094.6		--	--	--	--	--	
			D1	--	--	--	--	--	--	--	--	--	-274,949.6	--	
			D2	--	--	--	--	--	--	--	--	--	--	153,654.4	--
			D3	--	--	--	--	--	--	--	--	--	--	119,996.3	--
6	State UI pool	Rs., 000	Un-adjusted				Adjusted (matched)								
			Payable by entity		Receivable by entity		Payable by entity		Receivable by entity						
			D2	3,000.0	D1	4,500.0	D2	3,150.0	D1	4,218.8					
			D3	2,000.0	SSGS3	3,500.0	D3	2,100.0	SSGS3	3,281.3					
			SSGS1	3,500.0	Regional	3,000.0	SSGS1	3,675.0	Regional	3,000.0					
			SSGS2	1,500.0			SSGS2	1,575.0							
			Total (P)	10,000.0	Total (R)	11,000.0	10,500.0	Total (P)	10,500.0	Total (R)	10,500.0				

PP: Power Plant, SSGS: State Sector Generating Station, ISGS: Inter-State Generating Station, * schedule for ISGS is computed at CTU-STU periphery (after deducting CTU loss)