

Standard Operating Procedures

For

Distribution Control Centres of MP

[*Insert logo of company*]

Distribution Control Centre,[*Insert company Name and address of DCC*]

[*March*] 2012

MADHYA PRADESH DISTRIBUTION CONTROL CENTRE STANDARD OPERATING PROCEDURES

The DISCOM Control Centres (DCCs) have been established in each distribution company as specified under "Madhya Pradesh Electricity Balancing and Settlement Code, 2009". The DCCs are responsible for demand side management by maintaining distribution system in its area in an efficient, coordinated and economical manner such that availability & supply balance is ensured without degrading the system conditions.

The following procedures have been developed to regularize and formalize the grid operation and streamline the information exchange with external agencies. It is envisaged that implementation of the following SOPs is expected to benefit Discom in terms of improved system availability and reliability, enhanced grid discipline, regulatory compliance and commercial orientation.

Procedure No.	Description
SOP-01	Demand Forecasting Procedure
SOP-02	Day-ahead Demand Requisition Procedure
SOP-03	Real-Time Monitoring and Control of Demand Procedure
SOP-04	Contingency Management Procedure
SOP-05	Energy Accounting and Settlement Procedure
SOP-06	Outage Planning Procedure
SOP-07	Reporting & Compliance Procedure
SOP-08	SOP Administration Procedure

Note: Please replace X- E for East Discom, W for West Discom, C for Central Discom in all procedures and formats

Definitions & Abbreviations

ABT	Availability Based Tariff
ACR	Annual Confidential Report
AE	Assistant Engineer
APM	Administered Price Mechanism
BSC	MPERC (Balancing and Settlement Code) Regulation 2009.
CAGR	Compounded Annual Growth Rate
CE	Chief Engineer
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CMD	Chairman and Managing Director of Discom
CTU	Central Transmission Utility(POWERGRID)
DA	Data Acquisition
DC	Declared Capacity
DCC	Distribution Control Centre
DEAG	Discom Energy Accounting Group
DG	Diesel Generator
DGM	Deputy General Manager
Discom	Distribution Company
EHT	Extra High Tension
EHV	Extra High Voltage
FOR	Forum of Regulators
GCC	Generator Control Centre
GoMP	Government of MP
HR	Human Resource
HT	High Tension
IEGC	Indian Electricity Grid Code
IPP	Independent Power Producer
ISGS	Inter-State Generation Station
JV	Joint Venture
KV	Kilo Volt
KVA	Kilo Volt Ampere
MoM	Minutes of Meeting
MP Tradeco	Madhya Pradesh Power Trading Company Limited
MPEGC	Madhya Pradesh Electricity Grid Code
MPERC	Madhya Pradesh Electricity Regulatory Commission
MPPGCL	Madhya Pradesh Power Generating Company Limited (MP Genco)
MU	Million Units

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MW	Mega Watt
MWh	Mega Watt hour
NDCC	Nodal Demand Control Centres (Administrative unit within Discom responsible for demand forecasting or control.)
NLDC	National Load Despatch centre
O&M	Operation & Maintenance
OA	Open Access
RLSS	Rotational Load Shedding Scheme
SEA	State Energy Account
SLDC	State Load Despatch Centre of Madhya Pradesh
SOP	Standard Operating Procedure
SSGS	State Sector Generating Station
STM	Sub-Transmission Maintenance
STU	State Transmission Utility (MPPTCL)
Sub-LDC	Sub- Load Despatch Centre
Supply Plan Management	Feeder wise ON/OFF schedule for daily demand management & control of Discom
TNA	Training Need Analysis
UFR	Under Frequency Relay
UI	Unscheduled Interchange
Varh	Volt-Ampere Reactive
WRLDC	Western Regional Load Despatch Centre
WRPC/ RPC	Western Regional Power Committee

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SOP-01

Demand Forecasting Procedure

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1 Demand Forecasting Procedure

1.1 Introduction

Demand projection is a vital process for the Discoms in the present context of power shortage where the system demand is growing rapidly as compared to addition in the generating capacity resulting in persistent gap between the demand and supply of power. Demand forecasting is highly important which is the basis for planning of generation capacity; transmission & Discom network augmentation and power procurement. Demand forecasting is one of the key prerequisites input for efficient day-ahead requisition of power by Discoms. This procedure describes the process for demand forecasting, timelines for activities, responsibility for each activity and standard templates for data input and output.

The procedure is prepared in compliance to following regulations, order and procedures:

- a. Madhya Pradesh Electricity Grid Code 2004 and its amendment amendments from time to time.
- b. Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and its amendment dated 05.03.2012.
- c. Madhya Pradesh Government Gazette notification dated 11.05.2010.
- d. Madhya Pradesh Electricity Balancing and Settlement Code, 2009 and its amendment dated 02.06.2010 and Procedures.

1.2 Objectives

The objective of the process is to forecast demand for the following periods:

- a. Day ahead
- b. Week ahead
- c. Fortnight ahead
- d. Month ahead
- e. Quarter year ahead
- f. Half year ahead
- g. Year ahead
- h. Two year ahead
- i. Five year ahead
- j. Greater than ten years

Robust demand forecasts by discom will help in network planning, optimising procurement of power, optimise unscheduled interchange and maintain grid discipline. Also, implementation of this procedure will ensure uniformity among all three Discoms in terms of process of demand forecasting.

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1.3 Scope

This procedure applies to DCC and NDCCs.

1.4 Owner

Head (DCC) is responsible for the implementation and maintenance of this procedure.

General Shift In-charge (DCC) shall be responsible to forecasting demand for discom.
Shift In-charge (NDCC) shall be responsible to update DCC about the field conditions and demand requirements for its jurisdiction.

1.5 Guidelines

Demand forecasts for time periods upto one year are categorized as short-term. Demand forecasts for period more than one year are categorized as long term.

I. Ensuring precision in demand forecasting

Precision in demand forecasting is very much required to have correct estimates for developing short and long term power procurement plan. An underestimate could lead to under capacity, which would result into poor quality of service including localized brownouts, or even blackouts. An overestimate on the other hand could lead to the redundancy of power that may not be needed for estimated period.

There are a number of forecasting methods (Econometric, Time series, Trend analysis, Curve fitting, End-use, CAGR etc.) through which Electricity demand could be forecasted. Every method has its merits and demerits. Worldwide demand forecasting techniques based upon econometric analysis and statistical modeling are considered to be most precise methods as they include almost all the factors impacting electricity demand in short and long term.

The main consideration for any selected approach should specifically cater to the concerns and issues which are very necessary to cater while forecasting demand growth. Some important factors have been discussed below which are considered important and needs to be analyzed and envisaged for ensuring precision in forecasts.

- a. Analysing the infrastructure development plans (residential and industrial) for future and envisaging their affect on demand growth
- b. Understanding the dynamics of sales mix in future
- c. Predicting off peak and peak unrestricted demand for short, medium and long term horizons
- d. Envisaging the affect of all economic, demographic, policy, pricing and technology variables on demand growth
- e. Envisaging the dynamic behaviour of all consumer categories
- f. Understanding the Demand Side Management programs, implemented measures and envisaging its affect in reduction of demand.

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- g. Analyzing the demand factors for rural and urban areas and envisaging their impact on demand growth
- h. Growth in existing Industrial production outputs and analyzing the new industries and their expected load on network
- i. Analyzing the impact of a large number of proposed institutions like schools, colleges, shopping malls, commercial loads etc in the area on future demand growth
- j. Weather related factors like temperature, rainfall etc. Needs to be accounted in for bringing seasonal variations while forecasting demand. Impact of weather related factors like temperature is observed more while forecasting short term demand
- k. Analyzing the impact of network parameters like network enhancement and improvement programs, loss reduction trajectory, distribution transformer failure rate, differential load shedding, consumer category wise load factors etc. and envisaging their effect on demand growth.

II. Common methods used for both long and short term forecasting are as follows:

- a. **Time trend method:** This method takes into account only the historic energy consumptions. The values projected through this method are a pure function of time only, and does not take into account the relationship with the other economic, demographic, policy and technological variables. This method is found to be useful mostly for making short term projections.
- b. **End-Use method:** This method brings into picture the impact of energy consumption patterns of various devices and systems. This method analyses the energy consumption patterns for all the consumer categories for their usage patterns on various devices and systems used by them. Mathematically, this methodology could be described as following:

Energy consumption of a devise (kWh) = (Penetration level of this devise in consumers) x (No. of consumers) x (Power requirements of the devise) x Hours of application of device

- c. **Econometric Method:** This method takes into consideration the effect of all the independent variables (economic, demographic, pricing, policy etc) that play a major role in impacting the demand growth. This method combines economic concepts with the statistical models to develop a system of equations using which the energy demand could be forecasted. This method takes into account the dependent variable (energy demand) and independent variables (economic, demographic, pricing, policy variables) impacting the dependent variables.

A sample illustration (estimating demand growth for domestic category consumers) has been shown below for better understanding.

$$Ed = \alpha N + \beta Ep + \gamma Y + \eta HH + \theta PC + e, \text{ where}$$

Ed=Domestic Electricity demand

N=Population Growth

Y=Per Capita GDP (at constant prices)

Ep=Electricity Tariff

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HH=Average Household Size

PC=Paying Capacity of the Consumer Class

$\alpha, \beta, \gamma, \eta$ and θ are constants

e= error term

- d. **Time Series Method:** This method takes into account the econometric models where the explanatory variables used in the models are the lagged values of the dependent variable to be forecasted. This method is based on an underlying notion, that future values of the dependent variables are based upon the historic values with some adjustments to take care for the deviations in both the sets. Therefore, this method requires data for at least last 20 to 30 time periods to bring in precision in the forecasted results.
- e. **Hybrid Method:** Every method has its merits and demerits. Every method is dependent upon a set of input variables. Application of a single method for predicting demand is not possible for every consumer category (data limitations, use of too many assumptions etc.). Thus for demand forecasting, the most common method used is the application of a hybrid approach where data available is complied and then on the basis of its availability, it is evaluated that which method will be best suitable for predicting the demand.

III. Selection of independent variables for short and long term demand forecasting

Every method is dependent upon a set of input variables. It is very important to ensure the selection of appropriate independent variables which could determine the dependency of demand on them in short and long term. These variables may be economic, demographic, policy and technology related.

The variables for short and long term demand forecasting are generally different in nature. The main consideration is the fact that there are only some factors (impacting the electricity demand) which can be varied much while other factors are improper to alter. In a short-term horizon, weather related factors, economic activities (fiscal simulation, tariff incentive, electrification etc.) cause fluctuations in electricity demand. Thus impact of factors like seasonal temperature variations, proposed infrastructure development plans; tariff changes etc. will play a major role. While selecting the independent variables for long term demand forecast, the main consideration should be on to select those factors which could be varied on a longer time horizon to analyse their impact on electricity demand.

IV. Methods to be used by DCC for short term forecasting

Econometric multivariate & univariate are the methods used by many users for forecasting, these methods supported by suitable model can be used for robust forecasting of electricity. Econometric multivariate method with multiple factors such as (temperature, rainfall, electrification, tariff etc) may be used based on the availability of information with the help suitable models. For day-ahead demand forecasting econometric univariate model may be used primarily with previous un-restricted/actual consumption pattern as a single variable and factoring field conditions.

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1.6 Process

- I. For distribution demand forecasting the General Shift In-Charge (DCC) shall take inputs from the following:
 - a. Actual drawal of Discom
 - b. Implemented schedule is issued by SLDC. Implemented schedules are issued after 3rd day of operation by SLDC. For demand forecasting purpose/load management last revised schedule of the day may be considered.
 - c. Feeder wise loading Format X-03-F-01 (Page no. 100) and X-03-F-04 (Page no.103) of demand management procedure
 - d. Open access consumers
 - e. HT consumers consumption pattern
 - f. NDCCs for assessing field conditions, demand situation, special events etc
 - g. Other factors like weather, festivals weekends etc.
- All the discrete demand estimation at circle/district level shall be consolidate at discom level and validated by DCC with the use scientific methods of load forecasting.
- II. **Day-ahead demand forecast:** The General Shift In-Charge (DCC) shall prepare the demand projection for the $(n+2)^{\text{th}}$ day as per Format X-01-F-01 (Page no.83) based on the previous trends and considering other factors such as
 - a. Weekends or Weekday behaviour,
 - b. Off days of markets, Industries etc
 - c. Festivals
 - d. Public functions such as Melas,
 - e. Religious events
 - f. Political events
 - g. Weather conditions
 - h. Outages of line and sub-stations
 - i. Regulatory requirements
- III. General Shift In-charge (DCC) shall discuss with NDCCs to assess the field condition between 16:00 hrs and 17:30 hrs every day. Based on the inputs received from NDCCs, General Shift In-Charge (DCC) shall finalize the demand projection for the $(n+2)^{\text{th}}$ day on n^{th} day by 18:00 hrs. Subsequently, this format shall be sent to Shift In-charge (DCC) which will act as an input for day-ahead discom requisition.
- IV. **Week-ahead and fortnight-ahead demand forecast:** The General Shift In-charge (DCC) shall prepare week-ahead and fortnight-ahead demand forecast based on previous week's demand pattern and other considerations in the format X-01-F-02 (Page no. 86).This forecast shall be sent to SLDC and MP Tradeco every Saturday or last working day of week/fortnight by 15:00 Hrs.
- V. **Month ahead demand forecast:** The General Shift In-charge (DCC) shall prepare month ahead demand forecast based on previous month's demand pattern and other

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considerations in the Format X-01-F-03 (Page no. 88) .This forecast for next month shall be sent to SLDC and MP Tradeco by 15th of every month.

- VI. In addition, General Shift In-charge (DCC) shall prepare and send daily demand on month ahead at each inter connection point by 25th for the next month to SLDC (in the format provided by SLDC) .
- VII. **Quarterly demand forecast and Supply Plan:** The General Shift In-Charge (DCC) shall prepare quarterly demand forecast as per Format X-01-F-04 (Page no. 90). Also, prepare supply plan to meet minimum supply hours as directed by MPERC, as per Format X-01-F-05 (Page no. 92).The General Shift In-charge (DCC) shall send the forecast and supply plan to MP Tradeco and SLDC for matching the demand with availability and to suggest the change in power supply plan to match with availability of power by following dates:

Quarter	Date of submission
Q1 (Apr – Jun)	25 th of Dec
Q2 (Jul – Sept)	25 th of Mar
Q3 (Oct – Dec)	25 th of Jun
Q4 (Jan – Mar)	25 th of Sep

General Shift In-Charge (DCC) shall take due care for assessment of quarterly demand forecast as this report will primarily serve as basis to initiate power procurement & allocation of un allocated generation capacity.

- VIII. **Half year ahead demand forecast:** The General Shift In-Charge (DCC) shall prepare half year ahead demand forecast as per Format X-01-F-06 (Page no. 94) .The General Shift In-Charge (DCC) shall send the forecast to SLDC and MP Tradeco by following dates:

Quarter	Date of submission
H1 (Apr – Sept)	25 th of Dec
H2 (Oct – Mar)	25 th of Jun

- IX. **Year ahead demand forecast:** The General Shift In-charge (DCC) shall prepare year ahead (financial year) demand forecast as per Format X-01-F-07 (Page no. 95). This forecast shall be sent to SLDC and MP Tradeco by 15th of November.
- X. In addition, General Shift In-charge (DCC) shall prepare their estimates of demand for the year ahead on month-basis at each inter connection point for the next financial year by 15th November each year.

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- XI. **Two, five and ten years ahead demand forecast:** The General Shift In-charge (DCC) shall prepare 2, 5 and 10 year ahead demand forecast and send to MP Tradeco and SLDC as per their request.
- XII. All the demand forecasts and supply plan shall be finalized & approved by Head (DCC)

1.7 Records

Document/report	Format No.	File/Register/ Soft/e-mail	Periodicity	Responsibility
Day-ahead demand forecast	X-01-F-01 (Page no.83)	Soft copy	Daily	
Week-ahead and Fortnight-ahead demand forecast	X-01-F-02 (Page no.86)	Soft copy	Weekly	
Month ahead demand forecast	X-01-F-03 (Page no.88)	Soft copy	Monthly	
Quarterly demand forecast	X-01-F-04 (Page no.90)	Soft copy	Quarterly	
Supply Plan	X-01-F-05 (Page no.92)	Soft copy	Quarterly	
Half year ahead demand forecast	X-01-F-06 (Page no.94)	Soft copy	Half yearly	
Year ahead demand forecast	X-01-F-07 (Page no.95)	Soft copy	Once in a year	
Two years , five years and ten years ahead demand forecast	As per MP Tradeco / SLDC format	Soft copy	As per MP Tradeco / SLDC request	Prepared by General Shift In-Charge (DCC) and finalized by Head (DCC)

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SOP-02

Day-ahead Demand Requisition Procedure

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2 Day-ahead Demand Requisition Procedure

2.1 Introduction

As per the Madhya Pradesh Electricity Balancing and Settlement (BSC), DCCs are required to participate in day-ahead scheduling process. This procedure describes the methodology for day-ahead discom requisition, timelines for each activity, responsibility for each activity and standard templates for data input and output. This procedure also covers process of revisions in Discom demand requisition and role of DCC in managing these revisions. The outputs of this procedure serve as basis for the drawal monitoring.

The procedure is prepared in compliance to following regulations, order and procedures:

- a. Madhya Pradesh Electricity Balancing and Settlement Code, 2009 and its amendment dated 02.06.2010 and Procedures.
- b. Madhya Pradesh Electricity Grid Code 2004 and its amendment dated from time to time.
- c. Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and its amendment dated 05.03.2012.
- d. Madhya Pradesh Government Gazette notification dated 11.05. 2010.

2.2 Objectives

To prepare day-ahead discom demand requisition with the inputs from Demand forecasting Procedure.

This procedure will enable DCC to produce the following:

- a. Day-ahead Discom requisition
- b. Revisions in Discom drawal schedule for day ahead and during the day operation

Implementation of this procedure is expected to streamline the overall requisition process and reduce unscheduled interchange.

2.3 Scope

This procedure applies to DCC and NDCCs

2.4 Owner

Head (DCC) is responsible for the implementation and maintenance of this procedure.

Shift In-Charge (DCC) shall be responsible for performing scheduling activity and revision of drawal schedule on real time basis at discom level.

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Shift In-Charge (NDCC) shall be responsible for providing inputs on field conditions to Shift In-charge (DCC) for Scheduling activity and revision of drawal schedule on real time basis for its jurisdiction.

2.5 Guidelines

Section 5 of the BSC issued by MPERC and scheduling procedures describes the general principle of scheduling.

2.5.1 General Principles: Scheduling

- I. 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.
- II. 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.
- III. 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.
- IV. 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.
- V. 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.
- VI. Generation schedules and drawal schedules issued / revised by SLDC shall become effective from designated time block irrespective of communication success.
- VII. 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.
- VIII. 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).

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- IX. 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/Resynchronisation of units due to Forced Outage
- X. 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.
- XI. While preparing Generation Schedules, SLDC shall keep in view the Transmission system constraints and provision of operating margins (reserves).
- XII. 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.
- XIII. 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.
- XIV. SLDC shall properly document all the information mentioned under Clauses 5.2 to 5.14 of BSC on its website (www.sldcmpindia.com) 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.

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2.5.2 General Principles: Revision in Schedules

- I. 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.
- II. In the event of bottleneck in evacuation of power due to any constraint, outage, failure or limitation in the Transmission system, associated Switchyard and Substations 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.
- III. 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.
- IV. 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.
- V. 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.
- VI. 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.
- VII. 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.

2.5.3 Implemented Schedules

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- I. 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. Implemented schedule is issued by SLDC after 3rd day of operation. For demand forecasting purpose/load management last revised schedule of the day may be considered.

- II. 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.

2.5.4 Scheduling Timelines

Time (finish by)	Activity	Primary Responsibility
10.00 hrs	<ul style="list-style-type: none"> 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 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 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 iv. Indira Sager 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 	WRLDC MPPGCL/ GCC IPP Respective Station
12.00 hrs	<ul style="list-style-type: none"> i. SLDC shall compile total ex-Power Plant MW and MWh availability from all the Generating Stations 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 MP Tradeco. 	SLDC SLDC
12.00 hrs	Each Discom shall intimate to MP TradeCo. 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	Respective Discom

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Time (finish by)	Activity	Primary Responsibility
	for the previous Financial Year.	
13.00 hrs	<p>MP TradeCo. on behalf of Discoms shall run Merit Order Despatch for each Discom separately to meet its ex-Power Plant MW demand.</p> <p>MP Tradeco. shall compute quantum of surplus/deficit MW for each Discom:</p> <p>For each Discom, MP TradeCo. Shall compare (for each Time Block):</p> <ul style="list-style-type: none"> (a) Total ex-Power Plant MW Entitlement of a given Discom (b) Total ex-Power Plant MW Demand of a given Discom <p>For each Discom, MP TradeCo. shall take following decisions in consultation with the Discoms:</p> <p>If (a) < (b), MP TradeCo. shall take appropriate decision on:</p> <ul style="list-style-type: none"> (i) To buy deficit Power from other Sources (other Discom/State/Trader) or (ii) To curtail equivalent Load in a given Discom to match (a) & (b) or (iii) To despatch un-requisitioned Generation (if any) or (iv) Any combination of above options <p>If (a) > (b), MP TradeCo. shall take appropriate decision on:</p> <ul style="list-style-type: none"> (i) To sell surplus power to other Buyers (other Discom/State/Trader) or (ii) To back-down Generator(s) keeping in view Merit Order Despatch or (iii) To serve additional Demand by removing supply restrictions or (iv) Any combination of above options <p>Based on above decisions, MP TradeCo. shall prepare Discom-wise ex- Power Plant MW requisition in each of the Generating Stations and intimate the same to SLDC.</p>	MP TradeCo. in consultation with Discoms
14.00 hrs	MP Tradeco. 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	MP TradeCo. in consultation with Discoms

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Time (finish by)	Activity	Primary Responsibility
	transactions and Collective transactions through Power Exchanges	
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 MP Tradeco. / 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 MP Tradeco. / 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

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2.6 Process

Discom demand requisition:

- I. Shift In-Charge (DCC) in consultation with Head (DCC) shall prepare day-ahead forecasted demand as per the Format X-02-F-01 (Page no.97) with inputs from Format X-01-F-01 (Page no.83) of demand forecasting procedure and send to MP Tradeco by 11:50 hrs. Shift In-Charge (DCC) shall discuss with NDCCs to assess the field conditions, events etc and shall incorporate the same in discom demand requisition. Previous day demand pattern shall be taken into account while preparing day ahead forecast. Shift Incharge DCC shall ensure timely submission of day ahead demand forecast to SLDC and MP Tradeco.
- II. Head (DCC) shall discuss with concerned official(s) of MP Tradeco for running the merit order despatch between 13:00 to 14:00 hrs. Please refer to Annexure A: Government notification on Discom wise power allocation (Page no. 129)and Annexure B: Merit order (Page no. 134).
- III. Shift In-Charge (DCC) shall receive Discom drawal schedule from SLDC by 18:00 hrs.
- IV. Shift In-Charge (DCC) shall discuss with NDCCs to assess the field condition between 18:00 hrs and 21:00 hrs. Based on the inputs received from NDCCs, Shift In-Charge (DCC) if necessary shall revise the schedule for next day (Refer <http://59.90.139.175:10080/ABT/ABTTemplates.jsp?scr=800> for formats)
- V. Shift In-Charge (DCC) shall receive final discom drawal schedule from SLDC by 23:30 hrs. Daily supply shall be modified and feeder ON-OFF timing shall be adjusted as per final discom drawal schedule, which shall be the basis for demand management during day of operation.

Revision of Schedule:

- VI. Shift In-Charge (DCC) shall receive any revision in Discom drawal schedule done by SLDC from SLDC during the day. May also refer <http://59.90.139.175:10080/ABT/drawalSchedule.jsp?check=1&sbmt=1&scr=800>
- VII. During the day of operation, in case of any sudden change in demand, Shift In-Charge (DCC), shall discuss with NDCCs to assess the field condition and shall revise the discom drawal schedule. (Refer <http://59.90.139.175:10080/ABT/ABTTemplates.jsp?scr=800> for formats). This revised schedule shall be applicable from 6th time block counting the time block in which request was made.

Implemented Schedule

- VIII. Shift In-Charge (DCC) shall receive Implemented Schedule for Discom from SLDC within 3 days.

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2.7 Records

Records to be maintained under procedure are:

Document/report		Format No.	File/ Register/ Soft/e-mail	Periodicity	Responsibility
Day-ahead Forecasted demand	Sent by DCC to MP Tradeco	X-02-F-01 (Page no.97)	Soft / email	Daily	Shift In-Charge (DCC)
Ex-power plant requisition for Discom	Sent by MP Tradeco to SLDC	-	Soft / email	Daily	Shift In-Charge (DCC)
Discom drawal schedule	Sent by SLDC to DCC		Soft / email	Daily	Shift In-Charge (DCC)
Ex-power plant requisition for Discom (any change made before day of operation during 18:00 – 21:30 hrs)	Sent by DCC to SLDC	Refer ABT website* for formats	Soft / email	Daily	Shift In-Charge (DCC)
Final drawal schedule	Sent by SLDC to DCC	-	Soft / email	Daily	Shift In-Charge (DCC)
Ex-power plant requisition for Discom (any change made before day of operation during day)	Sent by DCC to SLDC	Refer ABT website* for formats	Soft / email	Daily	Shift In-Charge (DCC)
Revised Discom drawal schedule	Sent by SLDC to DCC	-	Soft / email	Daily	Shift In-Charge (DCC)
Implemented schedule	Sent by SLDC to DCC within 3 days	-	Soft / Hard copy	Daily	Shift In-Charge (DCC)

*ABT Website: <http://59.90.139.175:10080/ABT/ABTTemplates.jsp?scr=800>

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SOP-03

Real-Time Monitoring and Control of Demand

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3 Real-Time Monitoring and Control of Demand Procedure

3.1 Introduction

This Section describes the methods of Demand Control, which are in place to meet the obligations of the Indian Electricity Grid Code, Madhya Pradesh Grid Code and other regulatory requirements. This procedure describes the methodology and responsibility of DCC in demand management, frequency control and voltage control of distribution system during operation. This procedure will guide the system operator during normal and contingencies such as generation back down, load crash, Transmission constraints and other exigency situations etc.

This procedure will help in efficient management of discom demand in case of generation-demand gap and reduce unscheduled interchange. This is also required when transmission system constraints are violated, such as when lines and transformers are subject to thermal overload, or voltages are outside of rated limits.

The need to apply demand control arises on account of the following system conditions:

- a. Increase in demand from estimated values, causing deviation in system frequency outside the acceptable limits.
- b. Unplanned outages of generation or transmission within the State and/or Regional system causing fall in system frequency beyond acceptable limits.
- c. Unplanned outages of distribution elements causing measurable unscheduled interchange in discom's demand.
- d. Supply from ISGS being less than schedule, causing deviation in system frequency outside of acceptable limits.
- e. Excessive reactive power demand of Discom, causing unacceptably low system voltages.
- f. Thermal overloads occurring in lines or transformers.
- g. Similar other conditions contributing to demand supply gap.

Various types of Demand Control steps to be applied by DCC and NDCCs are described in this procedure and the application of each type is dependent on the speed of frequency change in response to the conditions described above.

The types and quantum of demand are to be shed ensuring no undue discrimination between users & area of supply.

The procedure is prepared in compliance to following regulations, order and procedures:

- a. Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and its amendment dated 05.03.2012.
- b. MPERC, Madhya Pradesh Electricity Grid Code 2004 and its amendment amendments from time to time.
- c. Central Electricity Authority (Grid Standards), Regulation, 2010.
- d. CERC (Measures to relieve congestion in real time operation) Regulation, 2009.
- e. WRLDC operating procedure, June 2011.
- f. Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulations, 2009 and its amendment dated 05.03.2012.

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3.2 Objectives

To demand control is required for maintain or optimize following:

- a. Grid security
- b. System frequency
- c. System voltage
- d. Reactive power
- e. Network congestion.
- f. Grid Safety
- g. Unscheduled interchange
- h. Regulatory compliance

To prepare discom supply plan management based on the final day ahead schedule & revised schedule during day of operation issued by SLDC.

Implementation of this procedure is expected to optimise deviations from schedules, improve quality of supply in distribution license area and enhance grid discipline

3.3 Scope

This procedure applies to DCC and NDCC, and all distribution sub-stations & lines operation department of discom.

3.4 Owner

Head (DCC) & Head (operations line & sub-station) are responsible for the implementation and maintenance of this procedure, Head (DCC) being the convenor.

Shift In-Charge (DCC) in consultation with Head (DCC) shall be responsible for assessing the situation and apply load control measures. The Shift In-charge (DCC) Control Room shall be responsible for exercise of demand control on real time basis.

Shift In-Charge (NDCC) shall be responsible for providing inputs on field conditions to Shift In-charge (DCC) for real time load management. Instruction or direction of Shift In-charge (DCC) will prevail during all the conditions.

Shift In-Charge (Sub-station and lines) shall be responsible for providing inputs & performing switching operation as per the instruction of DCC/NDCC. Instruction or direction from DCC has to be adhered under all the conditions and time.

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3.5 Guidelines

Note: For definitions/abbreviations please refer relevant regulation

IEGC					
5.2 (m)	All Users, SEB, SLDCs, RLDCs, and NLDC shall take all possible measures to ensure that the grid frequency always remains within the 49.7 - 50.2 Hz band.				
5.2 (s)	All Users, RLDC, SLDC STUs, CTU and NLDC shall take all possible measures to ensure that the grid voltage always remains within the following operating range.				
	Voltage – (kVrms)				
	Nominal	Maximum	Minimum		
	765	800	728		
	400	420	380		
	220	245	198		
	132	145	122		
	110	121	99		
	66	72	60		
	33	36	30		
5.4.2 (a), (b)	(a) SLDC/ SEB/distribution licensee and bulk consumer shall initiate action to restrict the drawal of its control area, from the grid, within the net drawal schedule whenever the system frequency falls to 49.8 Hz (b) The SLDC/ SEB/distribution licensee and bulk consumer shall ensure that requisite load shedding is carried out in its control area so that there is no overdrawl when frequency is 49.7 Hz. or below.				
5.4.2 (h)	All Users, SLDC/ SEB/distribution licensee or bulk consumer shall comply with direction of RLDC/SLDC and carry out requisite load shedding or backing down of generation in case of congestion in transmission system to ensure safety and reliability of the system. The procedure for application of measures to relieve congestion in real time as well as provisions of withdrawal of congestion shall be in accordance with Central Electricity Regulatory Commission (Measures to relieve congestion in real time operation) Regulations, 2009.				
5.4.2 (e)	In order to maintain the frequency within the stipulated band and maintaining the network security, the interruptible loads shall be arranged in four groups of loads, for scheduled power cuts/load shedding, loads for unscheduled load shedding, loads to be shed through under frequency relays/ df/dt relays and loads to be shed under any System Protection Scheme identified at the RPC level. These loads shall be grouped in such a manner, that there is no overlapping between different Groups of loads. In case of certain contingencies and/or threat to system security, the RLDC may direct any SLDC/ SEB/distribution licensee or bulk consumer connected to the ISTS to decrease drawal of its control area by a certain quantum. Such directions shall immediately be acted upon. SLDC shall send compliance report immediately after compliance of these directions to RLDC.				
5.4.2 (i)	The measures taken by the User's, SLDC SEB/distribution licensee or bulk consumer shall not be withdrawn as long as the frequency remains at a level lower than the limits specified in para 5.2 or congestion continues, unless specifically permitted by the RLDC/SLDC.				
CERC Petition	Implementation of Automatic Demand Management Schemes in compliance as				

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No. 208/2011 (Suo-motu)	defined in clause 5.4.2 (d) and (e) of Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and the Suo-Motu petition filed by CERC, The discom have to perform following tasks: In order to maintain the frequency within the stipulated band and maintaining the network security, the interruptible loads shall be arranged in four groups of loads, for scheduled power cuts/load shedding, loads for unscheduled load shedding, loads to be shed through under frequency relays/df/dt relays. These loads shall be grouped in such a manner, that there is no overlapping between different Groups of loads. As u/f and df/dt relays are installed on 33 KV feeders at EHV substations its planning shall be reviewed regularly by STU and SLDC. The second stage is to implement the automatic demand management by tripping of feeders either through Programmable Logic Controller (PLC) or through SCADA by DISCOMs.
5.4.2 Demand Disconnection	The SLDC through respective State Electricity Boards/Distribution Licensees shall also formulate and implement state-of-the-art demand management schemes for automatic demand management like rotational load shedding, demand response (which may include lower tariff for interruptible loads) etc. before 01.01.2011, to reduce overdrawl in order to comply para 5.4.2 (a) and (b) . A Report detailing the scheme and periodic reports on progress of implementation of the schemes shall be sent to the Central Commission by the concerned SLDC
MPEGC	
6.1.10	Similarly, no User shall cause a sudden decrease/increase in its load due to imposition/lifting of power cuts etc., without prior intimation to and consent of the SLDC, particularly when frequency is deteriorating.
7.3.3	Discoms shall provide to SLDC estimates of load that may be shed when required, in discrete blocks with the details of arrangements of such load shedding.
7.3.4	Discoms shall also furnish realistic category-wise demand for their respective companies along with details of essential loads, supply hours to be maintained in rural areas, details of power cuts imposed or to be imposed and specific requirements, if any.
Demand control 7.4.6	Demand control can also be exercised by the SLDC through direct circuit breaker tripping affected from SLDC using RTUs and under frequency detection by SLDC SCADA or through telephonic instructions. No demand shed by operation of under frequency relays shall be restored without specific directions from SLDC.
7.4.7	Rotational Load Shedding Schemes using Under Frequency Relay (UFR) shall be prepared time to time by the Utility in accordance with the guidelines/instructions issued by WRLDC/WREB. The STU shall inform such decisions to MPERC within seven days from the issue of instructions by WRLDC/WREB.
8.3.5	The DISCOMs shall endeavour to maintain their drawals in such a manner that they do not overdraw from the grid whenever the frequency is below normal value and do not under draw whenever frequency is above the normal value.

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8.6	<p>RULES FOR REVISION IN SCHEDULE IN REAL TIME OPERATION:</p> <p>ii. In the event of a situation arising due to bottleneck in evacuation of power due to transmission constraint, SLDC shall revise the schedule which shall become effective from the time block, counting the time block in which the transmission constraint has been brought to the notice of SLDC as the first one. During the first three time blocks also the schedule shall deemed to have been revised to be equal to the actual generation by the SGS and drawal by the DISCOMs.</p> <p>iii. In case of any grid disturbance, the Scheduled Generation of all the generating stations 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 grid disturbance. The exact duration of such grid disturbance would be declared by SLDC/RLDC on the basis of mutually agreed guidelines.</p> <p>iv. Revision of Declared Capability by SSGS and requisitions by DISCOMs for the remaining period of the day will 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 SLDC to be the first one.</p> <p>v. Similarly, in case any DISCOM seeks a revision in the bilateral schedules, the same would have to be confirmed by the other partner within a period of one hour. The revised schedule will come in effect from 6th time block, counting the time block in which the request for revision has been received in SLDC to be the first one.</p> <p>vi. If, at any point of time SLDC observes that there is a need for revision of its schedule in the interest of better system operation, it may do so on its own and in such cases, the revised schedule shall become effective from 4th time block, counting the time block in which the revised schedule is issued by SLDC to be the first one.</p> <p>vii. If a revision is received from any ISGS stations, RLDC will flash the information in real time basis containing all the relevant information needed to revise the schedule based on which SLDC will parallel process the revision. The implementation time of revision will be same for RLDC and SLDC.</p>
Frequency and voltage management 9.1	<p>Introduction</p> <p>This section describes the method by which all Users of the State Transmission System shall cooperate with SLDC and STU in contributing towards effective control of the system frequency and managing the EHV voltage of the State Transmission System.</p> <p>SLDC shall also regulate the load as may be necessary to meet the objective. SLDC shall also instruct Discoms to regulate demand, if necessary</p>
9.3.2	<p>Falling frequency: Under falling frequency conditions, SLDC shall take appropriate action to issue instructions, in co-ordination with WRLDC to arrest the falling frequency and restore it to be within permissible range. Such instructions may include dispatch instruction to SSGS and/or instruction to Discoms and Open access users to reduce load demand by appropriate manual and/or automatic load shedding.</p>

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9.3.3	<p>Rising Frequency:</p> <p>Under rising frequency conditions, SLDC shall take appropriate action to issue instructions to SSG in co-ordination with WRLDC, to arrest the rising frequency and restore frequency within permissible range. SLDC shall also issue instructions to Discoms and Open access users in coordination with WRLDC to lift Load shedding (if exists) in order to take additional load.</p>
9.4.3	Discoms and Open access users shall co-operate with SLDC in managing load & reactive power drawal on instruction from SLDC as required.
9.5.2	SLDC and STU shall co-ordinate with the Discoms to determine voltage level at the interconnection points.
9.5.3	SLDC shall take appropriate measures to control State Transmission System voltages, which may include but not be limited to transformer tap changing, capacitor / reactor switching including capacitor switching by Discoms at 33kV sub-stations, operation of Hydro unit as synchronous condenser and use of MVar reserves with SSGS within technical limits agreed to between STU and Generators.
9.5.5	Discoms and Open access users shall participate in voltage management by providing Local VAR compensation (as far as possible in low voltage system close to load points) such that they do not depend upon EHV grid for reactive support.
9.6	<p>General</p> <p>Close co-ordination between Users and SLDC and STU shall exist at all times for the purposes of effective frequency and voltage management.</p>
Monitoring of generation and drawal 10.1	The monitoring of scheduled Drawal is important to ensure that STU and Discoms contributes towards improving system performance, and observes Grid discipline.
10.2	The objective of this section is to define the responsibilities of all SSGS in the monitoring of Generating Unit reliability and performance, and STU's/ Discoms' compliance with the scheduled Drawal to assist SLDC in managing voltage and frequency.
Inter User Boundary Safety 13.3	<p>Designated Officers</p> <p>STU and all Users shall nominate suitably authorized persons to be responsible for the coordination of safety across that company boundary. These persons shall be referred to as Designated Officer.</p>
Operational Event / Accident Reporting 14.3	<p>Reportable Incidents</p> <p>Any of the following events that could affect the State Transmission System requires reporting:</p> <ul style="list-style-type: none"> (a) Exceptionally high / low system voltage or frequency. (b) Serious equipment problem i.e. major circuit breaker, transformer or bus bar.

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	(d) System split, State Transmission System breakaway or Black Start. (e) Tripping of Transmission Line, ICT (Inter connecting transformer and capacitor banks) (f) Major fire incidents. (g) Major failure of protection. (h) Equipment and transmission line overload. (i) Accidents-Fatal and Non-Fatal. (j) Load Crash / Loss of Load (k) Excessive Drawal deviations. (l) Minor equipment alarms.
14.4	<p>Reporting Procedure</p> <p>14.4.1 Reporting Time for events and accidents</p> <p>(a) All reportable incidents occurring in lines and equipment of 33kV and above affecting the State Transmission System shall promptly be communicated by the User whose equipment has experienced the incident (The Reporting User) to any other significantly affected Users and to SLDC.</p> <p>(b) Within 1 (one) hour of being informed by the Reporting User, SLDC may ask for a written report on any incident.</p> <p>(c) If the reporting incident cannot be classed as minor then the Reporting User shall submit an initial written report within two hours of asking for a written report by SLDC. This has to be further followed up by the submission of a comprehensive report within 48 hours of the submission of the initial written report.</p> <p>(d) In other cases the Reporting User shall submit a report within 5 (five) working days to SLDC.</p>
14.4.2	SLDC may call for a report from any User on any reportable incident affecting other Users and STU, in case the same is not reported by such User whose equipment might have been source of the reportable incident. The above shall not relieve any User from the obligation to report events in accordance with IE Rules.
C.1.2	<p>Estimates of load shedding</p> <p>For Discoms/Distribution Licensee</p> <p>Details of discrete load blocks that may be shed to comply with instructions issued by SLDC when required, from each Connection point. Soon after Connection is made</p>
Essential and non-essential load data	<p>For Discoms /Distribution Licensee</p> <p>i. Schedule of essential and non-essential loads on each discrete load block for purposes of load shedding. As soon as possible after Connection</p>

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CEA –Grid Standards																																		
2 (n)	(n) “voltage unbalance” means the ratio of the maximum voltage deviation of the phase voltage from the average phase voltage to the average phase voltage of the three phases;																																	
3 (1)	<p>(1) All Entities, Appropriate Load Despatch Centres and Regional Power Committees, for the purpose of maintaining the Grid Standards for operation and maintenance of transmission lines, shall,-</p> <p>(a) make all efforts to operate at a frequency close to 50 Hz and shall not allow it to go beyond the range 49.2 to 50.3 Hz or a narrower frequency band (CERC wef 02.04.2012 narrowed down the frequency band to 49.7 to 50.2 Hz) specified in the Grid Code, except during the transient period following tripping.</p> <p>(b) maintain the steady state voltage within the limits specified below in Table 1:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Nominal System Voltage (kV rms)</th> <th>Maximum (kV rms)</th> <th>Minimum (kV rms)</th> </tr> </thead> <tbody> <tr> <td>765</td> <td>800</td> <td>728</td> </tr> <tr> <td>400</td> <td>420</td> <td>380</td> </tr> <tr> <td>220</td> <td>245</td> <td>198</td> </tr> <tr> <td>132</td> <td>145</td> <td>122</td> </tr> <tr> <td>110</td> <td>121</td> <td>99</td> </tr> <tr> <td>66</td> <td>72</td> <td>60</td> </tr> <tr> <td>33</td> <td>36</td> <td>30</td> </tr> </tbody> </table> <p>(d) ensure that the maximum permissible values of voltage unbalance shall be as specified in Table 3 below:-</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Nominal System Voltage (kV rms)</th> <th>Voltage Unbalance (%)</th> </tr> </thead> <tbody> <tr> <td>765 and 400</td> <td>1.5%</td> </tr> <tr> <td>220</td> <td>2%</td> </tr> <tr> <td>33</td> <td>3%</td> </tr> </tbody> </table> <p>Provided that Bulk consumers shall avoid unbalanced load during Operation. Provided further that the distribution licensees shall ensure that their loads are not unbalanced.</p> <p>(h) observe the following permissible limits of voltage fluctuation:-</p> <p>(i) the permissible limit of voltage fluctuation for step changes which may occur repetitively is 1.5 percent:</p> <p>(ii) for occasional fluctuations other than step changes the maximum</p>		Nominal System Voltage (kV rms)	Maximum (kV rms)	Minimum (kV rms)	765	800	728	400	420	380	220	245	198	132	145	122	110	121	99	66	72	60	33	36	30	Nominal System Voltage (kV rms)	Voltage Unbalance (%)	765 and 400	1.5%	220	2%	33	3%
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	<p>permissible limit is 3 percent:</p> <p>Provided that the standard on voltage fluctuations shall come into force concurrently with clause 4 of Part IV of the Schedule to the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007.</p>
6	<p>Coordination in Operations.- (1) No Entity shall introduce or take out the element of the grid without the concurrence of the Appropriate Load Despatch Centre except in case of imminent risk of safety of plant and personnel in which case it must intimate Appropriate Load Despatch Centre giving reasons therefore.</p> <p>(2) The Appropriate Load Despatch Centre shall inform all affected parties of the outage.</p>
Operating procedure for Western Region (June 2011)	
2.2.2.1	<p>It is therefore imperative that the exchanges between regions are contained to a level of ATC and in no case exceed the TTC between the regions. All the regional constituents will reduce their drawal to the level advised by WRLDC whenever such breach in TTC level among the regions takes place to ensure the grid security irrespective of frequency and schedule.</p>
2.2.2.2	<p>1) Automatic Under Frequency Load Shedding Scheme.</p> <p>In line with clause 5.2(n) of IEGC, all SEBS, distribution licenses /STUs shall provide Automatic Under Frequency and df/dt load shedding in their respective system to arrest frequency decline that could result in a collapse / disintegration of the grid as per the scheme formulated by WRPC forum and shall ensure its effective application and functionality at all times to prevent cascade tripping of generating units in case of any contingency. All SEBs Distribution licensee SLDC shall ensure the above under frequency & df/dt load shedding/islanding schemes are always functional.....</p> <p>.....It is extremely important that there should be no overlapping between the areas covered by under frequency load shedding and that included in the manual load shedding plan as part of demand control.</p> <p>2) Automatic Under Voltage Relay Load Shedding Scheme</p> <p>In addition to AUFLS & df/dt scheme, automatic under voltage load shedding scheme to prevent voltage collapse in the system in WR as given as annexure -IV</p>
2.2.2.3	<p>Congestion Management:</p> <p>(1) To relieve congestion in the real time, a congestion charge shall be applied as a commercial measure. The congestion charge will be payable by a Regional entity or entities causing congestion in the inter-regional link or intra-regional link and receivable by a Regional entity or entities relieving congestion</p> <p>(3) The congestion charge shall be payable by the overdriving regional entity in addition to the Unscheduled Interchange charges which would be payable as per Central Electricity Regulatory Commission (Unscheduled Interchange</p>

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	charges and related Matters) Regulations, 2009 or any re-enactment thereof.
2.2.2.3.3	Notice for application of congestion charge. When, in the opinion of the National/Regional Load Dispatch Centre, flow of electricity on an interregional/intra-regional corridor/ link used for transfer of electricity has crossed the ATC of such corridor/link, the NLDC/RLDC shall issue a warning notice to the defaulting entities. If the flow of electricity on the inter-regional /intra-regional corridor/ link exceeds the TTC, the NLDC/RLDC may, after notice through fax/voice message and through posting on its website and the common screen available on the Energy Management System, which is common to NLDC, RLDC and SLDCs, decide to apply congestion charge on the defaulting entities from a particular time-block in accordance with regulation 4:Provided that notice of at least two clear time blocks shall be given by the Regional Load Dispatch Centre before congestion charge becomes applicable, not counting the time block in which the notice is issued.
2.2.2.3.4	Notice for withdrawal of congestion charge. When in the opinion of the National / Regional Load Dispatch Centre, flow of electricity on the affected- 5 - transmission link /corridor has come down to the ATC, it may, after notice through fax/voice message and through posting on its website and the common screen available on the Energy Management System, withdraw congestion charge from a particular time-block: Provided that notice of one time block shall be given by the Regional Load Dispatch Centre before congestion charge is withdrawn, not counting the time block in which the notice is issued.
2.2.2.4	<p>Operational area of importance</p> <p>v) All constituents would endeavour to operate the connected generation and reactive power management devices such as Capacitors, Reactors, Synchronous Condensers, Fixed Series Capacitors (FSCs), Static Var Compensators (SVCs) etc. in a manner which enables stable voltage behaviour at various points of the grid under different operating conditions.</p> <p>vi) All constituents would also maintain in good operating conditions of all control measures such as defence mechanism, SPS, U/F & U/V load shedding, AVR, PSS, FGMO, Operating reserves, emergency back-up power supplies etc., and ensure that the operational security standards are maintained for reliable and secured operation of the interconnected system.</p>
3.1.1 Frequency Control	<p>3.1.1.1 Frequency Band</p> <p>All the regional constituents would make all possible efforts to ensure the maintenance of grid frequency within the normal IEGC band that is 49.7 to 50.2 Hz. This would be ensured by implementing following measures.</p> <p>i) Each SLDC shall regulate the load / own generation under its control so that it may not draw more than its schedule whenever the system frequency is below 49.7 Hz and less than its drawal whenever frequency is above 50.2 Hz.</p> <p>iv) In no case, a constituent would resort to over drawal at a frequency of 49.7 Hz and below. Similarly, no constituent would under drawal / ISGS generate more than schedule at frequency above 50.2 Hz.</p>

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	<p>vi) Whenever frequency falls below 49.7 Hz, all partly loaded generating units, particularly of overdriving constituents shall pick up additional load to come back declining system frequency.</p> <p>vii)...when frequency is falling or is below 49.7 Hz. Similarly any user shall not cause a sudden variation of load by more than 100 mw without consent of WRLDC</p>
3.1.1.2	<p>Measures during high frequency conditions</p> <p>iii) All the constituents shall endeavour to ensure that their drawal from the grid is not less than their schedule by following actions:-</p> <ul style="list-style-type: none"> • Phase out scheduled load shedding • Surrender relatively high cost entitled power from ISGS through revision of schedules. • Follow merit order and conserve fuel by reducing or shutting down high cost generators including IPPs. • Explore additional export through STOA.
3.1.1.3	<p>Measures during low frequency conditions</p> <p>iii) all the constituent endeavour to ensure that that their drawal from the grid not more than their schedule by maximizing generation in line with frequency link despatch guidelines, implement unscheduled/ distress load shedding. They may arrange to buy power through STOA to ensure drawal as per schedule.</p> <p>vi) Each regional constituent shall make arrangements that will enable manual demand disconnection to take place as instructed by WRLDC/SLDCs under normal and contingent conditions</p> <p>vii) In case of certain contingencies and / or threat to system security, WRLDC may direct SLDCs to decrease its drawal by a certain quantum. Such directions shall immediately be acted upon.</p>
3.1.2.3the beneficiaries shall endeavour to minimize the VAR drawal at interchange point when the voltage at that point is below the nominal value and shall not inject VARs when the voltage above the nominal value. In fact, the beneficiaries are expected to provide local VAR compensation so that they do not draw any VARs from the grid during low voltage conditions and do not inject any VARs to the grid during high voltage conditions.
3.1.4	<p>Operating Manpower</p> <p>The Control Centers of WRLDC, CPCC, SLDCs, Power plants, grid substations(above 110kV) as well as any other control centres of regional constituents shall be manned / monitored round the clock by qualified and adequately trained manpower who would remain vigilant and cooperative at all the times so as to maintain safe and secure grid operation.</p>
4.3	<p>The need for demand control arises on account of following conditions:</p> <ul style="list-style-type: none"> • Variation in demand from the estimated value (by more than 2%) which

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	<p>cannot be absorbed by the grid.</p> <ul style="list-style-type: none"> • Unforeseen generation / transmission outages resulting in reduced power availability. • Heavy reactive power demand, particularly during Rabi load / high industrial activity causing low voltages • Critical loading on inter-regional corridors/flow gates • Commercial reasons
4.3.3	The constituents shall endeavour to restrict their net drawal from the grid to within their respective drawal schedule whenever the system frequency falls to 49.8 Hz in line with section 5.4.2(a) of IEGC. However, when the frequency falls below 49.7 Hz, requisite load shedding (manual) shall be carried out in the concerned State to curtail the over drawal in order to improve the frequency above 49.7Hz.
4.3.6	<p>(a)Demand response</p> <p>The SLDC through respective SEBs/Distribution licensees shall also formulate & implement state-of-art-demand-management scheme for automatic demand management like rotational load shedding, demand response (which may include lower tariff for interruptible load) etc. before 01.01.2011 to reduce over drawal...</p>
4.3.6	<p>(b)Demand control would have to be exercised under low frequency conditions by taking the following actions by constituents.</p> <ul style="list-style-type: none"> • Scheduled load shedding as decided in OCCM/Board meetings. • Un-scheduled load shedding for the load generation balancing exercise which is planned for the following day • Distress load shedding due to load generation imbalance in real time leading to frequency going below 49.7 Hz. This will be carried out through already identified radial feeders.
4.4	<p>Load Crash</p> <p>In the event of load crash in the system due to weather disturbance or other reasons, the situation would be controlled by SLDCs / ISGS by the following methods:-</p> <ul style="list-style-type: none"> • Lifting the load restrictions, if any. • Exporting the power to neighbouring regions by STOA
5.2	<p>Operational planning</p> <p>5.2.1.1. For the purpose of operational planning on annual basis, the year considered begins in July of the current year and extends till June next year</p> <p>5.2.2.2 The quarter October-December is having high demand in the grid due to onset of Rabi season when agricultural demand is predominant with many pump sets operating</p>

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	<p>5.2.2.3 The quarter January-March will have high demand similar to that of previous quarter due to continuation of agricultural activities. The industrial demand would also be at its peak as this is the last quarter of the financial year and target needs to be achieved before the budget.</p> <p>5.2.2.4 The quarter April-June is having residential and commercial loads due to summer conditions</p>
5.3	<p>5.3.1.2 The scheduled load shedding takes care of about 80% of the projected shortfall of the States and is given wide publicity.</p> <p>5.3.1.3 The scheduled load shedding is implemented in the following ways:-</p> <ul style="list-style-type: none"> • Statutory cut on the maximum demand of high tension and low tension industries • Statutory cut on the consumption of high tension and low tension industries • The rural feeders are arranged into groups and each group is shed for 8-12 hours in a day with number of groups shed at any point of time. • Load shedding in urban areas for 1 ½ to 3 hours in a day during morning and evening peak hours. • Single phasing through which the agricultural load and residential / commercial loads in the rural areas are separated and only three phase loads are subjected to shedding. • Staggering of holidays through which power supply to a particular is totally cut for about 12 hours. • Recess staggering through which the lunch break and shift timings are staggered.
5.3	<p>5.3.2 Unscheduled Load Shedding in case of overdrawal and low frequency</p> <p>5.3.2.1 The unscheduled load shedding is effected through different set of feeders other than those selected for scheduled load shedding.</p> <p>5.3.2.2 Unscheduled load shedding is done only when the frequency dips below the acceptable level.</p> <p>5.3.2.3 Since unscheduled load shedding is not announced beforehand to the public such load shedding gets maximum public resentment.</p> <p>5.3.3 Distress Load Shedding</p> <p>5.3.3.1 In case of sudden loss of generation / breach of TTC / grid contingency, distress load shedding is carried out immediately to ensure security of the grid.</p> <p>5.3.3.2 The distress load shedding is carried out by tripping of identified 66/132/220kV radial feeders which are opened by emergency call from State Load Despatch Centre.</p> <p>5.3.4 Automatic Under Frequency Load Shedding (AUFLS)</p> <p>5.3.4.1 AUFLS is basically defence mechanism against disturbances and includes both discrete relays and trend relays.</p>

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	5.3.4.2 The approved AUFLS scheme in Western region and the recommended df/dt with changed scenario in NEW grid is enclosed at Annex-III.
7.4	<p>STOA curtailment</p> <p>During transmission constraints, the STOA transactions will be curtailed first to ease the congestion. Open access bilateral transactions would generally be curtailed first followed by the collective transactions. The curtailment will be done on pro-rata basis.</p> <p>As per IEGC 2010 real time revision are permissible in STOA, where a generator of capacity of 100 MW and above is seller, the generator shall immediately intimate the same along with the requisition for revision of schedule and estimated time of restoration of the unit, to SLDC/RLDC as the case may be. Consent of buyer shall not be the prerequisite for such revision of schedule. The schedule of the generator and the buyer are revised accordingly. The revised schedule shall become effective from the 4th time block, counting in which the forced outage is declared to be the first one. The RLDC shall inform revised schedule to the buyer and seller. The original schedule shall become effective from the estimated time of restoration of the unit. However the transmission charges as per original schedule shall continue to be paid for 2 days.</p>
8.2.2	<p>The power system under each SLDC constitutes a notional control area and hence the State would be required to maintain their actual drawal from the grid close to such net drawal schedule by regulating own generation and / or load, particularly when frequency falls to 49.8Hz and going above 50.2 Hz</p> <p>In case of high frequency and under drawal, DCC has to restore load shedding or take additional load or revise schedules to avoid congestion charges and to maintain grid standards.</p> <p>Similarly in case of low frequency and overdrawal DCC has to take unscheduled load shedding or revise requisition if schedule is below the entitlement.</p>
8.2.4	<p>Clause 5.2. (m) of IEGC stipulates the grid frequency operation in the band of 49.7-50.20 Hz, however, for the safety and security of the system operation, the normal range of desirable frequency is 49.7-50.2 Hz. The state shall initiate action to restrict the drawal of its control area from the grid whenever the frequency falls to 49.8 Hz and do not under drawal whenever the frequency is above 50.2 Hz provided that when the frequency is higher than 50.2 Hz, the actual net injection shall not exceed the scheduled despatch for that time block.</p>
Madhya Pradesh Electricity Distribution Code	
7.2.2	The Licensee shall maintain adequate historical data and shall use scientific techniques / methods for demand estimation.
7.4.4	Before any lines or equipment of 11 kV and above (except Distribution transformers) are taken out of service, the licensee shall obtain consent of the designated officer of the SLDC/Sub-LDC even though the same is already included in the approved plan.

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7.4.6	<p>The above procedure shall not apply under the following circumstances:</p> <ul style="list-style-type: none"> i) In cases where the estimated drawal at interconnection point is not affected; ii) Emergency situations to save plant and machinery; iii) In case of unforeseen emergency situations requiring isolation of line or equipment to save human life; iv) Disconnection to be effected on any user's or consumer's installation due to violation of agreement. <p>In such cases the SLDC shall be informed wherever the load to the extent of 5 MW or more is affected.</p>
Demand Management or Load Shedding 7.6.1	<p>Load shedding shall be carried out by the Licensees promptly whenever requisitioned by SLDC for maintaining load-generation balance and system frequency.</p>
7.6.2	<p>Advance information from SLDC will enable preparation for load shedding by the Licensees with minimum disruption and minimum inconvenience to Users.</p>
7.6.3	<p>Amount of Load Shedding required at any time shall be assessed as per</p> <ul style="list-style-type: none"> (i) The information and instructions received from SLDC and (ii) The system frequency as indicated by the frequency meters installed at DSOCC and other locations The quantum of load shedding depends on the amount of generation shortage and expressed as a percentage of existing load.
7.6.4	<p>The nature of load shedding may be classified as under:</p> <ul style="list-style-type: none"> (i) Temporary, one time basis (ii) Repetitive and periodic (e.g. a given amount of load to be shed during peak load hours every day) (iii) Continuous, till a new generating station or a new power transformer is commissioned or (iv) Emergency basis (unforeseen cause) <p>The load relief is therefore specified by a percentage of existing load or by the amount of load in MW to be shed and the duration and commencement time and whether one time, repetitive continuous or periodic</p>
7.6.5	<p>Communication of Load Relief Requirement</p> <p>The Licensee shall communicate the requirements of load relief using DSOCC and media. DSOCC shall inform all 33kV sub-stations, which shall in-turn intimate the users in their jurisdiction of supply in case of scheduled load shedding. If necessary, load relief operations may be conducted in the sub-stations by tripping 11kV feeders. Load shedding planned in advance (day earlier etc) shall be published in the newspaper widely circulated in the area</p>

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	where intended load is to be shed
7.6.6	<p>Guiding Principles</p> <p>The total load relief required in the Licensee's area is to be spread in the entire area and to be distributed among maximum number of consumers so that the impact is mitigated. Also when long term load relief is required rotational load shedding should be resorted to. To the extent possible essential loads and process industries to be exempted. The Licensee shall study the behaviour of its system especially under ABT and try to establish links between grid frequency and load shedding time such as to minimize unscheduled load shedding under low grid frequency conditions.</p>
7.11	<p>Monitoring and Control of Voltage, Frequency and Power Factor</p> <p>(v) The licensee shall abide by the instructions issued by the SLDC from time to time on load management for maintaining frequency of supply within specified limits.</p> <p>(vi) Unfair action by SLDC or WRLDC: If a particular Licensee promptly arranges load relief as required by SLDC but SLDC and WRLDC fail to obtain proportionate relief in the systems of other Licensees and States which is proved by lack of improvement of frequency despite load shedding in the Licensee's area, the matter shall be reported by the Licensee to MPERC or CERC depending on whether the default has occurred within Madhya Pradesh or in another State under the jurisdiction of Western Region respectively.</p>
7.12.2	<p>Communication</p> <p>Reliable communication links shall be established for exchange of data, information and operating instructions between the licensees and consumers with a Demand of more than 5MW, generators connected to distribution system and the SLDC.</p>

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Annexure-3	Essential load	
	Priority	Type of Load
	1	<blank>
	2	Mining
	3	Railways (Traction)
	4	Ports & Important Industrial Loads
	5	Important cities
	6	Hospitals, Water Works, TV and Radio Stations
	7	Process Industries
	8	Defence Establishments
	9	Telecommunication Exchanges/Stations
	10	Police Stations
	11	Fire Stations
CERC (Measures to relieve congestion in real time operation) Regulation, 2009		
4	(3) The congestion charge shall be applicable to the overdrawing/under drawing/over-injecting/under-injecting regional entity in addition to the Unscheduled Interchange charges which would be payable / receivable as per Central Electricity Regulatory Commission (Unscheduled Interchange charges and related Matters) Regulations, 2009 or any re-enactment thereof.	
6	Notice for application of congestion charge: When, in the opinion of the National/Regional Load Despatch Centre, flow of electricity on an interregional /intra-regional corridor/ link used for transfer of electricity has crossed the ATC of such corridor/link, the NLDC/RLDC shall issue a warning notice to the defaulting entities. If the flow of electricity on the inter-regional /intra-regional corridor/ link exceeds the TTC, the NLDC/RLDC may, after notice through fax/voice message and through posting on its website and the common screen available on the Energy Management System, which is common to NLDC, RLDC and SLDCs, decide to apply congestion charge on the defaulting entities from a particular time-block in accordance with regulation 4	
Suo moto order dated 8.1.2010 Rate of Congestion charge in real time operation in inter-State transmission of electricity by CERC		
4	Congestion charge is proposed to be fixed at Rs 5.45/kWh which will be applicable to all regions	
5	At frequency below 50 Hz, congestion charge would be levied for overdrawal in the importing control area and at frequencies above 50 Hz, congestion charge	

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	would be levied for under-drawal in the exporting control area.															
1.30	The Commission while issuing the tariff order for FY 2010-11 had sought the details of supply hours to various areas and had accordingly directed the Distribution Licensees of the State to maintain the minimum assured daily supply hours as given below: (a) Commissionary Headquarters - 22 Hours (b) District Head Quarters - 19 Hours (c) Tehsil Headquarters - 14 Hours (d) Rural Areas - 12 Hours (Out of which Minimum for 06 (Six) Hours Three Phase supply is to be maintained.)															
1.31	The Commission again directs the Licensees' to maintain minimum supply hours in accordance with above. The Commission may consider reduction in the fixed charges proportionately if the minimum supply hours as specified are not maintained by the Discoms.															
3.31	Loss Targets (in %) as per the Regulations: <table border="1"> <thead> <tr> <th>Loss Targets</th> <th>2011-12</th> <th>2012-13</th> </tr> </thead> <tbody> <tr> <td>East Discom</td> <td>27%</td> <td>24%</td> </tr> <tr> <td>West Discom</td> <td>24%</td> <td>22%</td> </tr> <tr> <td>Central Discom</td> <td>29%</td> <td>26%</td> </tr> <tr> <td>State</td> <td>26.45%</td> <td>-</td> </tr> </tbody> </table>	Loss Targets	2011-12	2012-13	East Discom	27%	24%	West Discom	24%	22%	Central Discom	29%	26%	State	26.45%	-
Loss Targets	2011-12	2012-13														
East Discom	27%	24%														
West Discom	24%	22%														
Central Discom	29%	26%														
State	26.45%	-														
Twelfth Meeting of The Forum of Regulators 11th - 12th June, 2009	The Forum deliberated on the recommendations of the Standing Committee on Energy and decided that SERCs should not permit in ARR (w.e.f. 01.08.2009) the inclusion of 'additional UI charge' imposed on the utilities under CERC's UI Regulations for overdrawl during the time blocks when frequency was below 49.2 Hz. (Now as per amendment dated 05.03.2012 to Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulations, 2009, w.e.f. 02.04.2012, the additional UI charge shall be imposed for overdrawls during the time block when frequency is below 49.5 Hz).															

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Types of demand control

3.5.1 As per IEGC, the interruptible loads shall be arranged in four groups:

- Scheduled power cuts/load shedding,
- Loads for unscheduled load shedding
- Loads to be shed through under frequency relays/ df/dt relays
- Loads to be shed under any System Protection Scheme identified at the RPC level

3.5.2 Planned Control

- Demand Side Management initiated by Discoms for 33kV and 11kV feeders controlled by Discom
- Demand Side Management initiated by Discoms for 33kV and 11kV feeders emanating from Transco's EHV sub-station
- Planned Disconnection (e.g. rotational load shedding) and/or Emergency Manual Disconnection initiated by SLDC

3.5.3 Automatic Control

- Tripping of line for protection of supply to any part of the MPPTCL Transmission System where system security is weak
- Disconnection of load blocks by operation of automatic under frequency load shedding relays

3.5.4 Customer demand management by discoms

Discom shall try to limit its actual drawal to the drawal schedule given to SLDC through customer (including open access) demand management.

3.5.5 Demand side management initiated by discoms:

Primarily the need for the planned demand control would arise on account of the following conditions:

- Unforeseen outage of generation capacity resulting in reduced power availability that is insufficient to meet the demand.
- Unforeseen outage of transmission lines / equipment resulting in transmission constraints.
- Heavy reactive power demand causing low voltages.
- Variation in demand from the demand estimated / forecasted which cannot be absorbed by the State Transmission System.

DCC shall prepare a protocol based on certain parameters for exercising first level control over Discom's 33kV or 11kV feeders with certain limits.

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3.5.6 33kV and 11kV feeders controlled by Discom

It is very important to control the demand of distribution system by conducting switching operation in distribution controlled 33kV & 11kV feeders. This becomes more important when 33kV and 11kV feeder emanating from Transco's EHV sub-station will be on 24x7 from year 2013.

For effective demand management in MP Discoms, DCC shall exercise the control over all the 33kV and 11kV outgoing feeders in the discom. Exercising control on such large number of feeders from DCCs will be quite challenging without IT infrastructure. DCCs should group or categorised all 11kV feeders based on analysis of key parameters such as:

- a. Geographical area
- b. Average and peak loading (MW)
- c. AT&C losses
- d. Category of majority consumers (irrigation, essential load, domestic, industrial etc.)
- e. Number of consumers
- f. Length of feeder
- g. Any specific parameter indicated by GoMP/MPERC
- h. Any other parameter

Mapping of the individual feeders with the existing or proposed groups will provide the identification parity between the Transco sub-stations and Discom sub-stations. After finalisation of the feeder master list, a communication channel within Discom shall be established similar to the existing communication channel of MPPTCL. Identification and allocation of responsibility shall be done at region and circle wise. For dissemination the information, in addition to the communication channel, technological intervention shall also be sought.

3.5.7 33kV and 11kV feeders emanating from Transco's EHV sub-station

SLDC in consultation with DCC implement Planned Disconnection and/or Emergency Manual Disconnection, when it considers it necessary either at its own instance or when WRLDC demands for the same.

Demand control has to exercised under these conditions by the SLDC:

- a. Planned Disconnection is the procedure adopted when forecastable energy availability from all sources falls short or due to transmission constraint Demand Control for a prolonged period is required. Under such situation Manual Rotational Load Shedding Scheme may be required to ensure equitable treatment for all Customers as far as practicable.
- b. Emergency Manual Disconnection is utilised when loss of Generation / mismatch of Generation output and Demand or Transmission Line Constraint is such that there is a problem requiring shedding of Load at short notice or no notice to maintain a regulating margin to deal with unacceptable voltage levels, thermal overloads, etc.
- c. Load Blocks shed under Planned Disconnection and/or Emergency Manual Disconnection will be separate in addition to load blocks covered for shedding under Automatic load Shedding Scheme.

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- d. During the demand control by manual disconnection of loads by staggering in different group shall carry out the changeover from one group to another in a gradual scientific manner so as to avoid excursions in the system parameters.

After the complete implementation of distribution Data Acquisition (DA) system in Transco's emanating feeder, DCCs will have online visibility of distribution system. DCCs shall prepare the following protocol for switching

- a. 1st level control through distribution 11kV feeder
- b. 2nd level control through distribution 33kV feeder
- c. 3rd level control through Transco emanating (11kV and 33kV) feeders

3.5.8 Manual Disconnection

- a. The quantum and duration of the manual load shedding by the DCC shall be such that no un-due discrimination is made between the circle or district.
- b. The order for manual disconnection by the DCC would be based on extent of over drawal by the circle or district.
- c. The Shift In-charge DCC/NDCC would identify feeders drawing heavy quantum of reactive power and disconnect the same under low voltage conditions.

3.5.9 Load Crash

In the event of load crash in the system due to weather disturbance or any other reasons, the situation would be controlled by the Shift In-charge DCC by the following methods:

- a. Revise in requisition of discom
- b. Backing down or closing down of generating units based on priority list.
- c. Lifting load restrictions, if any.
- d. Exporting power sale to neighboring states or regions.

3.5.10 Under frequency relay (UFR) load shedding arrangements

For the safety of the system, MPPTCL have provided some Under Frequency Relays (UFR) with frequency settings at 220kV and 132kV Grid Sub-Stations on different 33kV / 11kV feeders for automatic load shedding for taking care of contingencies, like sudden loss of bulk generation feeders. The frequency settings have multiple stages.

The UFR relays are intended to prevent frequency falling to a level which endangers system security. UFR schemes operate as per **RPC** decision and change of UFR settings shall be done in consultation with **RPC**.

For district wise automatic under frequency plan of MP distribution system please refer Annexure C: Automatic under frequency plan (Page no. 135)

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3.5.11 Under frequency load shedding scheme

To prevent the frequency to drop to a level which is dangerous from system point of view Under Frequency Relays (UFRs) have been installed in the system to disconnect the identified feeders at pre-determined frequency settings to reduce the connected load in the system. The feeders so disconnected are subsequently restored as when the system frequency recovers to desired safe level.

Rotational Load Shedding Scheme (RLSS) is implemented with the help of Under Frequency Relays for giving load relief in a particular hourly block when the frequency at that particular hour is below pre-determined value.

WRPC has approved a Scheme to shed quantum of loads at different stages of Under Frequency by each constituent of Western Region as per details given in Annexure D Under frequency Load Shedding scheme (Page no. 137)

3.6 Process

Activities to be done by DCC

- I. General Shift In-Charge (DCC) in consultation NDCCs shall prepare the load shedding scheme with the help of IT tool for submitting to SLDC after preparation of feeder master list(format X-03-F-01 (Page no. 100) and X-03-F-04 (Page no. 103)
- II. Shift In-Charge (DCC) in consultation with Shift In-Charge (NDCC) and with the help of IT tool shall submit the details of loads for planned and unplanned load shedding in discrete load block to the SLDC/ Sub-LDC [format to be provide by SLDC)
- III. Shift In-Charge (DCC) in consultation with Shift In-Charge (NDCC) based on field conditions shall take actions for revision in discom (demand) requisition during day of operation as described in Demand Requisition Procedure.
- IV. General Shift In-Charge (DCC) in consultation with Head (DCC) shall regularly analyze the situation and include the same in management reporting format to improving system performance, and observes Grid discipline
- V. Periodic Standing operating instructions shall be given to the sub-stations/NDCC In-charge to avoid the risk of communication failures.
- VI. Shift In-Charge (DCC) and Shift In-Charge (NDCC) shall facilitate SLDC/Sub-LDC for operational co-ordination and reporting requirements with field staff and NDCCs.
- VII. Shift In-Charge (NDCC) shall always be updated about availability of capacitor banks by the discom sub-station Incharge. Shift In-Charge (NDCC) shall report the availability of same to DCC on regular basis in the format .X-03-F-03 (Page no.102)
- VIII. Responsibility matrix for reactive power management is given below:

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Shift In-Charge (Sub-station)	Sub-station level
Shift In-Charge (NDCC)	Circle level
Shift In-Charge (NDCC)	Regional level
Shift In-Charge (DCC)	Discom level

- IX. Shift In-Charge (DCC) & Shift In-Charge (NDCC) shall establish the communication with bulk consumers and open access consumers control for actual demand assessment and passing operational instructions. Written communication from DCC shall be in the format X-03-F-02 (Page no. 101). All the communications from the DCC to NDCC, discom sub-stations, transco sub-station, SLDC/sub-LDC, other Discom control centre, HT consumers and Open access has to be recorded in Log book/soft or Hard copy of DCC.
- X. Shift In-Charge (DCC) & Shift In-Charge (NDCC) are responsible to monitor system frequency and ensure
 - No over drawal during low frequency
 - No under drawal during high frequency

It shall be noted that below 49.7 Hz a penalty in the form of additional UI is charged to the over drawing entity.
- XI. Shift In-Charge (DCC), Shift In-Charge (NDCC) and Shift In-Charge (Sub-station & lines) are responsible to ensure voltages and unbalance of (33kV and 11kV) distribution system within prescribed limits. Also shall limit the reactive power flow through operating instruction of capacitor banks in 33/11kV substations.
- XII. Shift In-Charge (DCC) shall accept the directions and operating instruction from SLDC or Sub-LDC control room. Based on the system requirements and grid condition, Shift In-Charge (DCC) shall at the minimum time respond. All the switching instruction has to be communicated to the NDCCs or sub-stations based the system condition and requirements.
- XIII. For any change in system requirement Shift In-Charge (DCC) or Shift In-Charge (NDCC) shall run automated supply plan modification tool and utilize his experience & guidance provided by tool to take decision. Shift In-Charge shall also broadly validate the outputs and provide manual intervention when ever required.
- XIV. Shift In-Charge (DCC) shall maintain the records of grid disturbance or grid incidents reported by SLDC and shall forward the same to the NDCC
- XV. Shift In-Charge of NDCCs in consultation with sub-stations shall report following events to the DCC for 33kV system [*Format Discom System Event report to be finalized by operation department in consultation with NDCC*]:

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- Distribution system disturbance or incidents
- Major accidents
- Abnormal events

3.7 Records

Records to be maintained under procedure are:

Document/report		Format No.	File/Register /Soft/e-mail	Periodicity	Responsibility
Grid disturbance/ Event report of MP System	Sent by SLDC to DCC		Soft / email	As and when	Shift In-Charge (DCC)
Log book entry	Send by DCC to NDCC, discom sub-stations, transco sub-station, SLDC/sub-LDC, other Discom control centre, HT/EHT consumers and Open access has to be recorded in Log book of DCC.		Soft/hard copy	Daily (as and when)	Shift In-Charge (DCC) Head (DCC)
Grid disturbance/ Event report of distribution system	Sent by Operation department of Discom to DCC	To be decided	Soft / email	As and when	Shift In-Charge (DCC)
Implementation schedule	Send by SLDC	Refer MP SLDC website	Soft / email	Daily	Shift In-Charge (DCC)
Load shedding scheme	Sent by DCC to SLDC	SLDC format	Soft / email	Monthly	General Shift In-Charge (DCC)
Feeder master list for transco emanating feeders		X-03-F 01 (Page no.100)	Soft / email	Monthly	Shift In-Charge (DCC)
Sub-station details	Sent by NDCC to DCC	X-03-F 04 (Page no. 103)	Soft / email	Monthly	Shift In-Charge (NDCC)

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Document/report		Format No.	File/Register /Soft/e-mail	Periodicity	Responsibility
Load management Communication records	Sent by DCC or to DCC	X-03-F 02 (Page no. 101) Provided by the utility or LDC	Hard/Soft/ Email /Fax	As and when	Shift In-Charge (DCC)
Capacitor availability	Sent by NDCCs to DCC	X-03-F 03 (Page no. 102)	Soft/ Email	Monthly	General Shift In-Charge (DCC) General Shift In-Charge (NDCC) Sub-station Incharge

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SOP-04

Contingency Management Procedure

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4 Contingency Management Procedure

4.1 Introduction

This procedure aims to provide the general guidelines to be performed during system restoration. This procedure is prepared in line with recovery procedure notified by WRLDC for Western Region and in compliance with relevant central and state regulation explaining the roles and responsibility of system operators in system restoration during contingencies.

However, in real time situation, depending upon the actual system conditions and SLDC instruction certain deviations may be essential to achieve the ultimate objective of speedy recovery and normalization. Therefore, during system revival, the responsible Shift In-Charge shall have to act judiciously and any such deviations, which are required for achieving the speedy revival, shall be carried out in consultation with SLDC.

This procedure shall be reviewed and modified with the amendment in WRLDC procedure & relevant regulations with the objective to achieve fastest possible recovery of the grid.

The procedure is prepared in compliance to following regulations, order and procedures:

- a. Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and its amendment dated 05.03.2012.
- b. Madhya Pradesh Electricity Grid Code 2004 and its amendment from time to time.
- c. Recovery procedure for Western Region, April 2011.

4.2 Objectives

The objective of this procedure is to achieve restoration of Madhya Pradesh system in the minimum possible time and to provide support to SLDC/WRLDC in achieving the same. The document is prepared to make aware of the MP system restoration procedure to the DCC, NDCCs and Discom sub-station In-charges with their individual responsibilities.

Although in case of partial or total black out it is the responsibility of SLDC is to restore the system in minimum possible time in accordance to Western Region restoration procedure. Implementation of this procedure is expected to improve co-ordination among SLDC, GCC, MPPTCL, DCC, NDCCs and Discom sub-stations which in turn will help in faster restoration of grid during contingencies.

4.3 Scope

This procedure applies to DCC, NDCC and all Discom sub-station In-charge

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4.4 Owner

DCC (Head) is the owner of the document and is responsible for modification and circulation of the document.

Shift In-charge (DCC) in coordination with SLDC Control Room will be responsible for System Restoration.

4.5 Guidelines

- I. Important terms as per Recovery procedure for Western Region
 - a. **Total System Blackout:** The system is said to be under total blackout when all generation is ceased in the system and there is no supply from external interconnections to the state transmission system. It is not possible for the total system to function again without black start procedure.
 - b. **Partial System Blackout:** A situation when a part of the state transmission system is under blackout when all the generation within that part ceased to function and there is no external interconnections, so as to possible for that part of State Transmission System / Inter State Generating Station to function again without agreed procedures.
 - c. **Black Start:** Procedure necessary for restoration of system to normal from a total / partial system blackout. The procedure for a partial system blackout is same as that for a total system blackout except that it applies only to the affected portion of the state transmission system.
 - d. **Grid Disturbance:** Grid Disturbance is the situation where disintegration and collapse of grid either in part or full take place in an unplanned and abrupt manner, affecting the power supply in a large area of the region.
 - e. **System Island:** In case a part of the system is separated from the main Regional Grid System due to intentional application of under frequency relay schemes and operates independently is called System Islanding. Normal operation of the total system will require power islands to be re-synchronised at some appropriate time.
 - f. **System Split:** In case part or whole of State Transmission System is separated on operation of protective relays and operate independently is called system split.
- II. Key information

WRLDC is the apex body in operation of the Western Regional Grid, supervises and controls all the grid operations and ensures integrated operation of the regional grid.

Western region has computerized Load Dispatch Centres at the regional level (WRLDC) top of the hierarchy and State Load Dispatch Centres (SLDCs) & Sub Load Dispatch Centres (Sub LDCs) at the state level.

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WRLDC is directly involved in the restoration of the central sector transmission and generation, it directs, supervises and monitors the restoration of the facilities owned by the states and coordinates the resynchronization/reintegration of the islands that are restored around the generating units with black start facilities or sources of power energized through inter regional interconnections.

Restoration of the loads is under the control of the state utilities and priorities are set by them. WRLDC is authorized during the restoration process following a black out, to operate at reduced security standards for voltage and frequency as necessary in order to achieve the fastest possible recovery of the grid. (Section 5.8(d) of IEGC-2010).

III. System restoration approaches

Restoration of the system on black start is generally done through the following two approaches:

- a. **Bottom-Up Approach** -Systems with a fair dispersal of generating units with black start facilities: Those generating stations, where black start facilities are available, should be started up and islands be formed around them by connecting essential loads. These islands are then interconnected at predefined locations where synchronizing facilities are available. The speed of restoration enhances with increase in number of black start facilities and their dispersal.
- b. **Top-Down Approach** -Systems with no / less generating units with black start facilities: The second approach could be followed in case self start facilities are available at only a few power stations or the start up power has to be imported from neighboring areas/regions at one or two points. In this case, the start-up power is required to be extended to all the generating stations on priority basis while restoring few loads and transformers/reactors for voltage control. The start-up power available from neighboring regions at various interconnections has to be seriously explored since considerable assistance can be availed and the restored system is likely to be connected to a stable external system. These procedures are to be well planned for the earliest and quickest harnessing of the facilities. The restoration through this approach could be delayed due to problems in charging the lines viz. high-voltage, lack of synchronizing facilities at certain substations etc. and high probability of system disturbance during restoration.

IV. Restoration Procedures For M.P System

The black start/restoration procedures to be adopted depend upon the gravity of the grid disturbance and the sources from where the start-up power could be expeditiously provided. Different approaches and procedures will be needed to be adopted in case the whole grid is affected by the disturbance or the disturbance is restricted to a limited area.

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To facilitate black start, D.G sets are available in M.P system as mentioned below:

SI. No.	Power station	Fuel Type	DG set capacity
1	Pench	Hydro	250 kVA
2	Bargi	Hydro	250 kVA
3	Bansagar Tons	Hydro	250 kVA
4	Gandhi Sagar	Hydro	100 kVA
5	Indira Sagar	Hydro	2x1000 kVA
6	Birsinghpur	Hydro	220 V Battery
7	Rajghat	Hydro	250 kVA

Black start facility is available at Gandhi Sagar generating station. Black start facility of Birsinghpur hydel station is not very reliable. Start up power from Rajghat station also cannot be extended to thermal power stations as the hydro units are small and cannot handle high starting current while energizing thermal auxiliaries. These plants, thus, can be used to form small islands around them and act as a base for grid formation and supplying emergency power to the nearest areas. Recently black start capability of Indirasagar Hydel Power Station and Bargi Hydel Power Station has been tested successfully. These units are capable of extending start-up power to thermal power stations.

V. Western Region Grid – system restoration procedure overview

Detailed Restoration procedures for MP System are given at Annexure E: WLRDC procedure: MP Restoration procedure (Page no.138) along with the exhibits showing the schematic scenarios.

Possible scenarios of restoration are given below:

- (i) Scenario # 1: Availing start up power from own black start sources as well as Indirasagar and Omkareshwar HPS
- (ii) Scenario # 2: Availing start up power from Chhattisgarh via Korba(W)-Kotmikala-Amarkantak or 132 KV Dongargarh-Balaghat-Seoni-Pench path or through 400 KV Bhilai-Seoni path.
- (iii) Scenario # 3: Availing start up power from Gujarat via 400kV Asoj-Indore-Burwaha (220kV) - Itarsi- Satpura path or 400 KV SSP-Rajgarh-Nagda-Indira Sagar path.
- (iv) Scenario # 4: Availing start up power from Maharashtra via 132 KV Kanhan-Pench path or through Khaparkheda-Kalmeswar-Pandurna-Satpura path.

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(v) Scenario # 5: Availing start up power from NR via 132 kV Rihand-Singrauli- VindhyaChal or using 400 kV AC bypass link at VindhyaChal or through 132 kV Anpara- Morwa-Amarkantak or by 132 kV R P Sagar -Gandhi Sagar lines or by 220 kV Auraiya- Malanpur and Auraiya-Mehgaon lines.

These Restoration Procedures is reviewed and updated by SLDC annually in consultation with MPPTCL, MPPGCL and WRLDC.

Refer Annexure F: Western region power map (Page no.149)

Note: WLRDC procedure is revived annually, hence necessary amendments/changes in WRLDC procedure has to be updated in this document accordingly.

4.6 Process

Activities to be performed by DCC

- I. DCC at all time shall have the latest amended copy of this document available in the DCC Control Room. This procedure shall be also available to all the NDCC & 33/11kV sub-stations of Discom.
- II. Shift In-charge (DCC) shall immediately regulate load as per instruction of SLDC as and when required as for frequency & voltage management. Shift In-charge shall pass on the instructions of load control to Discom NDCC/Substation/ embedded OA customer for necessary control (Format X-05-F-01 (Page no.107) for contact details of OA, X-04-F-02 (Page no.106) for NDCC/Sub-stations contact details)
- III. Shift In-charge (DCC) shall take decision for Unscheduled Load Shedding and Distress Load Shedding based on the feeder master priority list Format X-04-F-02 (Page no.104) DCC (Head) in consultation with planning and field level staff shall update the feeder master priority list at least once in every 3 months.
- IV. The Shift In-charge (DCC) shall inform the Head (DCC) about the grid situation and request his assistance in the restoration process as and when required.
- V. Shift In-charge (DCC) shall regularly monitor the Unscheduled Interchange (UI) and frequency of the MP system. It is important to ensure Discoms contributes towards improving system performance, and observes Grid discipline. It may be noted that during system disturbance all schedules shall be revised to actual for accounting purpose.
- VI. Shift In-charge (DCC) shall keep a records grid disturbance & event report circulated by SLDC control room.
- VII. Shift In-charge (DCC) & Shift In-charge (NDCC) shall ensure no deviation from schedule during low frequency for discom. It shall be noted that below 49.7 Hz a penalty in the form of additional UI is charged to the over drawing entity.

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- VIII. During revival of the system, only authorized personnel would be present in control rooms of DCC/NDCC /Discom Sub-Stations so as to expedite restoration of the system.
- IX. In order to restore essential loads on priority, DCC Head is responsible to prepare and update a priority list regularly for Transco emanating EHV sub-stations, Discom 33kV feeders, 11kV feeders in Format X-04-F-01 (Page no.104) and must be available at all times in DCC. Please also referrer Annexure G: AC Traction load of Discom (Page no. 150) for traction load details. [To be updated by discom]
- X. Priority would be accorded for extending supplies to installations where safety is of paramount importance. The list of Priority Load is given as per distribution code is:

Priority	Type of Load
1	<blank>
2	Mining
3	Railways (Traction)
4	Ports & Important Industrial Loads
5	Important cities
6	Hospitals, Water Works, TV and Radio Stations
7	Process Industries
8	Defence Establishments
9	Telecommunication Exchanges/Stations
10	Police Stations
11	Fire Stations

- XI. All switching instructions for a Discom system have to emanate from a single agency viz. DCC. Wherever a communication problem is foreseen, proper standing instructions would be issued to the NDCC and sub-station engineers for implementation.
- XII. There shall not be any sudden decrease/increase in its load due to imposition or lifting of power cuts etc., without prior intimation to and consent of the SLDC. All Discom sub-station In-charge shall follow the instruction of DCC/NDCC during contingency.
- XIII. DCC shall provide to SLDC estimates of load that may be shed when required in discrete blocks with the details of arrangements of such load shedding.

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- XIV. No demand shed by operation of UFR shall be restored without specific directions from SLDC by DCC, NDCC or discom substation. Similarly for discom system, NDCC/Sub-station In-charge shall not restore any load shed by operation of UFR without specific directions from DCC.
- XV. DCC/NDCC control room shall have the updated copy of Under Frequency Relay (UFR) issued by WRPC. Please refer Annexure C: Automatic under frequency plan (Page no.135) and Annexure D Under frequency Load Shedding scheme (Page no.137)
- XVI. For voltage control and reactive power management, DCC shall initiate the sub-station/NDCC as instructed by SLDC.
- XVII. Despite the urgency of the situation, careful and complete logging of all messages and all operations is essential. Shift In-charge (DCC) shall keep records of all such instructions.
- XVIII. Alert message shall be given to NDCC, all sub-stations and discom public relationship officers in case of contingency by Shift In-charge (DCC)
- XIX. DCC with the help of NDCC and Sub-station In-charge shall facilitate SLDC to inquire and establish the cause of failure and appropriate recommendations for any major failure.
- XX. All critical contingency messages from SLDC has to be filed & saved in DCC by Shift In-charge (DCC).
- XXI. After system normalization, Shift Incharge of DCC/NDCC shall prepare the report indicating the total loss of load during the system disturbance period.
- XXII. As directed by SLDC, DCC or NDCC shift In-charge will communicate to the discom Sub-station In-charge for curtail or limit power supply.
- XXIII. Shift In-charge (DCC) shall note the response of instruction (time and relief in MW) time separately for Transco Emanating feeders and other Discom feeders in the log book. Head (DCC) shall conduct the response analysis and shall initiate corrective actions to improve.
- XXIV. Head (DCC) shall conduct mock exercise to ascertain the communication response time and effectiveness of contingency plan on regular basis.

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4.7 Records

Records to be maintained under procedure are:

Document/report		Format No.	File/ Register/ Soft/e-mail	Periodicity	Responsibility
Priority feeder master list for contingencies		Format X-04-F-01 (Page no. 104)	Soft	Update in 6 months	DCC head, planning and O&M department
Stakeholder contact details		Format X-04-F-02 (Page no.106)	Soft/Hard	Monthly	
Critical contingency messages	Sent from SLDC to MP Tradeco		Soft/e-mail/Fax	As and when it comes	Shift In-charge DCC
Grid disturbance & events log	Sent from SLDC to MP Tradeco		Soft/e-mail	As and when it comes	Shift In-charge DCC
Load to be shed during contingencies	Sent to SLDC in their format		Soft/e-mail	As and when it comes	Shift In-charge DCC
Response of instruction (time and relief in MW)		Log Book	Hard copy	Daily (as and when it happens)	Shift In-charge DCC

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SOP-05

Energy Accounting and Settlement Procedure

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
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5 Energy Accounting and Settlement Procedure

5.1 Introduction

As per the Madhya Pradesh Electricity Balancing and Settlement, Discoms are required to create Discom Energy Accounting Group (DEAG) in DCC to coordinate with SLDC for energy accounting related matters. This procedure describes the process for energy accounting and settlement for discom embedded open access customers, timelines for each activity and responsibility for each activity.

The procedure is prepared in compliance to following regulation, orders and procedures:

- a. Madhya Pradesh Electricity Balancing and Settlement Code, 2009 and its amendment dated 02.06.2010 and procedures..
- b. Madhya Pradesh Electricity Grid Code 2004 and its amendment from time to time.
- c. Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and its amendment dated 05.03.2012.
- d. Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulations, 2009 and its amendment dated 05.03.2012.
- e. Energy Accounting Procedure prepared by SLDC of MP.

5.2 Objectives

To prepare energy and reactive accounts for discom embedded open access customers. This procedure will enable DCC to produce UI account and Reactive energy account

5.3 Scope

This procedure applies to DCC

5.4 Owner

Head (DCC) is responsible for the implementation and maintenance of this procedure.

In-Charge (DEAG) shall be responsible for energy accounting and settlement related processes for discom embedded open access customers.

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5.5 Guidelines

Unscheduled Interchange (UI) Charges:

- I. The charges for the Unscheduled Interchange for all the time-blocks shall be payable for over drawal by the buyer or the beneficiary and under-injection by the generating station or the seller and receivable for under-drawal by the buyer or the beneficiary and over-injection by the generating station or the seller and shall be worked out on the average frequency of a time-block at the rates given in Annexure H: UI Rates (Page no. 152) as per the methodology specified in clause (2) of the CERC (UI and related matters) Regulation.
- II. Provided that the charges for the Unscheduled Interchange for the generating stations using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel, when actual generation is higher or lower than the scheduled generation, shall not exceed the Cap Rate as specified in the Annexure I: UI Cap rates and Additional UI rates (Page no. 154)
- III. Provided further that the Charges for the UI for the injection by a generating station other than the hydro generating station in excess of 105% of the Declared Capacity (DC) of the station in a time block or in excess of 101% of the average DC over a day shall not exceed the charges for the UI corresponding to grid frequency interval of 'below 50.02 Hz and not below 50.0 Hz'.
- IV. Provided also that the charges for the Unscheduled Interchange for the under drawls by the buyer or the beneficiaries in a time block in excess of 10% of the schedule or 250 MW whichever is less, shall not exceed the Cap Rate as specified in the Annexure I: UI Cap rates and Additional UI rates (Page no. 154)
- V. Provided also that the charges for the Unscheduled Interchange for the injection by the seller 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 or 101% of the Installed Capacity over a day shall not exceed the Cap Rate as specified in the Annexure I: UI Cap rates and Additional UI rates (Page no. 154)
- VI. Provided also that the Charges for the Unscheduled Interchange for the injection by the seller in excess of ex-bus generation corresponding to 105% of the Installed Capacity of the station in a time block or 101% of the Installed Capacity over a day shall not exceed the charges for the Unscheduled Interchange corresponding to grid frequency interval of 'below 50.02 Hz and not below 50.0 Hz'.
- VII. In addition to Unscheduled Interchange Charges Additional Unscheduled Interchange Charge shall be applicable for over-drawal or under-injection of electricity for each time block when grid frequency is 'below 49.7 Hz' at the rates specified in the Annexure I: UI Cap rates and Additional UI rates (Page no. 154)
- VIII. Provided further that Additional Unscheduled Interchange Charge for under-injection of electricity, during the time-block when grid frequency is below 49.7 Hz, by the generating

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stations using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be at the rates specified in Annexure I: UI Cap rates and Additional UI rates (Page no. 154)

Reactive Energy Charges:

- IX. As per IEGC, Reactive Power compensation should ideally be provided locally by generating reactive power as close to the reactive power consumption as possible. The Intra State Entities except Generating Stations are therefore expected to provide local VAr compensation / generation such that they do not draw VAr under low – voltage condition and do not inject VAr under high – voltage condition. To discourage VAr drawl under low voltage and VAr injection under high - voltage by Intra State Entities except Generating Stations, VAr exchanges shall be priced as follows:
 - a. Intra State Entities except generating stations pays for VAr drawl when voltage is below 97%.
 - b. Intra State Entities except generating stations get paid for VAr return when voltage is below 97%.
 - c. Intra State Entities except generating stations pays for VAr return when voltage is above 103%.
 - d. Intra State Entities except generating stations get paid for VAr drawl when voltage is above 103%.
- X. The charge for VArh shall be at the rate of 10 Paise/KVArh w.e.f 01st April 2010. This rate shall be escalated at 0.5 Paise/KVArh per year thereafter, unless otherwise revised by the commission.

5.6 Process

Activities to be done by DCC

In-charge (DEAG) shall perform the following activities:

Discom embedded OA customers

- I. Keep a record of the open access application of Discom embedded OA customers and Transmission embedded customers also in their geographical jurisdiction on receipt of the same from Discom (Nodal Officer) / Discom (Planning) / SLDC.
- II. Maintain a record of communication details of coordinator of embedded OA customers as per Format X-05-F-01 (Page no. 107)
- III. Coordinate with field personnel or OA customer for collection of Special Energy Meter data of embedded OA customer within two (2) days from the last day of the Week.

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- IV. Coordinate with field personnel for collection of Special Energy Meter data of inter-Discom connection points within two (2) days from the last day of the Week.
- V. Ensure necessary testing of Special Energy Meters of Discom embedded OA customer as per Madhya Pradesh Electricity Grid Code.
- VI. Prepare provisional weekly UI account as per prevailing BSC and CERC UI regulations for Discom embedded OA customer within eight (8) days from the last day of the Week and send to SLDC. Also, finalize the same within another four (4) days and send to SLDC.
- VII. Prepare provisional weekly reactive energy account as per prevailing BSC and CERC UI regulations for Discom embedded OA customer within eight (8) days from the last day of the Week and send to SLDC. Also, finalize the same within another four (4) days and send to SLDC.
- VIII. Analyze the consumption pattern of OA customers regularly and send the same to General Shift (DCC) as per Format X-05-F-02 (Page no. 112) to serve as input for demand forecasting.

Others

- IX. Checking of following with the help of IT tool:
 - a. Unscheduled Interchange bills
 - b. Reactive power bills
 - c. State Energy Account (SEA)
 - d. REC(Renewable Energy Certificate) Compliance
 - e. Implemented schedule
 - f. Others bills of OA customers
- X. DEAG Shall prepared and issue
 - a. Wheeling charge and Cross Subsidy Surcharge (CSS) bills to OA customers.
 - b. Energy Account and UI bills in respect of DISCOM embedded OA customers.
- XI. Collect monthly meter data of EHT and HT consumers from Commercial / Billing department by 1st of week of every month. Analyze the consumption pattern and peak load pattern for EHT and HT consumer by 2nd week of every month and send the same to General Shift (DCC) as per Format X-05-F-02 (Page no. 108) to serve as input for demand forecasting.

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5.7 Records

Document/report	Format No.	File/Register/ Soft/e-mail	Periodicity	Responsibility
Open access customer contact details	Format X-05-F-01 (Page no.107)	Soft Copy	As and when OA customer energises	In-charge (DEAG)
Weekly UI Account of OA customers		Hard/Soft Copy	Weekly	In-charge (DEAG)
Weekly Reactive Energy Account of OA customers		Hard/Soft Copy	Weekly	
REC(Renewable Energy Certificate) Compliance		Hard/Soft Copy	Monthly	
OA, EHT & HT Consumer Consumption pattern	Format X-05-F-02 (Page no. 108)	Soft Copy	Monthly	

Procedure No.	X-DCC-SOP-06	Revision No.	R.0	Date:	[Insert date]
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SOP-06

Outage Planning Procedure

Procedure No.	X-DCC-SOP-06	Revision No.	R.0	Date:	[Insert date]
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6 Outage Planning Procedure

6.1 Introduction

This document sets out the procedure for planning the outage in the distribution system in coordination with outages of state transmission system and planned shutdown of distribution system. The aim of the procedure is to optimize outages, reduce unscheduled interchange & minimize system down time of distribution system.

The outage in the distribution system is to be planned taking into consideration the system security standards specified in the Grid Code and generation availability to be matched with estimated demand. The outputs of this procedure serve as input for demand estimation purposes and revision of schedules due to un-planned outages.

The procedure is prepared in compliance to following regulations and order:

- a. Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and its amendment dated 05.03.2012.
- b. Madhya Pradesh Electricity Grid Code 2004 and its amendment amendments from time to time.

6.2 Objectives

The objective of this procedure is to optimize the distribution system outage without adversely affecting the grid discipline but taking into consideration the planned shutdown of transmission system and of distribution system and maintaining the system security standards as specified.

Rigorous implementation and practice of this procedure will result in preparing robust demand estimation, optimize shutdown and minimize unscheduled interchange due to planned shutdown. It will also provide information to ensure that the distribution system may be planned for secure operation and to check viability of outage plan for month ahead basis.

6.3 Scope

This procedure applies to DCC, NDCC and all the 33/11kV sub-station feeders of Discom.

6.4 Owner

Head (DCC) is responsible for implementation and maintenance of this procedure.

Head (O&M) is responsible for analyzing the outage schedules of all the 33kV system and 11kV system of distribution considering the outage plan of transmission system and load regulatory measure.

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Shift In-charge (DCC) / Shift In-charge (NDCC) shall be responsible for incorporation of outage planning into discom demand requisition and any revision in schedule.

Head (DCC) is responsible to communicate approved shut down to all NDCC, sub-stations, Discom public relationship representative.

STM (Sub-Transmission Maintenance) Cell at circle level shall be responsible for consolidation and forwarding the outages to NDCC

6.5 Guidelines

- I. Power flow in system or element is primarily stopped in following conditions
 - a. Maintenance of system
 - b. Project related work
 - c. Emergency situation such as failure of equipment, natural calamity etc
- II. Outage planning shall be done considering following
 - a. Seasonal importance
 - b. Public events
 - c. Public holiday
 - d. Planned outage of the upstream feed of transmission system
 - e. Planned outage of the 33kV system, Transco emanating system
 - f. General grid condition in the season
 - g. Back feeding possibility
 - h. Any other factors
- III. As per MP Grid Code:
 - a. Clause 11.3 of, SLDC is authorised to defer the planned outage in case of any of the following events:
 - Major grid disturbance
 - System Isolation
 - Black out in the State
 - Any other event in the system that may have an adverse impact on system security by the proposed outage
 - b. Clause no. 11.4.6, scheduled outage of power stations of capacity 5 MW and above, of all EHV lines and HV lines (i.e. 33kV and 11kV lines) forming interconnection between two EHV substations (and these notified as such by SLDC) shall be approved by Sub-LDC/SLDC, 24 hours in advance based on prevalent operating conditions.

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6.6 Process

Year ahead outage plan

- I. Head (O&M) shall provide the consolidated yearly outage plan to DCCs for the entire year on or before 1st November for next year in the format X-06-F-01 (Page no.115)
- II. General Shift In-charge shall calculate the estimated aggregate annual sales of energy in million units and peak and lean demand in MW & MVar at each Connection point for the next financial year and send CE (SLDC) by 15 November in the format X-06-F-02 (Page no. 116)
- III. STM Cell at circle level shall be responsible for consolidation and forwarding the outages to NDCC.
- IV. Yearly outage plan submitted shall also be used as the input for yearly load forecasting.

Month ahead outage plan

- V. Head (O&M) shall review the yearly plan and provide the consolidated monthly outage plan to DCC for the coming month on or before 20th of each month in the format X-06-F-03 (Page no. 117)
- VI. STM Cell at circle level shall be responsible for consolidation and forwarding the outages to NDCC

N+2 and N+3 day outages

- VII. Head (O&M) shall assess the planned outage for next 2 days (N+2 and N+3) days and shall submit the DCCs in the X-06-F-04 (Page no. 118) by daily 12.00 hours
- VIII. NDCCs in consultation with O&M department and Projects (works) shall assess forced outages for next 2 days (N+2 and N+3) days and shall submit the DCCs in the X-06-F-04 (Page no. 118) by daily by 12.00 hours
- IX. General Shift In-charge (DCC) shall consolidate the requirements sent by NDCCs & Head (O&M) for next 2 days (N+2 and N+3) and shall inform the same to the SLDC. This document is also the input for day ahead demand forecasting.
- X. STM Cell at circle level shall be responsible for consolidation and forwarding the outages to NDCC

During day Outages

- XI. For any shutdown in the 33kV system emanating from Transco EHV sub-station, DCCs consent shall be taken except during emergency condition. For any shutdown in the

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33kV system emanating other than Transco EHV sub-station, NDCCs consent shall be taken except during emergency condition

- XII. For any force outage in 33kV system emanating from Transco EHV sub-station, DCC shall be informed through NDCCs. For any force outage in 33kV system other than Transco EHV sub-station, NDCC shall be informed by respective sub-station in-charge.
- XIII. Shift In-charge (NDCC) shall collate the all requirement of outages. Outages shall be scheduled to optimize the overall outages of the system for its jurisdiction.
- XIV. Shift In-charge (DCC) shall collate the all requirement of discom system outages received through NDCCs. Outages shall be scheduled to optimize the overall outages of the system.
- XV. If the overall forced outage of discom system is significantly more, then revision in schedule or up lifting of load shedding shall be performed by DCC.
- XVI. Shift In-charge (DCC) shall record daily outages in 33kV system of Transco emanating discom feeders. Shift In-charge (NDCC) shall record daily outages in 33kV system other than Transco emanating discom feeders as per format X-06-F-05 (Page no.119)

Important note: Discom Outages shall be planned and executed by considering transmission and generation planned or un-planned outages

6.7 Records

Document/report	Format No.	File/Register/ Soft/e-mail	Periodicity	Responsibility
Year Ahead Outage Program	X-06-F-01 (Page no.115)	Soft copy/hard Copy	Yearly	General Shift In-Charge (DCC) Shift In-Charge (NDCC) Head (O&M)
Year Ahead Outage Program (MW, MVar)	X-06-F-02 (Page no.116)	Soft copy/hard Copy	Yearly	
Month Ahead Outage Program	X-06-F-03 (Page no.117)	Soft copy/hard Copy	Monthly	
2/3 Day Ahead Outage Program	X-06-F-04 (Page no.118)	Soft copy/hard Copy	Daily	
Daily Outage Report	X-06-F-05 (Page no.119)	Soft copy	Daily	General Shift In-Charge (DCC) Shift In-Charge (NDCC)
Daily outage record in 33kV system	Log book	Hard Copy	Daily	Shift In-Charge (DCC) Shift In-Charge (NDCC)

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Procedure No.	X-DCC-SOP-06	Revision No.	R.0	Date:	[Insert date]
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Document/report	Format No.	File/Register/ Soft/e-mail	Periodicity	Responsibility
Outage programs of Transmission lines	Sent by SLDC/MPPTCL	Soft copy/Hard Copy	As and when	General Shift In- Charge (DCC) Shift In-Charge (NDCC)
Outage approval by SLDC	Log book	Soft copy/hard copy	Daily	Shift In-Charge (DCC) Shift In-Charge (NDCC)

Procedure No.	X-DCC-SOP-07	Revision No.	R.0	Date:	[Insert date]
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SOP-07

Reporting & Compliance Procedure

Procedure No.	X-DCC-SOP-07	Revision No.	R.0	Date:	[Insert date]
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7 Reporting & Compliance Procedure

7.1 Introduction

This procedure will provide list of all reporting requirements to be fulfilled by DCCs and NDCCs like operational events, periodic MIS to internal departments and other stakeholders etc which are not covered in other SOP procedures.

This procedure covers standard formats, reporting timelines and responsibility. The procedure will help in analysing and improving operational and commercial performance of the Discom & DCC

7.2 Objectives

Operational reports help in assessment & maintaining of following areas:

- a. Performance
- b. Efficiency
- c. Manpower requirement
- d. Enhance Quality
- e. Identify and evaluate improvement areas

Reporting system supports management to achieve corporate goals. Requirement of this procedure has arise due to following reasons:

- a. Multiplicity of data sources
- b. Absence of integrated management system
- c. Manual errors
- d. Analysis of multiple reports

7.3 Scope

This procedure applies to DCC and NDCCs.

7.4 Owner

Head (DCC) is responsible for the implementation and maintenance of this procedure.

General Shift In-charge (DCC) is responsible to prepare the reports.

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7.5 Guidelines

Benefits of reporting system:

- a. Effective and timely reporting and performance analysis improves effectiveness of strategic and fact-based decision-making
- b. A culture of continuous improvement, accountability and competitiveness is instilled at individual level.
- c. The response time to any strategic initiatives is drastically reduced and impact can be easily assessed
- d. Better focus on operational areas and increased consumer satisfaction
- e. Helps in creation of easy-to-access archive reports
- f. Reducing the redundancy of data
- g. Availability of all the information about organization & department
- h. Reporting system shall help in making decisions.
- i. Reports will serve as the primary interface for all monitoring and reporting purposes from the reporting officer to the individual business unit level

7.6 Process

I. For assessment of the performance of the DCC, General shift In-charge (DCC) is responsible to prepare the following reports for DCC operational area

- a. Discom performance report to CMD reporting
- b. DCC performance report to Departmental Head
- c. NDCC performance summary to DCC (Head)
- d. Reports to other departments (regularity, operations, maintenance etc)
- e. Reports to other stakeholders of system operation (SLDC, MP TradeCo, Other DCCs, MP Trasco etc) on mutually agreed formats

In-charge (DEAG) is responsible to provide commercial related inputs for above mentioned reports.

All the formats & frequency of reporting shall be circulated in mutually agreed templates and frequency (timelines).

II. General shift In-charge (DCC) shall collate the information from various reports, system, records for preparation of reports.

III. Head (DCC) shall review the documents and is responsible for distribution of same to respective stakeholders.

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Procedure No.	X-DCC-SOP-07	Revision No.	R.0	Date:	[Insert date]
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7.7 Records

Document/report	Format No.	File/Register/ Soft/e-mail	Periodicity	Responsibility
Discom performance report to CMD	X-07-F-01 (Page no. 120) As per Discom format	Soft copy	Daily	Head (DCC), Shift In-charge (DCC), In-charge (DEAG)
DCC performance report	X-07-F-02 (Page no. 121)	Soft copy	Monthly	
Reports to other departments	X-07-F-03 (Page no. 122)	Soft copy	As an when decided	
Reports to other stakeholders of system operation	X-07-F-04 (Page no.123)	Soft copy	As an when decided	

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SOP-08

SOP Administration Procedure

Procedure No.	X-DCC-SOP-08	Revision No.	R.0	Date:	[Insert date]
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8 SOP Administration Procedure

8.1 Introduction

This procedure explains the process for making amendments in the SOPs as and when the need arises. The procedure also explains the roles and responsibility of SOP administrator and owner.

Through proper implementation of this procedure, the SOPs will remain as a current working document for operational needs of staff and effectively communicate what is required them to do.

8.2 Objectives

The objective of this procedure is that the SOPs always remain consistent with the current laws/acts, regulations, orders and practices, the organizational structures of Discom.

This procedure enables the DCCs to amend the SOPs as per prevailing law/act, regulations, orders of commercial mechanisms and to implement the MPERC, CERC, CEA and GoMP directions. The aim of this process is to continually improve the individual processes for efficiently delivery by DCC.

8.3 Scope

This procedure applies to DCC and NDCC.

8.4 Owner

Head (DCC) shall be responsible for implementation and maintenance this procedure.

8.5 Process

- I. Head (DCC) shall nominate an AE / DGM (preferably who has more than 2 years of working experience in DCC) to continuously monitor the SOPs for amendments.
- II. The AE / DGM shall maintain the master copy of the SOPs and follow this procedure to change or modify any of the SOPs:
- III. The AE / DGM in consultation with Head (DCC) shall decide a frequency of review for each procedure as mentioned below:

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Procedure No.	X-DCC-SOP-08	Revision No.	R.0	Date:	[Insert date]
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Sr No.	Procedure	Frequency of review
1	Demand forecasting	Once in a year (April)
2	Day-ahead scheduling	Twice in a year (April, October)
3	Real-time monitoring and control of demand	Twice in a year (April, October)
4	Contingency management / system restoration	Every month
5	Energy accounting and settlement	Twice in a year (April, October)
6	Outage planning	Twice in a year (April, October)
7	Reporting & compliance	Once in a year (April)
8	SOP administration	Once in a year (April)

- IV. Individual process responsible officers as mentioned in individual SOPs can submit a request to AE / DGM for amendment of concerned SOP.
- V. The AE / DGM shall be responsible for monitoring regulatory, organizational and technical developments for possible impacts on SOPs with other officers responsible for individual SOPs.
- VI. The AE / DGM shall examine and assess the need for revision in any SOP consequent to revision in relevant regulations, directions, orders or procedure of GoMP, CERC, CEA, MPERC, WRLDC, SLDC and any other documents affecting SOPs. Refer following websites
 - a. CERC <http://cercind.gov.in/>
 - b. CEA <http://www.cea.nic.in/>
 - c. MPERC <http://www.mperc.nic.in/>
 - d. WRLDC <http://www.wrldc.in/>
 - e. SLDC of MP <http://www.sldcmpindia.com/>
 - f. MP Government http://govt_pressmp.nic.in/

For relevant sections of regulations, directions, orders or procedure of GoMP, CERC, CEA, MPERC, WRLDC please refer Annexure J: Regulatory requirements for MP DCC (Page no. 156)

- VII. Draft document to the appropriate SOP shall be drafted for circulation and discussion to appropriate officers. Any major change in SOP which has effect on interfaces of DCC with SLDC, MP Tradeco, MPPTCL other discom DCC shall also be sent to SLDC and MP Tradeco for consultation.
- VIII. Comments, as appropriate, may be incorporated into the amendment.

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Procedure No.	X-DCC-SOP-08	Revision No.	R.0	Date:	[Insert date]
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- IX. The amended SOPs shall have a brief note of the change that has been made and shall bear amendment number and effective date on front-page control sheet of SOP.
- X. The amended SOP shall be issued thereafter keeping a master copy in record. Record of amendment shall be stored in the Format X-08-F-01 (Page no.124)
- XI. An amended SOP shall be issued to all such departments that have received the previous version of that SOP. On receipt of this new version, the previous, out-of-date version should be marked "CANCELLED" across all pages and shall be sent back to DCC administrator for disposal.
- XII. SOP is the controlled copy and a record of circulation shall be maintained at DCC as per Format X-08-F-02(Page no.126). In any revision in the forms or procedure steps, procedure shall be revised. Revised procedure shall be circulated to all the concerned stakeholders.
- XIII. The AE / DGM in consultation with respective procedure owners shall develop uniform methodology for storing of documents concerned with each procedure. Please refer Format X-08-F-03 ((Page no.127)).
- XIV. Head (DCC) shall regularly conduct training need assessment (TNA) of individual DCC /NDCC staff in consultation with HR department of discom to ensure that the staff are trained on subjects like load management, demand forecasting, update on regulatory matters etc. External assistance may be sought for the same after seeking necessary approval.

SOP process Audit

The purpose of Audit of the procedure is to check the compliance of the procedure by DCC/NDCC/Discom Sub-Station and suggest improvement in their operational efficiency.

- XV. DCC (Head) shall conduct end to end process audit of all the procedures atleast once in a quarter on the sample basis and shall recommend for any change in the process, identify the problem areas, manpower assessment, resources etc.
- XVI. Repeated non-compliance of the SOP by the staff shall be input for considered during Annual Confidential Report (ACR).
- XVII. DCC reporting office/Discom internal audit shall conduct the audit of the DCC atleast in a year and suggest the improvement in the process.
- XVIII. Audit records shall be kept in the DCC in soft or hard copy.

Yearly meeting

- XIX. DCC heads of all the three discoms (East, Central and West), MP Tradeco , MPPTCL and SLDC representatives shall meet in every 6 months to discuss on following agenda

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-08	Revision No.	R.0	Date:	[Insert date]
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- a. Uniform practice among discoms
- b. Share the good practices /improvement
- c. Modification in certain formats & procedures
- d. Training requirements & dates finalization
- e. Others areas

8.6 Records

Document/report	Format No.	File/Register/ Soft/e-mail	Periodicity	Responsibility
Record of SOP amendments	X-08-F-01 (Page no.124)	Soft Copy	As and when	AE/DGM appointed by Head (DCC)
Record of SOP circulation	X-08-F-02 (Page no.126)	Soft and Hard Copy	As and when	
SOP Record keeping	X-08-F-03 (Page no. 127)	Soft / Hard Copy	As and when	Respective owners of SOP

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FORMATS

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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9 Formats

9.1 X-01-F-01: Day-ahead demand forecast

Format Number	X-01-F-01	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

DAY-AHEAD DEMAND FORECAST FOR DD-MM-YYYY

Block No.	Time (hours)	Projected Un-restricted Demand (MW)	Projected Relief (Load shedding) (MW)	Projected Restricted Demand (MW)
1	00:00-00:15			
2	00:15-00:30			
3	00:30-00:45			
4	00:45-01:00			
5	01:00-01:15			
6	01:15-01:30			
7	01:30-01:45			
8	01:45-02:00			
9	02:00-02:15			
10	02:15-02:30			
11	02:30-02:45			
12	02:45-03:00			
13	03:00-03:15			
14	03:15-03:30			
15	03:30-03:45			
16	03:45-04:00			
17	04:00-04:15			
18	04:15-04:30			
19	04:30-04:45			
20	04:45-05:00			
21	05:00-05:15			
22	05:15-05:30			
23	05:30-05:45			
24	05:45-06:00			
25	06:00-06:15			
26	06:15-06:30			
27	06:30-06:45			
28	06:45-07:00			
29	07:00-07:15			
30	07:15-07:30			

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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Block No.	Time (hours)	Projected Un-restricted Demand (MW)	Projected Relief (Load shedding) (MW)	Projected Restricted Demand (MW)
31	07:30-07:45			
32	07:45-08:00			
33	08:00-08:15			
34	08:15-08:30			
35	08:30-08:45			
36	08:45-09:00			
37	09:00-09:15			
38	09:15-09:30			
39	09:30-09:45			
40	09:45-10:00			
41	10:00-10:15			
42	10:15-10:30			
43	10:30-10:45			
44	10:45-11:00			
45	11:00-11:15			
46	11:15-11:30			
47	11:30-11:45			
48	11:45-12:00			
49	12:00-12:15			
50	12:15-12:30			
51	12:30-12:45			
52	12:45-13:00			
53	13:00-13:15			
54	13:15-13:30			
55	13:30-13:45			
56	13:45-14:00			
57	14:00-14:15			
58	14:15-14:30			
59	14:30-14:45			
60	14:45-15:00			
61	15:00-15:15			
62	15:15-15:30			
63	15:30-15:45			
64	15:45-16:00			
65	16:00-16:15			
66	16:15-16:30			
67	16:30-16:45			
68	16:45-17:00			
69	17:00-17:15			
70	17:15-17:30			
71	17:30-17:45			
72	17:45-18:00			
73	18:00-18:15			
74	18:15-18:30			

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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Block No.	Time (hours)	Projected Un-restricted Demand (MW)	Projected Relief (Load shedding) (MW)	Projected Restricted Demand (MW)
75	18:30-18:45			
76	18:45-19:00			
77	19:00-19:15			
78	19:15-19:30			
79	19:30-19:45			
80	19:45-20:00			
81	20:00-20:15			
82	20:15-20:30			
83	20:30-20:45			
84	20:45-21:00			
85	21:00-21:15			
86	21:15-21:30			
87	21:30-21:45			
88	21:45-22:00			
89	22:00-22:15			
90	22:15-22:30			
91	22:30-22:45			
92	22:45-23:00			
93	23:00-23:15			
94	23:15-23:30			
95	23:30-23:45			
96	23:45-00:00			

Total LU	
Average MW	

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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9.2 X-01-F-02: Weekly demand forecasting of east discom

Format Number	X-01-F-02	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

WEEKLY DEMAND FORECASTING FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

(Restricted & Un-Restricted)

(To give minimum supply hrs. to CHQ/DHQ/THQ/Rural as per MPERC/GoMP directives)

Hours	Restricted MW forecasting for the week							Un-restricted MW forecasting for the week						
	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY
Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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Hours	Restricted MW forecasting for the week							Un-restricted MW forecasting for the week						
	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY	DD-MM-YY
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
Average MW														
LU														
Total (LU)														

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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9.3 X-01-F-03: Monthly demand forecasting

Format Number	X-01-F-03	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

MONTHLY DEMAND FORECASTING FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY (Restricted and Un-Restricted)

Hours	DD-MM-YY														
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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Hours	DD-MM-YY													
16														
17														
18														
19														
20														
21														
22														
23														
24														
Average MW														
LU														
Total (LU)														

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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9.4 X-01-F-04: Quarterly demand forecast

Format Number	X-01-F-04	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

QUARTERLY DEMAND FORECAST FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

Hours	MM-YY			MM-YY			MM-YY			MM-YY		
	Un-res	Relief	Res									
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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Hours	MM-YY			MM-YY			MM-YY			MM-YY		
	Un-res	Relief	Res									
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
Average MW												
Average LU												
Total LU												

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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9.5 X-01-F-05: Supply plan

Format Number	X-01-F-05	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

SUPPLY PLAN FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY [sample]

SUPPLY PLAN FOR MM-YY																																			
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24											
Feeder Code	OFF	ON		OFF										ON										OFF											
Feeder Code	ON	OFF		ON										OFF										ON											
Feeder Code	ON THQ= RURAL							OFF		ONLY THQ	ON THQ+ RURAL	OFF		ONLY THQ		ON THQ + RURAL		OFF		ON				OFF											
DHQ	ON							OFF		ON							OFF		ON																
CHQ	ON							OFF		ON														ON											
Tesil																																			
Rural																																			

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
Restricted demand																								
Un-Restricted Demand																								
Load Relief																								

Note: This format shall be used till all the recommendations as proposed by PwC are implemented

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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9.6 X-01-F-06: Half year ahead demand forecast

Format Number	X-01-F-06	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

HALF YEAR AHEAD DEMAND FORECAST FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

Average hourly demand (Restricted & Un-Restricted)

Hours	MM-YY	MM-YY	MM-YY	MM-YY	MM-YY	MM-YY
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
Average MW						
LU						
Total (LU)						

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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9.7 X-01-F-07: Year ahead demand forecast

Format Number	X-01-F-07	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

YEAR AHEAD DEMAND FORECAST FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

Hours	MM-YY			MM-YY					MM-YY		
	Un-res Demand	Res Demand	LUs									
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-01	Revision No.	R.0	Date:	[Insert date]
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Hours	MM-YY			MM-YY					MM-YY		
	Un-res Demand	Res Demand	LUs									
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
Average MW												
LU												
Total (LU)												

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure no.	X-DCC-SOP-02	Revision No.	R.0	Date:	[Insert date]
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9.8 X-02-F-01: Day-ahead forecasted demand

Format Number	X-02-F-01	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

DAY-AHEAD FORECASTED DEMAND FOR DD-MM-YYYY

Block No.	Time (hours)	Projected Un-restricted Demand (MW)	Projected Relief (Load shedding) (MW)	Projected Restricted Demand (MW)
1	00:00-00:15			
2	00:15-00:30			
3	00:30-00:45			
4	00:45-01:00			
5	01:00-01:15			
6	01:15-01:30			
7	01:30-01:45			
8	01:45-02:00			
9	02:00-02:15			
10	02:15-02:30			
11	02:30-02:45			
12	02:45-03:00			
13	03:00-03:15			
14	03:15-03:30			
15	03:30-03:45			
16	03:45-04:00			
17	04:00-04:15			
18	04:15-04:30			
19	04:30-04:45			
20	04:45-05:00			
21	05:00-05:15			
22	05:15-05:30			
23	05:30-05:45			
24	05:45-06:00			
25	06:00-06:15			
26	06:15-06:30			
27	06:30-06:45			
28	06:45-07:00			
29	07:00-07:15			
30	07:15-07:30			
31	07:30-07:45			
32	07:45-08:00			
33	08:00-08:15			
34	08:15-08:30			

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure no.	X-DCC-SOP-02	Revision No.	R.0	Date:	[Insert date]
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Block No.	Time (hours)	Projected Un-restricted Demand (MW)	Projected Relief (Load shedding) (MW)	Projected Restricted Demand (MW)
35	08:30-08:45			
36	08:45-09:00			
37	09:00-09:15			
38	09:15-09:30			
39	09:30-09:45			
40	09:45-10:00			
41	10:00-10:15			
42	10:15-10:30			
43	10:30-10:45			
44	10:45-11:00			
45	11:00-11:15			
46	11:15-11:30			
47	11:30-11:45			
48	11:45-12:00			
49	12:00-12:15			
50	12:15-12:30			
51	12:30-12:45			
52	12:45-13:00			
53	13:00-13:15			
54	13:15-13:30			
55	13:30-13:45			
56	13:45-14:00			
57	14:00-14:15			
58	14:15-14:30			
59	14:30-14:45			
60	14:45-15:00			
61	15:00-15:15			
62	15:15-15:30			
63	15:30-15:45			
64	15:45-16:00			
65	16:00-16:15			
66	16:15-16:30			
67	16:30-16:45			
68	16:45-17:00			
69	17:00-17:15			
70	17:15-17:30			
71	17:30-17:45			
72	17:45-18:00			
73	18:00-18:15			
74	18:15-18:30			
75	18:30-18:45			
76	18:45-19:00			
77	19:00-19:15			
78	19:15-19:30			
79	19:30-19:45			

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure no.	X-DCC-SOP-02	Revision No.	R.0	Date:	[Insert date]
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Block No.	Time (hours)	Projected Un-restricted Demand (MW)	Projected Relief (Load shedding) (MW)	Projected Restricted Demand (MW)
80	19:45-20:00			
81	20:00-20:15			
82	20:15-20:30			
83	20:30-20:45			
84	20:45-21:00			
85	21:00-21:15			
86	21:15-21:30			
87	21:30-21:45			
88	21:45-22:00			
89	22:00-22:15			
90	22:15-22:30			
91	22:30-22:45			
92	22:45-23:00			
93	23:00-23:15			
94	23:15-23:30			
95	23:30-23:45			
96	23:45-00:00			

Total LU	
Average MW	

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure no.	X-DCC-SOP-03	Revision No.	R.0	Date:	[Insert date]
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9.9 X-03-F-01: Feeder master list for transco emanating feeders

Format Number	X-03-F-01	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

FEEDER MASTER LIST FOR TRANSCO EMANATING FEEDERS AS ON DD-MM-YYYY
 (Separate for Commissionary/ District/ Tesil/ Rural)

Commissionary/ District/ Tesil/ Rural								
Priority	Transco Sub-station name	Voltage (kV)	Feeder name	Circle Code	Group Code	Class Code	Average Load (MW)	Peak Load (MW)
1								
2								

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure no.	X-DCC-SOP-03	Revision No.	R.0	Date:	[Insert date]
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9.10 X-03-F-02: DCC communication

Format Number	X-03-F-02	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

Date

To,

Message

Subject:

From,

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure no.	X-DCC-SOP-03	Revision No.	R.0	Date:	[Insert date]
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9.11 X-03-F-03: Discom Capacitor availability details

Format Number	X-03-F-03	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

DISCOM CAPACITOR AVAILABILITY DETAILS AS ON DD-MM-YYYY [Regional wise]

Circle	Transco Sub-station	Transco Feeder	Discom Sub-station	Capacitor (No of unit x MVar)	Total capacity (MVar)	Available capacity (MVar)	Remarks
Total							

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure no.	X-DCC-SOP-03	Revision No.	R.0	Date:	[Insert date]
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9.12 X-03-F-04: Sub-station details

Format Number	X-03-F-04	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

SUB-STATION DETAILS (33/11kV sub-stations) AS ON DD-MM-YYYY

Circle	Transco Sub-station	Transco Feeder	Discom Sub-station	Discom Feeder (33kV)	Transformer capacity (No. x MVA)	Total Transformer capacity	11kV Feeder	Average Load (MW)	Peak Load (MW)	Remarks
Total										

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-04	Revision No.	R.0	Date:	[Insert date]
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9.13 X-04-F-01: Priority feeder master list for contingencies

Format Number	X-04-F-01	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

PRIORITY FEEDER MASTER LIST FOR CONTINGENCIES AS ON DD-MM-YYYY

(To be updated atleast once in every three months)

33kV Transco emanating System priority

Priority	EHV sub-station name	Voltage (kV)	Feeder Name	Feeder group	District /Circle	Load (MW) (hourly)
1						
2						
3						
4						
5						

33kV Discom System priority

Priority	EHV sub-station name	Voltage (kV)	Feeder Name	Feeder group	District /Circle	Load (MW) (hourly)
1						
2						
3						
4						
5						

11kV Discom System priority

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-04	Revision No.	R.0	Date:	[Insert date]
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Priority	EHV sub-station name	Voltage (kV)	Feeder Name	Feeder group	District /Circle	Load (MW) (hourly)
1						
2						
3						

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-04	Revision No.	R.0	Date:	[Insert date]
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9.14 X-04-F-02: Stakeholder contact details

Format Number	X-04-F-02	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

STAKEHOLDER CONTACT DETAILS AS ON DD-MM-YYYY

(To be updated/verified every month)

WRLDC/SLDC/WRPC (separate list for each)

Sr No	Name	Designation	Department	Phone no. (mobile/ LL)	email

NDCC/Sub-stations (separate list for each)

Sr No	District/ Circle	Sub-station name	Name	Designation	Department	Phone no. (mobile/ LL)	email

Discom Regulatory Cell

Sr No	Name	Designation	Department	Phone no. (mobile/ LL)	email

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
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9.15 X-05-F-01: Open access customer contact details

Format Number	X-05-F-01	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue/Revision	DD-MM-YYYY		

OPEN ACCESS CUSTOMER CONTACT DETAILS

Sl. No.	Name of the OA customer	Name of the Coordinator	Address for Correspondence	Phone Number	Fax Number	Email ID	Connected S/s Name, Voltage level etc.	Name and Phone Number of In-charge of connected S/s
1.								
2.								
3.								

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
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9.16 X-05-F-02: Customer loading details

Format Number	X-05-F-02	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

CUSTOMER LOADING DETAILS FOR DD-MM-YYYY

(a) For Open Access Customers (Individual)

Block No.	Name of Consumer	Connected Voltage level (kV)	Feeder Name	EHV Sub-station	MW
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
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Block No.	Name of Consumer	Connected Voltage level (kV)	Feeder Name	EHV Sub-station	MW
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
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Block No.	Name of Consumer	Connected Voltage level (kV)	Feeder Name	EHV Sub-station	MW
57					
58					
59					
60					
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
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Block No.	Name of Consumer	Connected Voltage level (kV)	Feeder Name	EHV Sub-station	MW
89					
90					
91					
92					
93					
94					
95					
96					

Total LU	
Average MW	

(b) For HT/EHT Customers (Consolidated for all consumers)

Block No.	LU	MW (15 min average value)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
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Block No.	LU	MW (15 min average value)
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
----------------------	--------------	---------------------	-----	--------------	---------------

Block No.	LU	MW (15 min average value)
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-05	Revision No.	R.0	Date:	[Insert date]
---------------	--------------	--------------	-----	-------	---------------

Block No.	LU	MW (15 min average value)
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		

Total LU	
Average MW	

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-06	Revision No.	R.0	Date:	[Insert date]
---------------	--------------	--------------	-----	-------	---------------

9.17 X-06-F-01: Year ahead outage programme

Format Number	X-06-F-01	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

YEAR AHEAD OUTAGE PROGRAMME FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

(For Discom System) (To be submitted by 1st November each year)

Financial Year:

Sr no.	MPPTCL Interconnection feeder and EHV SS at which Outage is Required	Distribution 33/11kV Sub-station which feeds the load	Name of Line / Equipment on which the Work is to be Carried Out	Preferred Start Date and Start Time	Outage Duration (Hours)	Demand in MW to be Affected by Outage and Arrangement for Alternative Power Supply if any	If no Alternative for Power Supply, the Load Shedding to be Applied
1							
2							
3							
4							
5							
6							
7							

Name: _____

Designation: _____

Date: _____

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-06	Revision No.	R.0	Date:	[Insert date]
---------------	--------------	--------------	-----	-------	---------------

9.18 X-06-F-02: Year ahead outage programme

Format Number	X-06-F-02	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

YEAR AHEAD OUTAGE PROGRAMME FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

(For Discom System) (To be submitted by **15th November** each year)
Financial Year:

Sr no.	MPPTCL Interconnection Point and EHV GSS at which Outage is Required	Name of Line / Equipment on which the Work is to be Carried Out	Preferred Start Date and Start Time	Outage Duration (Hours)	Demand in MW to be Affected by Outage and Arrangement for Alternative Power Supply if any	Demand in MVar to be Affected by Outage and Arrangement for Alternative Power Supply if any	If no Alternative for Power Supply, the Load Shedding to be Applied
1							
2							
3							
4							
5							
6							
7							

Name: _____

Designation: _____

Date: _____

Note:Above mentioned data are tentative and subject to change

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-06	Revision No.	R.0	Date:	[Insert date]
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9.19 X-06-F-03: Month ahead outage programme

Format Number	X-06-F-03	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

MONTH AHEAD OUTAGE PROGRAMME FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

(For Discom System) (To be submitted by 20th of each month)

Sr no.	MPPTCL Interconnection feeder and EHV GSS at which Outage is Required	Distribution 33/11kV Sub-station which feeds the load	Name of Line / Equipment on which the Work is to be Carried Out	Preferred Start Date and Start Time	Outage Duration (Hours)	Demand in MW to be Affected by Outage and Arrangement for Alternative Power Supply if any	If no Alternative for Power Supply, the Load Shedding to be Applied
1							
2							
3							
4							
5							
6							
7							

Name: _____

Designation: _____

Date: _____

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-06	Revision No.	R.0	Date:	[Insert date]
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9.20 X-06-F-04: 2/3 Day ahead Outage Programme

Format Number	X-06-F-04	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

2/3 DAY AHEAD OUTAGE PROGRAMME FOR DD-MM-YYYY

(For Discom System)

Sr no.	MPPTCL Interconnection Point and EHV GSS at which Outage is Required	Name of Line / Equipment on which the Work is to be Carried Out	Preferred Start Date and Start Time	Outage Duration (Hours)	Demand in MW to be Affected by Outage and Arrangement for Alternative Power Supply if any	Demand in MVar to be Affected by Outage and Arrangement for Alternative Power Supply if any	If no Alternative for Power Supply, the Load Shedding to be Applied
1							
2							
3							
4							
5							
6							
7							

Name: _____

Designation: _____

Date: _____

Note: Above mentioned data are tentative and subject to change

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-06	Revision No.	R.0	Date:	[Insert date]
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9.21 X-06-F-05: Daily outage report

Format Number	X-06-F-05	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

DAILY OUTAGE REPORT FOR DD-MM-YYYY (Circle wise)

Heads	Average demand affected (MW)	Average Energy lost (LU)
Maintenance of system		
Project related work		
Emergency situation such as failure of equipment, natural calamity etc		

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-07	Revision No.	R.0	Date:	[Insert date]
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9.22 X-07-F-01: Discom performance report to CMD

Format Number	X-07-F-01	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

DISCOM PERFORMANCE REPORT TO CMD FOR DD-MM-YYYY

[Insert the CMD's report template]:

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-07	Revision No.	R.0	Date:	[Insert date]
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9.23 X-07-F-02: DCC performance report

Format Number	X-07-F-02	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

DCC PERFORMANCE REPORT FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

[Sample]:

A Operational performance:	
1.	Timely submission of Discom demand Requisition to MP Tradeco
2.	Request for schedule revision to SLDC
3.	Direct tripping of Discom feeders by SLDC
4.	Outages approved by DCC
5.	Average Time for load reduction/enhance instruction
6.	Average Supply hours meet Commissionary District Tehsil Rural
7.	Trainings given to staff
8.	Trainings given to NDCC staff
B Commercial Performance	
1.	Unscheduled Interchange
2.	Congestion Charges
3.	Transmission Charges
4.	Energy Charges
5.	UI amount billed to OA customers
C Other	
1.	
D Key Issues	
1.	

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Procedure No.	X-DCC-SOP-07	Revision No.	R.0	Date:	[Insert date]
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9.24 X-07-F-03: Reports to other departments of discom

Format Number	X-07-F-03	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

REPORTS TO OTHER DEPARTMENTS OF DISCOM FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

[Insert the template]:

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-07	Revision No.	R.0	Date:	[Insert date]
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9.25 X-07-F-04: Reports to other stakeholders

Format Number	X-07-F-04	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

REPORTS TO OTHER STAKEHOLDERS FOR THE PERIOD DD-MM-YYYY TO DD-MM-YYYY

[Insert the template]:

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-08	Revision No.	R.0	Date:	[Insert date]
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9.26 X-08-F-01: Record of SOP amendments

Format Number	X-08-F-01	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

RECORD OF SOP AMENDMENTS AS ON DD-MM-YYYY

No.	Procedure	Effective date	Forms	Revision No.	Prepared / Modified by	Approved by
01	Demand forecasting					
Form no.1						
Form no.2						
02	Day-ahead scheduling					
03	Real-time monitoring and control of demand					
04	Contingency management / system restoration					
05	Energy accounting and settlement					
06	Outage planning					

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-08	Revision No.	R.0	Date:	[Insert date]
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07	Reporting & compliance					
08	SOP administration					

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-08	Revision No.	R.0	Date:	[Insert date]
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9.27 X-08-F-02: Record of SOP circulation

Format Number	X-08-F-02	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

RECORD OF SOP CIRCULATION ON DD-MM-YYYY

No.	Procedure	Revision no.	Distributed to Departments	Date	
01	Demand forecasting	R0			Via mail
		R1			
02	Day-ahead scheduling				
03	Real-time monitoring and control of demand				
04	Contingency management / system restoration				
05	Energy accounting and settlement				
06	Outage planning				
07	Reporting & compliance				
08	SOP administration				

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Procedure No.	X-DCC-SOP-08	Revision No.	R.0	Date:	[Insert date]
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9.28 X-08-F-03 SOP Record keeping

Format Number	X-08-F-03	Prepared by	
Discom	[Insert discom name]	Reviewed by	
Date of Issue	DD-MM-YYYY		

SOP RECORD KEEPING

storing of docume nts no.	Procedure	Soft Copy		Hard Copy
		Folder Names	Date / Week / Month / Quarter wise naming the sub-folders	File Name and Order of storing the records
01	Demand forecasting			
02	Day-ahead scheduling			
03	Real-time monitoring and control of demand			
04	Contingency management / system restoration			
05	Energy accounting and settlement			
06	Outage planning			
07	Reporting & compliance			
08	SOP administration			
11	Audit Reports			
12	Internal/External meeting MoM			

10

Annexure

10 Annexure

10.1 Annexure A: Government notification on Discom wise power allocation

इसे वेबसाईट www.govt_press_mp.nic.in से
भी डाउन लोड किया जा सकता है।



मध्यप्रदेश राजपत्र

(असाधारण)

प्राधिकार से प्रकाशित

क्रमांक 264]

भोपाल, चुधवार, दिनांक 18 मई 2011—वैशाख 28, शक 1933

ऊर्जा विभाग
मंत्रालय, वल्लभ भवन, भोपाल

भोपाल, दिनांक 18 मई 2011

1. No. 4353-F-3-24-2009-XIII - State Government has notified M.P. Electricity Reforms Transfer Schemes Rules 2006 vide notification dated 3rd June 06 whereby the functions, properties, interest rights and obligations of the Residual Madhya Pradesh State Electricity Board relating to Bulk Purchase and Bulk Supply of Electricity along with the related agreements and arrangements have been transferred and vested in MP Power Trading Company Limited (TRADECO).
2. In order to keep the retail tariff uniform in the entire State without sacrificing the incentive for loss reduction & efficiency gains by Discoms during the transient phase of power sector reforms and since the revenue requirement are different for all the three Discoms, the State Government reallocated the capacity available as on May 2010 vide Gazette Notification No. 3823-F-3-24-2009-XIII dated 11th May 2010.
3. With the similar intent, vide this order, the State Government supersedes Gazette Notification No. 3823-F-3-24-2009-XIII dated 11th May 2010 in order to allocate new capacities and achieve the same objective of maintaining uniform retail tariff in the entire

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

State and hence reallocates the capacity available as on date to the three Distribution companies in the manner prescribed below:

- (i) Summary of total installed generation capacity available to the State:-

Table – 1: Total Available Generation Capacity

S. N o	MP's Power Share from	Firm (MW)	In firm (MW)	Total (MW)
1	Central sector WR	1931	170.98	2101.98
2	Central sector ER	0.00	74.00	74.00
3	DVC	200.00		200.00
4	Indira Sagar Project	1000.00	--	1000.00
5	Sardar Sarovar Project	826.50	--	826.50
6	Omkarshwar HEP	520.00	--	520.00
7	GENCO Thermal	2807.50	--	2807.50
8	GENCO Hydro	927.17	--	927.17
	Total	8212.17	244.98	8457.15

- (ii) The total available generation capacity as shown in Table 1 above is reallocated to the Discoms as shown below:-

Table – 2: Reallocation of Generating Capacity to Discoms

Discom	Generation Capacity Allocation	
	%	MW
M.P. Madhya Kshetra Vidyut Vitaran Co. Ltd.	32.89%	2781.68
M.P. Paschim Kshetra Vidyut Vitaran Co. Ltd.	38.22%	3232.05
M.P. Poorv Kshetra Vidyut Vitaran Co. Ltd.	28.87%	2441.67

- (iii) The plant-wise reallocation of available generation capacities to the Discoms shall be as per Appendix- I.

- (iv) The power generation available from captive power producers, mini/ micro hydel projects or from non conventional energy sources not included in the above capacity allocation, are deemed to be assigned to the Discoms in whose geographical location such power project exists.

4. In addition to the above allocation, the specific allocation of 200 MW made available to the State from the un-allocated power of CGSs of WR for supply to drought prone districts of Bundelkhand Region are assigned to the MP Poorv Kshetra Vidyut Vitaran Co. Ltd., for the drought prone area Sagar Region exclusively.

After considering the specific allocation for Bundelkhand Region the effective allocation of generating capacity to the Discoms shall be as under

Table –3: Final allocation of Generating Capacity to Discoms

Discom	Generation Capacity Allocation	
	%	MW
M.P. Madhya Kshetra Vidyut Vitaran Co. Ltd.	32.15%	2781.68
M.P. Paschim Kshetra Vidyut Vitaran Co. Ltd.	37.33%	3232.05
M.P. Poorv Kshetra Vidyut Vitaran Co. Ltd.	30.51%	2641.67

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

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5. The above allocation is subject to following conditions:

- a. The allocation of power is tentative and may be reviewed on a quarterly basis if required. The quarterly allocation to the three Discoms is presented in Table- 4 below:

Table – 4: Discom wise Quaterly Allocation for the year FY 2011-12

Quarter	M.P. Madhya Kshetra Vidyut Vitaran Co. Ltd.	M.P. Paschim Kshetra Vidyut Vitaran Co. Ltd.	M.P. Poorv Kshetra Vidyut Vitaran Co. Ltd.
Q1	32.00%	36.50%	31.50%
Q2	34.00%	34.10%	31.90%
Q3	30.60%	41.00%	28.40%
Q4	31.90%	38.00%	30.10%

- b. The above proportions of capacity allocation shall be revised in case of change in allocation of unallocated power in inter-state Generating Stations (ISGS) by the GoI,
- c. MP Power Trading Company Ltd. (Tradeco) shall arrange short term power purchases which shall be allocated by Tradeco to Discoms based on their requisition or otherwise allocation shall be done among the three Discoms in the same proportion as indicated in Table – 4 above.

6. The capacities as indicated in Table – 5 below are assigned to the Madhya Pradesh Power Trading Company Limited (Tradeco) subject to the condition that three distribution companies of the State shall be having first charge on such capacities. Tradeco will allocate power as per the requirement subject to the available capacity and surplus power if any, shall be traded by Tradeco. Bulk Power Supply Tariff shall be decided by the Appropriate Commission.

Table – 5: New Generating Stations expected during FY 2011-12

New Generation Stations	MW
NTPC Sipat - Stage I	188.67
DVC (Chandrapur TPS Extn.)	200.00
Case-I (Essar Power)(private)	75.00
PTC - Torrent Surat (Gas)(private)	104.32
Maheswar Hydel	400.00
Korba West-III	60.00
Total	1027.99

In addition to above additional capacity, if any including Central / State Sector the same shall also be assigned to Tradeco.

7. The capacities/energy as indicated below are assigned to the MP Power Trading Co. Ltd., (Tradeco) subject to the condition that three Distribution Companies of the state shall be having first charge on such capacities. Tradeco will allocate power to the Discoms from time to time as per the requirement subject to the available capacity and surplus power, if any, shall be traded by Tradeco.
- i. The capacities not assigned to any of the Discoms
 - ii. Additional capacities, if any, added from the new generating stations expected during FY 2011-12
 - iii. Un-allocated energy to the Discoms, out of the available energy, in the Tariff Order for FY 2011-12 due to 'Merit Order Dispatch (MOD)'.

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

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8. Following general guidelines shall be applicable for monthly allocation of power among Discoms:
 - a. Each Discom shall submit their demand to MP Tradeco for the next month by 15th of each month.
 - b. MP Tradeco shall allocate the unallocated capacity as shown in Table – 5 among Discoms by 20th of each month. Allocation shall be as per the requirement subject to the available capacity.
 - c. For day ahead scheduling of power, the prevalent rules and regulations as laid down by Madhya Pradesh Electricity Regulatory Commission shall be applicable.
 - d. On the basis of capacity allocation, SLDC shall intimate entitlement of each Discom in ISGS, MPPGCL (MP Share), NHDC Joint Ventures, SSP etc. to MP Tradeco.
 - e. MP Tradeco, in consultation with Discoms, shall furnish the requisition of power of respective Discom in ISGS, MPPGCL (MP Share), NHDC Joint Ventures, SSP etc. to SLDC limited to entitlement.
 - f. MP Tradeco shall also furnish details of Short Term Power Purchase to be allocated to Discoms based on their requisition.
 - g. Discoms while submitting their requisition to MP Tradeco shall also indicate surplus / deficit if any, which can be allocated to other Discoms by SLDC in consultation with respective Discom.
 - h. SLDC after receipt of MP drawal schedule from WRLDC shall compile and issue drawal schedule of each Discom to MP Tradeco and generation schedule to MPPGCL (MP share) based on merit order despatch.
 - i. The surplus power shall be sold outside the state or to any other utilities by the MP Tradeco in case of non-absorption by the Discoms.
 - j. Priority in allocation shall be given to those Discoms who submit the demand in time. If any Discom fails to submit the demand in time, allocation shall be made appropriately by MP Tradeco as per overall availability.
 - k. SLDC will calculate the UI charges among Discoms / Generators based on Total allocation and scheduling (Intra State ABT).
 - l. Discoms shall provide short-term power requirement to MP Tradeco at least four months in advance.
 - m. In the event of non submission of monthly requirement by Discoms in time, the decision of MP Tradeco shall be final and binding on the Discoms in regard to:
 - i. Capacity allocation (of unallocated capacity) and
 - ii. Arrangements made for short term power purchase
9. Following guidelines shall be followed for the purpose of billing:
 - a. On the basis of State Energy Accounting issued by SLDC, MP Tradeco shall issue energy charges bills for the previous month to Discoms by 10th of each month on the basis of actual two-part tariff. Supplementary bills if necessary shall be issued within one month from the date of issue of monthly energy bill.
 - b. To meet its own expenses, MP Tradeco shall supply the power to DISCOMS at the tariff as determined/ approved by the MPERC plus "trading margin", also as approved by MPERC. Till trading margin is decided by MPERC, monthly bills shall be raised by MP Tradeco to Discoms to meet out their expenses on actual basis in proportion to the energy drawl by respective Discom.
10. Right to amend the reallocation of generating capacity:

The State Government by issue of separate orders from time to time may amend reallocation of generating capacity among the Discoms and make such provisions as may appear to be necessary for removing the difficulties arising satisfying the consumer demand across the state in a judicious manner.

By order and in the name of the Governor of Madhya Pradesh,
M. K. GUPTA, Addl. Secy.

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

मध्यप्रदेश राजपत्र, दिनांक 18 मई 2011

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Appendix-1

Allocation of Installed Generation Capacity Among MP Discos

Sl. No.	Name of Power Station	Total Capacity	Firm Allocation	Share in Unallocated	Total (MP Share)	ALLOCATION (excluding specific allocation of 200 MW to Bundelkhand region) (in %)			ALLOCATION (excluding specific allocation of 200 MW to Bundelkhand region) (in MW)		
						Central Discom	Western Discom	Eastern Discom	Central Discom	Western Discom	Eastern Discom
A. SHARE ALLOCATION FROM CENTRAL SECTOR STATION (WR)-:											
1	KSTPS	2100.00	400.00	87.76	437.76	34%	24%	42%	147.09	105.06	183.86
2	VSTPS-I	1260.00	385.00	28.27	413.27	41%	30%	29%	169.44	123.98	119.85
3	VSTPS-II	1000.00	273.00	22.82	295.82	40%	30%	30%	118.33	88.75	88.75
4	VSTPS - III	1000.00	200.00	24.33	224.33	40%	40%	20%	89.73	89.73	44.87
5	KAWAS GPP	656.20	140.00	0.00	140.00	20%	48%	32%	28.00	67.20	44.80
6	GANDHAR GPP	657.30	117.00	0.00	117.00	20%	48%	32%	23.40	56.16	37.44
7	KAKRAPAR APS	440.00	93.00	7.19	100.19	33%	44%	22%	33.41	44.53	22.24
8	TARAPUR APS (unit 3 & 4)	1080.00	180.00	26.28	206.28	34%	45%	21%	70.14	93.55	42.60
9	SIPAT-II	1000.00	143.00	24.33	167.33	45%	20%	35%	75.30	33.47	58.57
	TOTAL	9193.59	1931.00	170.98	2101.98	36%	33%	31%	754.84	702.43	642.36
B. SHARE ALLOCATION FROM CENTRAL SECTOR STATION (ER)-:											
1	FAINAKA STPS	1600.00		0.00	0.00	20%	55%	25%	0.00	0.00	0.00
2	KAHALGAON STPS	840.00		0.00	0.00	20%	55%	25%	0.00	0.00	0.00
3	KAHALGAON-II STPS	1500.00		74.00	74.00	20%	55%	25%	14.80	40.70	18.50
4	TALCHER STPS	1000.00		0.00	0.00	20%	55%	25%	0.00	0.00	0.00
5	DVC (CTPS)	200.00	200.00	0.00	200.00	15%	55%	30%	30.00	110.00	60.00
	TOTAL	5140.00	200.00	74.00	274.00	16%	55%	29%	44.80	150.70	78.50
C. SHARE ALLOCATION FROM ISP (JINT VENTURE OF NHPC & GeMPL)-:											
1	Bn125 MW INDIRA SAGAR	1000.00			1000.00	23%	55%	20%	250.00	550.00	200.00
D. SHARE ALLOCATION FROM SSP :-											
1	CANAL HEAD POWER STATION	250.00			142.50	30%	50%	30%	28.50	71.25	42.75
2	RIVER BED POWER HOUSE	1200.00			684.00	20%	50%	30%	116.80	342.00	205.20
	TOTAL	1450.00			826.50	20%	50%	30%	185.30	419.25	247.95
E. SHARE ALLOCATION FROM OMKAreshwar HEP :-											
	Omkareswar Complex	920.00			520.00	20%	50%	30%	104.00	260.00	156.00
F. SHARE ALLOCATION FROM MPPGCL (MP SHARE BASIS)-:											
	 THERMAL	TOTAL			MP SHARE						
1	AMARKANTAK COMPLEX	240.00	240.00		240.00	41%	28%	31%	98.40	67.20	74.80
2	AMARKANTAK EXTN.	230.00	210.00		230.00	41%	28%	31%	86.10	58.80	65.10
3	SATPURA PH-I (Inter-State)	312.50	312.50		187.50	41%	28%	31%	76.88	52.50	58.13
4	SATPURA COMPLEX (PH-II & III)	830.00	830.00		830.00	41%	28%	31%	340.80	232.40	257.30
5	SANJAY GANDHI COMPLEX	840.00	840.00		840.00	41%	28%	31%	344.40	235.20	260.80
6	SANJAY GANDHI COMPLEX-EXT	500.00	500.00		500.00	41%	28%	31%	205.00	140.00	155.00
	Sub-Total (MPPGCL-Thermal)	2932.50	2932.50		2807.50	41%	28%	31%	1151.08	785.10	870.33
	MPPGCL-Inter State (Hydel)										
1	GANDHI SAGAR	115.00			57.50	50%	30%	20%	28.75	17.25	11.50
2	RANAPRATAP & JAWAHARSAGAR	271.00			135.50	50%	30%	20%	67.75	40.65	27.10
3	RAJGHAT	45.00			22.50	40%	40%	20%	9.00	9.00	4.50
4	PENCH	160.00			106.67	40%	40%	20%	42.67	42.67	21.33
	Sub-Total (MPPGCL-Inter State Hydel)	591.00			322.17	46%	34%	20%	148.17	109.57	64.43
	MPPGCL Hydel Projects for MP										
1	BARGI	90.00			90.00	20%	50%	30%	18.00	45.00	27.00
2	BARGI (LBS)	10.00			10.00	20%	50%	30%	2.00	5.00	3.00
3	BIRBHUNGUJ	20.00			20.00	20%	50%	30%	4.00	10.00	6.00
4	BANSAGAR-I (DEOLONDO)	315.00			315.00	30%	40%	30%	94.50	126.00	94.50
5	BANSAGAR-II (SILPARA)	30.00			30.00	30%	40%	30%	9.00	12.00	9.00
6	BANSAGAR-III (DEOLONDO)	60.00			60.00	30%	40%	30%	18.00	24.00	18.00
7	BANSAGAR-IV (JHINNA)	20.00			20.00	30%	40%	30%	6.00	8.00	6.00
8	MARIKIHEDA complex	60.00			60.00	20%	50%	30%	12.00	30.00	18.00
	Sub-Total (MPPGCL-State Hydel)	605.00			605.00	27%	43%	30%	163.50	260.00	181.50
	TOTAL MPPGCL HYDEL (Including Inter state projects)	1196.00			927.17	34%	40%	27%	311.87	369.57	245.93
	TOTAL MPPGCL (Thermal+ Hydel Including Inter state)	4128.50			3734.7	39%	31%	30%	1462.74	1155.67	1116.26
	Gross Capacity (Central Sector+SSP+OMKAreshwar+Lanco+MPPGCL)	21432.1			8457.1	32.89%	38.22%	28.87%	2781.68	3232.05	2441.67

नियंत्रक, शासकीय मुद्रण तथा लेखन समग्री, मध्यप्रदेश द्वारा शासकीय केन्द्रीय मुद्रणालय, भोपाल से भूक्ति तथा प्रकाशित—2011.

10.2 Annexure B: Merit order

Hydel Generation:

GENERATING STATIONS	VARIABLE CHARGES	RANKING
GANDHI SAGAR	0.00	8
RANAPRATAP SAGAR & JAWAHAR SAGAR	0.00	9
PENCH	0.00	10
RAJGHAT	0.00	11
BARGI	0.00	12
BIRISINGHPUR	0.00	13
BANSAGAR – I	0.00	14
BAN SAGAR II	0.00	15
BAN SAGAR III	0.00	16
BAN SAGAR IV	0.00	17
MARIKHEDA	0.00	18
INDIRA SAGAR	0.00	19
SARDAR SAROVAR	0.00	20
OMKARESHWAR	0.00	21

Other Generations:

GENERATING STATIONS	VARIABLE CHARGES	RANKING
WR – KAKRAPAR APS	231.51	1*
CAPTIVE	245.00	2*
WR - TARAPUR APS	291.04	3*
NCE- WIND GENERATION	400.00	4*
ER - FARAKKA STPS	0.00	5
ER - KAHALGAON STPS	0.00	6
ER - TALCHER STPS	0.00	7
WR – KSTPS	94.75	22
AMARKANTAK EXT	105.03	23
WR - SIPAT –II	109.70	24
DVC (MTPS)	117.50	25
SGTPS EXT	125.04	26
AMARKANTAK COM	131.15	27
SGTPS	143.88	28
SATPURA TPS PH I & II &III	157.41	29
WR - VSTPS-II	174.66	30
WR - VSTPS – III	176.81	31
WR - VSTPS-I	177.46	32
ER - KAHALGAON STPS-II	214.29	33
WR – GANDHAR GPP	236.26	34
WR - KAWAS GPP	242.67	35

* must run stations

Source: FY 12 Tariff Order

10.3 Annexure C: Automatic under frequency plan

<u>REVISED AUTOMATIC UNDER FREQUENCY PLAN</u> AS APPROVED BY CE (PS) VIDE L.No. 282 JABALPUR DATED 22/04/2010			
DAY	48.8Hz Gr.No I,II,III,IV,V,V-A,VI & VI-A of Districts.	48.6Hz Gr. No. VII of District Groups.	48.2Hz Gr. No. VIII of District Group
MONDAY	JABALPUR, DAMOH, DHAR, GUNA, ASHOKNAGAR, SHEOPUR	D1+D2	D1+D2
TUESDAY	TIKAMGARH, REWA, INDORE, JHABUA, ALIRAJPUR, BHOPAL, HARDA, HOSHANGABAD	D3+D4	D3+D4
WEDNESDAY	SEONI, BALAGHAT, CHHINDWARA, UJJAIN, VIDISHA, RAISEN	D5+D6	D5+D6
THURSDAY	SAGAR SIDHI, SINGRAULI, KHARGONE, BARWANI, SHIVPURI, BETUL	D7+D5	D7+D5
FRIDAY	MANDLA, DINDORI, KATNI, CHHATARPUR, PANNA, DEWAS, NEEMUCH, RAJGARH, BHIND	D2+D3	D2+D3
SATURDAY	NARSINGPUR, RATLAM, KHANDWA, BURHANPUR, DATIA, SEHORE	D4+D1	D4+D1
SUNDAY	SATNA, SHADOL, UMARIYA, ANUPPUR, MANDSAUR, SHAJAPUR, GWALIOR, MORENA	D6+D7	D6+D7

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<u>REVISED AUTOMATIC UNDER FREQUENCY PLAN</u>			
AS APPROVED BY CE (PS) VIDE L.No. 282 JABALPUR DATED 22/04/2010			
DAY	48.8Hz Gr.No I,II,III,IV,V,V-A,VI & VI-A of Districts.	48.6Hz Gr. No. VII of District Groups.	48.2Hz Gr. No. VIII of District Group
THE DISTRICTS COVERED UNDER DISTRICT GROUPS SPECIFIED FOR UNDER FREQUENCY 48.6 Hz AND 48.2 Hz ARE AS UNDER			
District Group No.	District		
D1	INDORE, MORENA, BALAGHAT, SHAJAPUR & CHHINDWARA		
D2	UJJAIN, BELUL, KATNI, BHIND, SEHORE, CHHATARPUR, MANDLA, DINDORI, SHAHDOL, ANUPPUR		
D3	BHOPAL, KHARGONE, TIKAMGARH, NARSINGPUR, SHEOPUR		
D4	SAGAR, DEWAS, KHANDWA, BURHANPUR, RATLAM, VIDISHA & DATIA		
D6	REWA, DAMOH, RAJGARH, NEEMUCH, RAISEN, DHAR, SHIVPURI & UMARIA		
D6	JABALPUR, SATNA, GUNA, ASHOKNAGAR, BARWANI, HARDA, SEONI		
D7	GWALIOR, PANNA, SIDHI, HOSHANGABAD, MANDSOUR, JHABUA, ALIRAJPUR & SINGRAULI		

[Note: To be revised based on the new grouping philosophy]

10.4 Annexure D Under frequency Load Shedding scheme

Western Regional Power Committee

Under frequency Load Shedding scheme

AUTOMATIC UNDER FREQUENCY LOAD SHEDDING SCHEME IN WR

Discrete Relays (AUFLS)

UFR Setting (Hz)	Time delay (Sec.)	Recommended Load Relief for WR (MW)	Load relief implemented in WR (MW)	Load Relief (MW)							
				GETCO		MPPTCL		CSEB		MSETCL	
				Approved	Actual	Approved	Actual	Approved	Actual	Approved	Actual
48.8	Inst.	960	1359	220	506	152	247	38	39	550	567
48.6	Inst.	960	1384	220	564	152	167	38	38	550	615
48.2	Inst.	1280	1699	295	525	205	187	50	51	730	936
Total	Inst.	3200	4442	735	1595	509	601	126	128	1830	2118

Frequency Trend Relays (df/dt relays)

Settings (Hz/Sec)	Recommended Load Relief for WR (MW)	Implemented Load Relief (MW)					
		REGION	REGION	GETCO	MPPTCL	MSETCL	TPC
49.2/0.4 (St-III)	2472	2390	972	392	686	273	67
49.0/0.2 (St-II)	2212	2211	972	393	687	91	68
48.8/0.01 (St-I)	3023	3064	1537	546	825	91	65
Total	7707	7665	3481	1331	2198	455	200

10.5 Annexure E: WLRDC procedure: MP Restoration procedure

(Please replace by original procedure print)

CHAPTER - 5

RESTORATION PROCEDURES FOR MADHYA PRADESH

In case of total black out in Madhya Pradesh system, the following possible scenarios are recommended for system restoration in the state based on black start facilities available in the state and sources from outside the state. Enclosed *Exhibits* show the schematic diagrams for scenarios and restoration plans based on island approach.

5.0 SCENARIOS OF RESTORATION

5.1 SCENARIO # 1 :FROM OWN BLACK START SOURCES

A. Bargi Hydro power station (2 x 45 MW)

A DG set of 250 KVA is available at Bargi hydro power station. This set can be started and auxiliaries to one or both sets can be fed thereby both units can be started immediately. Once the main units are started, start up power to Amarkantak power station can be extended on 132 kV Bargi-Jabalpur and 220 kV Jabalpur-Amarkantak line. After sufficient generation is available, power supply to the essential load will be restored. Start up power supply can also be fed from Bargi HP to Satpura TPS through 132 KV Bargi-Lakhanodone- Seoni-400 kV Seoni-Satpura feeder.

B. Pench hydro power station (2 x 80 MW)

Start up facility in the form of 250 KVA DG set is available at Pench hydro power station. Auxiliaries to any one of the two sets can be fed and the main unit can be started immediately. Once the main unit is started, start up power can be extended to Satpura power station through 132 kV Pench-Seoni-Amarwara- Chindwara-Satpura line up to 132 kV & 220 kV Satpura substation and then to 220 kV Satpura PH Bus. Generating units at Satpura can be started and after sufficient generation is available power supply to the essential load can be restored. In this case considerable voltage and power hunting is expected as experienced earlier. Voltage hunting is controlled by putting some load at Seoni, Chindwara & Satpura 132 kV substation. Start up power can also be extended to Khaperkherda / Koradi power stations. In case MP & Maharashtra grids have to be restored without paralleling, then Pench units can be connected to MP & Maharashtra through separate buses at Pench by opening bus-coupler.

C. Bansagar-I (Tons) hydro power station (3 x 105MW)

250 kVA DG set is available at Bansagar-I (Tons) hydro power station. No DG sets are available at 2x15 MW Bansagar-II (Silpara) and 3x20 MW Bansagar-III (Devrone). To start units at Bansagar-II and Bansagar-III, 220kV Bansagar (Tons)-Rewa D/C, 132kV Rewa-Bansagar-II D/C and 132kV Rewa-Bansagar- III S/C lines can be taken into service. After starting the DG Set, auxiliary power to any one of the three units can be fed. Once the unit is started start up power to Sanjay Gandhi Thermal Power Station can be extended on 220 kV Bansagar- I (Tons)-Satna line and 220kV Satna-Birsinghpur line. After starting unit at Sanjay Gandhi TPS and when sufficient generation is available, essential load can be restored. However due to load - generation balance, voltage hunting was observed and Tons HPS unit got tripped 2-3 times

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during restoration on 30.07.2002. Proper co-ordination among the power house personnel and sub station staff is essentially required during such activities to save valuable time and resources.

D. Birsinghpur Hydro power station(1x20 MW)

Unit can be started using 220Volt battery and power can be extended to Birsinghpur thermal station to start one unit with essential auxiliaries required for start up. Other units can be started after the stabilization of the first unit. However utmost care is required to be taken to connect only selective loads to ensure stability of small hydro unit of 20 MW size against heavy jerks coming from starting up of high capacity thermal auxiliaries like boiler feed pump etc.

E. Gandhisagar Hydro power station (5x23 MW)

110 KVA DG set at Gandhisagar can be used to black start Gandhisagar units and power supply can be extended to Satpura power station through 132kV Gandhisagar-Garoth-Badod-Ujjain-Makshi-Shajapur-Shujalpur-Bhopal-Itarsi link up to Itarsi and then 220 kV supply may be extended through 220 KV Itarsi- Satpura.

F. Indrasagar Hydro power station (8x125 MW)

In the condition of system collapse, one unit of Indira Sagar(ISP) can be started immediately with the help of D G Set of 2x1000 KVA. Then 400 kV Indira Sagar-Indore (80km) one circuit can be charged and an island can be built up with restoration of some load at Indore. Based on the prevailing condition and stiffness of the island formed around Indira Sagar, start up power can be provided to Satpura TPS through 400 kV ISP- Satpura line.

G. Omkareswar Hydro power station (8 x 65 MW)

2 x 1010 KVA DG Set is available which can be used to start up the units. Then power can be extended to Satpura via Omkareswar-Burwaha – Itarsi – Satpura 220 KV link. Essential and traction loads of Khandwa, Ratlam, Indore etc. also can be restored through the respective 220 KV links depending upon water availability.

H. Bansagar stage -III Hydro Power Station (3x20 MW)

Start-up power in the form of 250 kVA DG set is available. All three units can be started one by one with help of DG sets immediately and 132 kV supply to Bansagar stage II and IV can be extended to Rewa 220kV sub-station and then this supply may be extended to Rewa 220 kV sub-station and then this supply may be extended to Amarkantak Thermal power Station through 220 kV Rewa-Sidhi-Amarkantak.

I) Medikheda (3x20 MW)

One DG set of 250 MW is available at Medikheda. All three units can be started one by one with help of DG set. Supply from Gwalior area can be extended through 132 kV Medikheda-Katera-Gwalior link. Supply to Gwalior and Datia railway traction point can also be extended.

J) Rajghat Hydro Power Station(3x15 MW)

Start-up facility in the form of 250 kVA DG set is available. All three machines can be started with help of DG sets immediately and supply to Pichhore, Bina and Sagar area can be

extended through 132 kV Rajghat-Bina-Sagar link. Supply to Bina and Makronia Railway traction point can also be extended.

5.2 SCENARIO # 2 : FROM CHHATTISGARH

Start up power through 220kV Korba (W) –Kotmikala-Amarkantak line can be availed from Korba (W). The generating units at Amarkantak would be started. Once the units at Amarkantak are started, the power can be fed to Birsinghpur on 220kV Amarkantak-Birsinghpur lines. Alternatively start up power can be availed via 132 kV Dongargarh-Balaghat path or 132 kV Bango-Manendragarh path. 400 kV Bhilai-Seoni or 400 kV KSTPS-VSTPS path can also be explored based on the condition and convenience.

5.3 SCENARIO # 3 : FROM GUJARAT

Indore can make necessary arrangements to receive the power from Asoj through any one of 400 kV Asoj - Indore D/C. Indore can then extend the power to Satpura PS through 400/220 kV ICT at Indore and 220 kV line from Indore – Burwaha - Itarsi - Satpura to start the units at Satpura. Once the units start, power can be extended to other power stations and essential loads. This option can be tried in the least due to involvement of long line sections and associated high voltage. Start up power can be extended from SSP through SSP- Nagda- Indirasagar line to Indirasagar power station which can be further extended to Satpura.

5.4 SCENARIO # 4 : FROM MAHARASHTRA

A. Through 220 kV Kalmeshwar-Pandhurna

1. Pandhurna makes necessary arrangements to receive the power from Kalmeshwar and extends to Satpura.
2. Satpura extends the power to start the units at Satpura power station.
3. Once the units at Satpura are started, depending on the availability, Satpura extends the power to 220 kV Itarsi on 220 kV Satpura - Itarsi.
4. Itarsi extends the supply to 220 kV Jabalpur on 220 kV Itarsi - Jabalpur line. Jabalpur makes necessary arrangements to receive the same.
5. Jabalpur extends the supply to Amarkantak on 220 kV Amarkantak - Jabalpur line to start 1 or 2 units at Amarkantak depending on the power availability.
6. Amarkantak after having sufficient quantum of generation, extends supply to SGTPS on 220kV Amarkantak-Birsinghpur.
7. Jabalpur also extends the power supply to Bargi hydel power station, through 220/132 kV ICT & 132 kV Jabalpur - Bargi line to start the units at Bargi.

B. Through 132 kV Pench-Kanhan D/C

1. Pench makes necessary arrangements to receive the power from Kanhan through 132 kV Pench - Kanhan D/C to start the units at Pench hydel power station.
2. Once the units at Pench are started power can be extended to start the other thermal units.

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5.5 SCENARIO # 5 : FROM NORTHERN REGION

A. Through 400 kV HVDC bypass link

Startup power as a first source can be taken through 400 kV HVDC bypass link from Northern Region. Operating staffs at HVDC VindhyaChal shall initiate actions to extend start up power from NR to WR after receiving necessary codes from both NNLDC & WRLDC. Western Region can draw around 200 MW of power from NR after due consent of NNLDC / NLDC as per the existing arrangement (100 MW for VSTPS and 100 MW for KSTPS). VindhyaChal back to back station shall request Singrauli to extend start up power from NR through HVDC bypass link. The start up power will then be extended to KSTPS. Detailed Procedures are enclosed at Chapter-9.

In case of high voltage problem in charging VindhyaChal-Korba line, loads at Waidhan & Morwa can be restored using 132kV VindhyaChal-Waidhan D/C. This may require more assistance from NR. Further power can be extended to Amarkantak for start up through 132 kV Waidhan-Amarkantak S/C or 132 kv Waidhan-Morwa single circuit. Based on availability of assistance from NR, start up power from Amarkantak can be extended to Birsinghpur on 220kV Amarkantak-Birsinghpur line.

B. From Rihand through 132 kV Singrauli - VindhyaChal - Rihand to start VSTPS.

Startup power can be taken from NR through 132 kV lines (Singrauli -VindhyaChal - Rihand). However the available power on 132 kV would be optimum for VindhyaChal only and power cannot be catered to Korba NTPC through this route.

C. From 132 KV Anpara – Amarkantak Line

Start-up power can be availed from Anpara TPS of U.P through 132kV Anpara-Morwa-Amarkantak lines.

D. From 220 KV Auraya- Malanpur and 220 KV Auraya-Mehgaon

The 220 KV network of MP in this area i.e Auraya – Malanpur/Mehgaon – Gwalior – Bina – Damoh – Katni – Birsinghpur and Bina – Bhopal – Itarsi – Satpura etc. can be explored as per situational requirement.

E. From 132 KV R P Sagar-Gandhi Sagar

The 132 KV RP Sagar-Gandhi-Sagar-Ujjain and Gandhi Sagar-Neemuch-Nagda paths can also be explored as per situational requirement.

F. From Kota through 220 kV Badod – Kota and Badod-Modak lines

Past experience showed that this link is not useful for availing start up power from NR due to longer line length and higher voltage level.

5.6 MADHYA PRADESH SYSTEM - IDENTIFIED GRID PATH FOR STARTUP POWER TO POWER STATIONS WHERE STARTUP SOURCE IS NOT AVAILABLE

SGTPS (Birsinghpur)

Path I - Birsinghpur hydel power station (20 MW) through 220kV inter connector

Path II - Tons hydel project through 220kV Bansagar- Satna-Birsinghpur D/C

Path III - 220kV Amarkantak-Birsinghpur D/C from Amarkantak.

Path IV - 400 kV Indirasagar-Satpura-220 kV Satpura- Itarsi-Jabalpur- Amarkantak – Birsinghpur D/C

Amarkantak:

Path I - Banga HEP through 132kV Amarkantak- Manendragarh- Banga line (S/C)

Path II - Korba(W) TPS through 220kV Korba (W) –Kotmikala- Amarkantak D/C.

Path III- Bargi hydel power station through 132kV Bargi-Jabalpur-Amarkantak lines (D/C)

Path IV- Tons power station through 220kV Bansagar-Satna-Birsinghpur- Amarkantak S/C

Path V- From Pench HEP through 132kV Pench-Seoni-Lakhnadone-Bargi- Jabalpur D/C line and 220kV Jabalpur - Amarkantak D/C line.

Path VI- From Satpura TPS through 220kV Satpura-Itarsi-Jabalpur- Amarkantak D/C

Path VII- VindhyaChal STPS through 132kV VindhyaChal-Waidhan-Morwa- Amarkantak path.

Path VIII- Anpara TPS of U.P through 132kV Amarkantak-Anpara- Morwa lines. One circuit goes from Waidhan to Amarkantak and other circuit goes to Morwa.

Path IX- 400 kV Indira Sagar -400kV Satpura- 220kV Satpura -220kV Itarsi- Jabalpur-Amarkantak

Satpura

Path I - Pench hydel project through 132kV Pench- Seoni-Amarwara- Chindwara-Satpura line.

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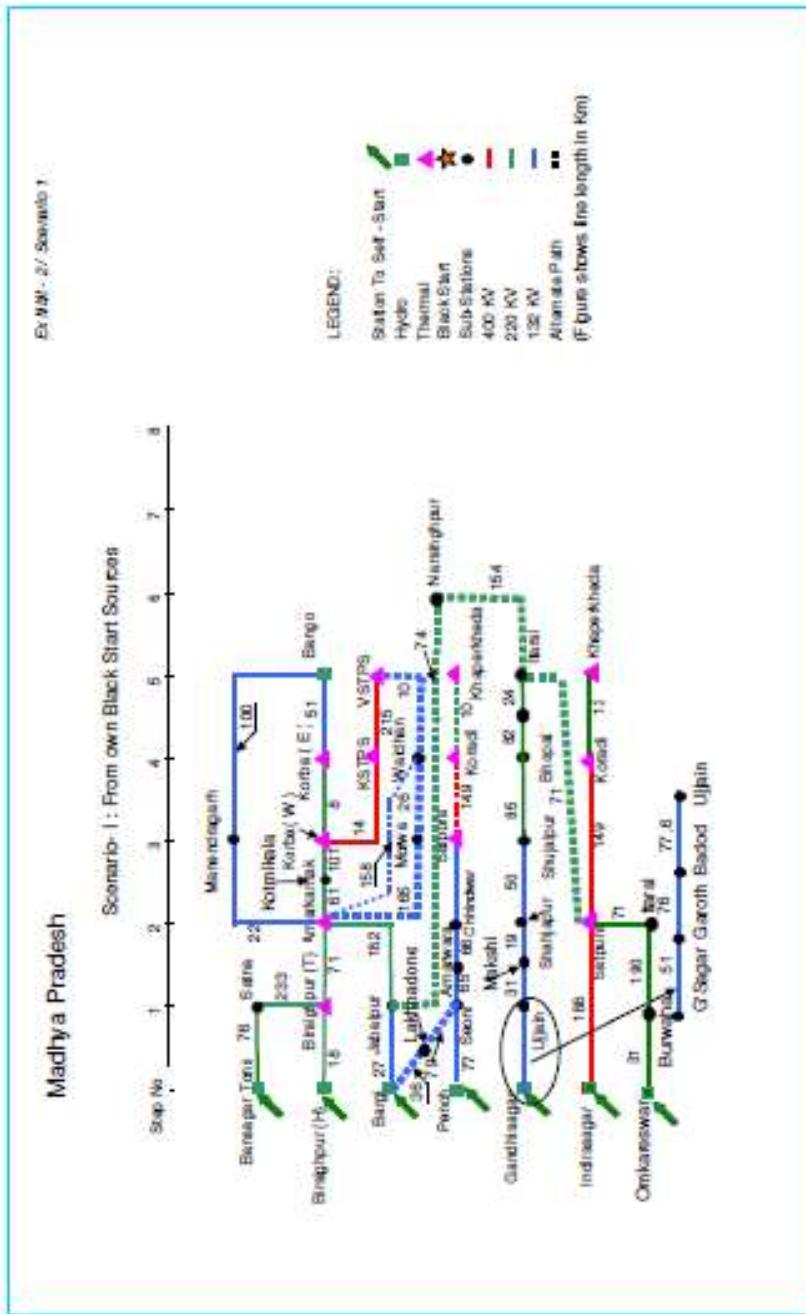
- | | |
|-------------------|---|
| <i>Path II-</i> | From Maharashtra via 132kV Kanhan-Pench-Seoni-Amarwara-Chhindwara- Satpura line, |
| <i>Path III-</i> | Koradi TPS of Maharashtra through 400kV Koradi- Satpura (S/C) and 220kV Satpura- Kalmeshwar-Ambazari-Koradi |
| <i>Path IV-</i> | From Gandhisagar or Kota to Ujjain through 220kV Ujjain-Burwaha-Itarsi-Satpura line |
| <i>Path V-</i> | From Gujarat through 400kV Asoj-Indore D/C, 220kV Indore-Burwaha-Itarsi-Satpura line OR 132kV Gandhisagar-Garoth-Ujjain-Makshi-Shujalpur- Shajapur-Bhopal-Itarsi-Satpura. |
| <i>Path VI-</i> | 400kV Asoj-Indore- Indirasagar-Satpura |
| <i>Path VII-</i> | From Bargi hydel project through 132 kV Bargi-Lakhanodone-Seoni- Amarwara-Chhindwara-Sarni feeder. |
| <i>Path VIII-</i> | 400 kv Indirasagar-Satpura-220 kV Satpura |

VSTPS*

- | | |
|------------------|---|
| <i>Path I -</i> | 400kV AC by-pass at Vindhya chal HVDC |
| <i>Path II -</i> | 132kV Rihand -Singrauli- Vindhya chal |
| <i>Path III-</i> | From Amarkantak on 132kV Amarkantak- Morwa-Waidhan-Vindhya chal D/C |
| <i>Path IV-</i> | From KSTPS on 400kV KSTPS-VSTPS D/C |

* The above start up sources are in the order of priority. In case VSTPS gets start up power using paths II & III, it is not possible to extend start up power from VSTPS to KSTPS till some units are brought up on bars at VSTPS.

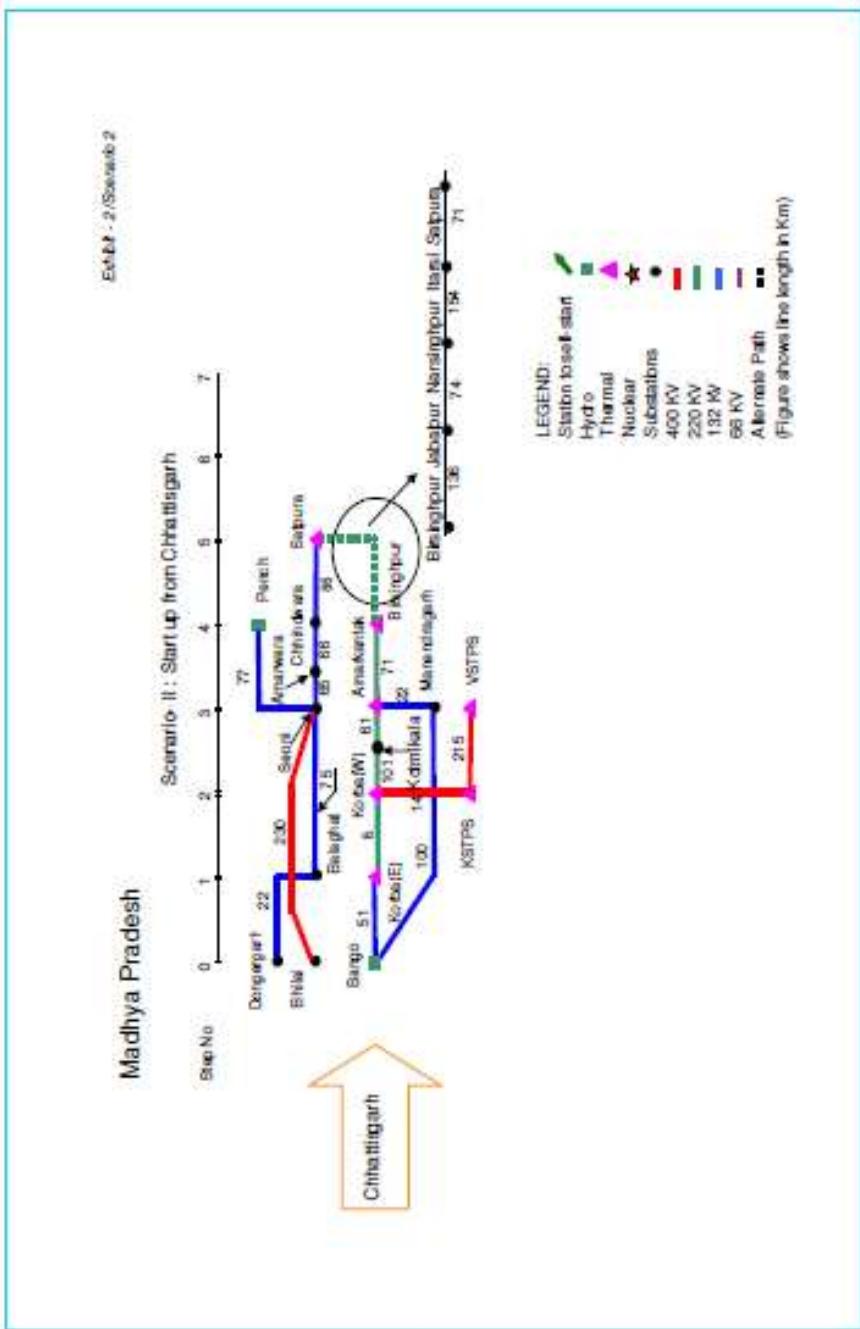
SOP FOR DISTRIBUTION CONTROL CENTRES OF MP



Recovery Procedure for Western Region-2011

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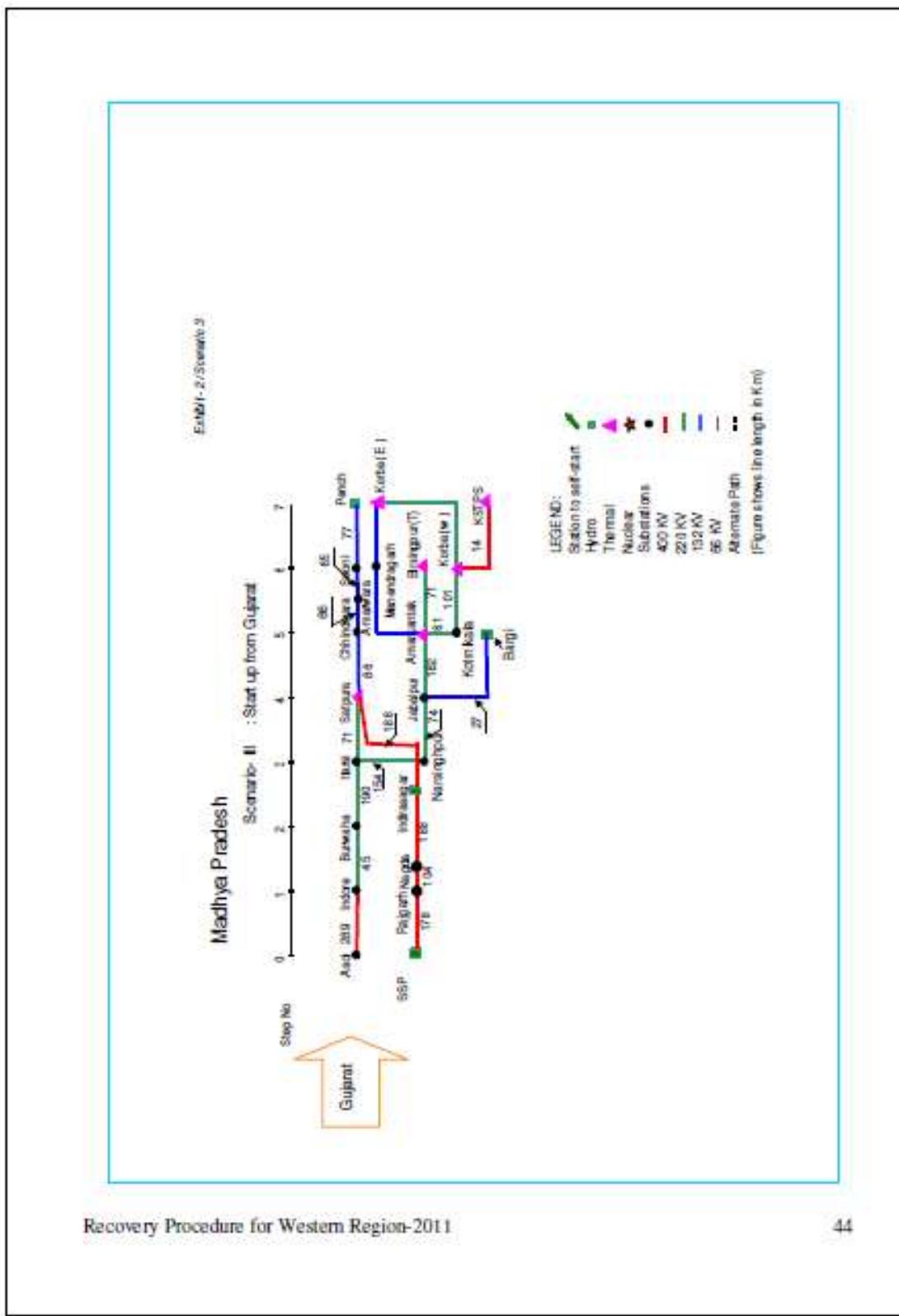
SOP FOR DISTRIBUTION CONTROL CENTRES OF MP



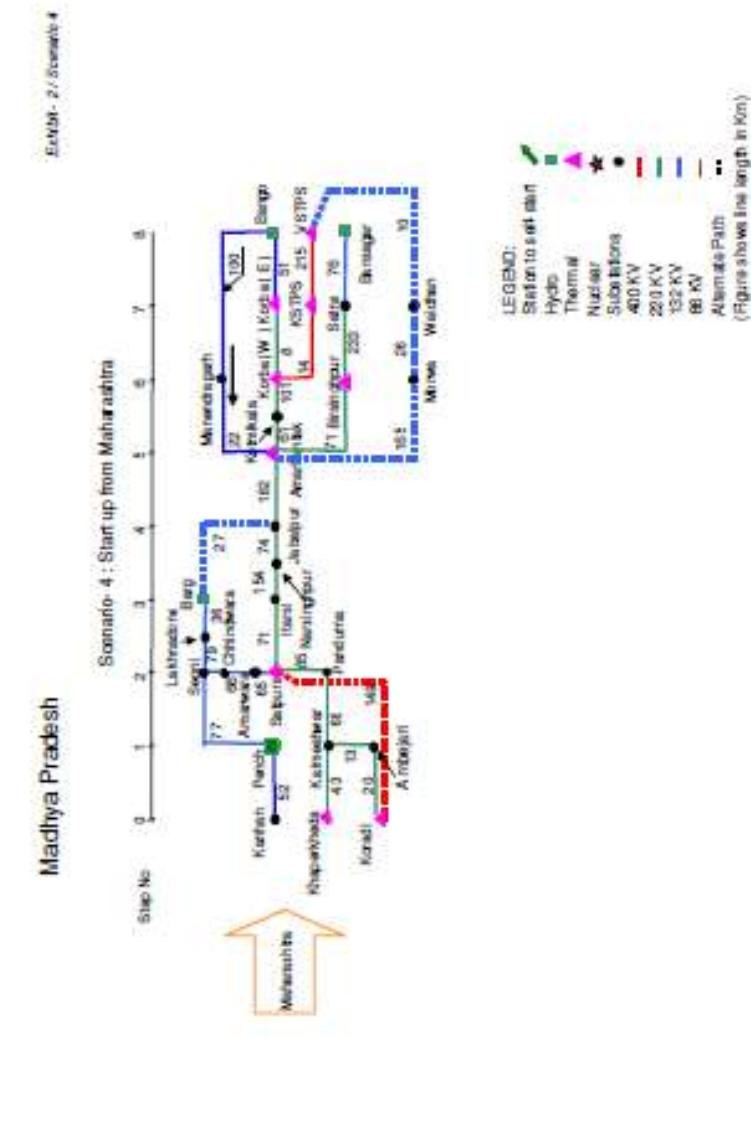
Recovery Procedure for Western Region-2011

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SOP FOR DISTRIBUTION CONTROL CENTRES OF MP



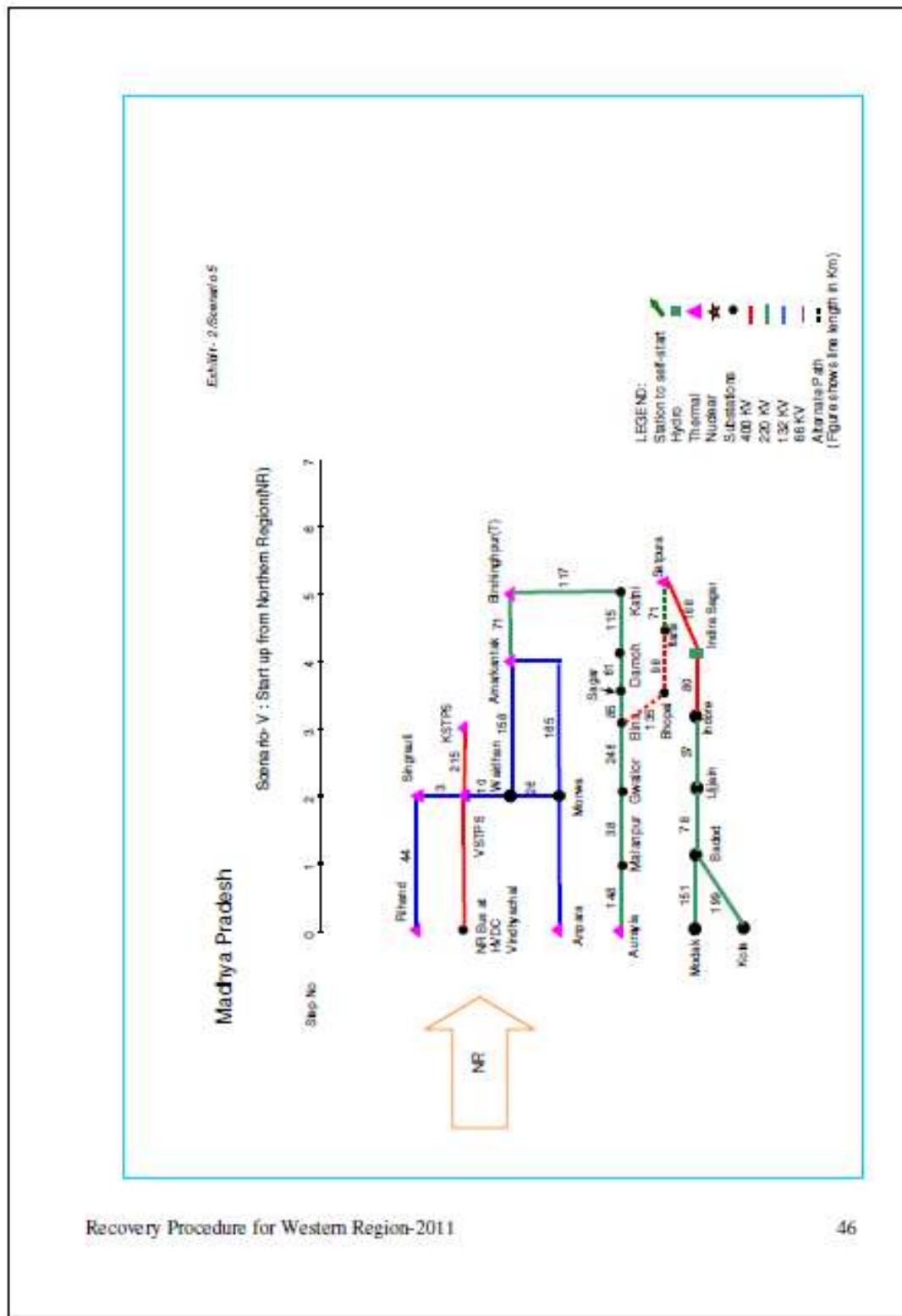
SOP FOR DISTRIBUTION CONTROL CENTRES OF MP



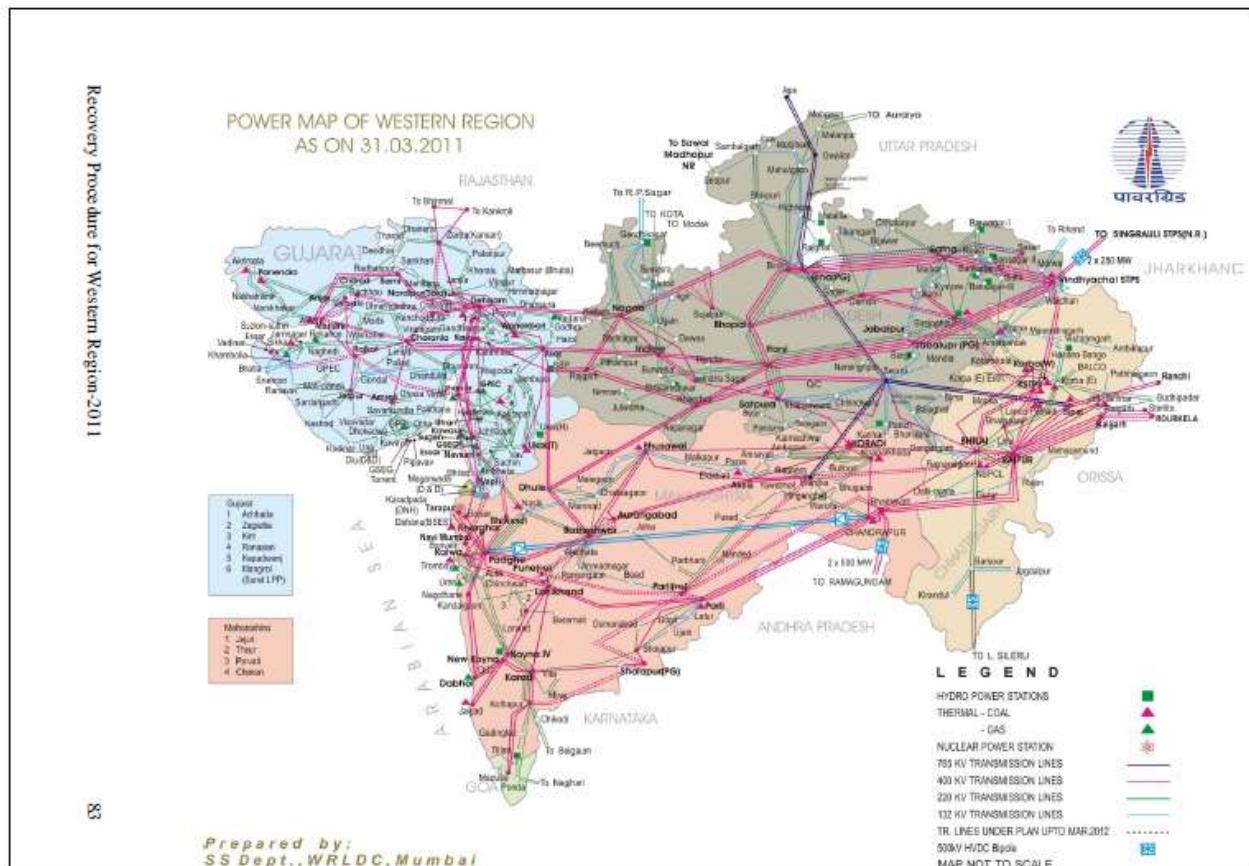
Recovery Procedure for Western Region-2011

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SOP FOR DISTRIBUTION CONTROL CENTRES OF MP



10.6 Annexure F: Western region power map



10.7 Annexure G: AC Traction load of Discom

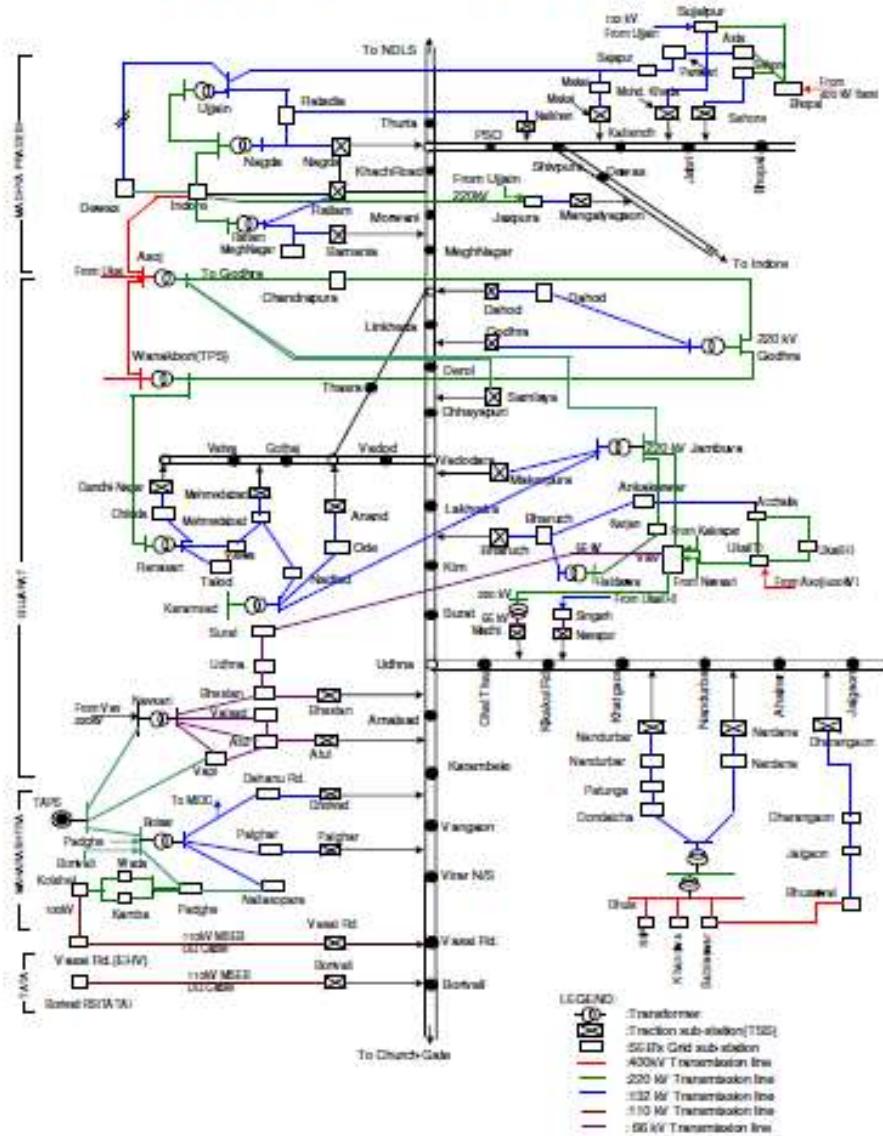
[Please update]

Sr No.	Name of the traction substation(TSS)/Feeding point(FP)	Source Of supply	Name of the traction substation	Neutral section		Kms.	Contract Demand (MVA)	Average demand (MVA)	Emergency Min.Req. (MVA)	Rail way Division	Connected Phase (R-Y, Y-B, B-R)
				West/ South	East/ North						
1.											
2.											
3.											

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Annex-IV (c)

Grid Supply Arrangements of SEBs to Western Railway TSS(AC SECTION)



Source: Traction Distribution Data Book prepared by Energy Management Cell, Railway Board/New Draft.

10.8 Annexure H: UI Rates

UI Rate wef 02.04.2012							
Below	Not Below	Rate P/Kwh	UI Charges for generator Using Coal/Lignite/ APM Gas	Additional UI Charge		Total	
				For Under Injection by Generator	Overdrawal by Beneficiary	For Under Injection by Generator	Overdrawal by Beneficiary
1	2	3	4	5	6	7=4+5	8=3+6
	50.20	0.00	0.00	0.00	0.00	0.00	0.00
50.20	50.18	16.50	16.50	0.00	0.00	16.50	16.50
50.18	50.16	33.00	33.00	0.00	0.00	33.00	33.00
50.16	50.14	49.50	49.50	0.00	0.00	49.50	49.50
50.14	50.12	66.00	66.00	0.00	0.00	66.00	66.00
50.12	50.10	82.50	82.50	0.00	0.00	82.50	82.50
50.10	50.08	99.00	99.00	0.00	0.00	99.00	99.00
50.08	50.06	115.50	115.50	0.00	0.00	115.50	115.50
50.06	50.04	132.00	132.00	0.00	0.00	132.00	132.00
50.04	50.02	148.50	148.50	0.00	0.00	148.50	148.50
50.02	50.00	165.00	165.00	0.00	0.00	165.00	165.00
50.00	49.98	193.50	193.50	0.00	0.00	193.50	193.50
49.98	49.96	222.00	222.00	0.00	0.00	222.00	222.00
49.96	49.94	250.50	250.50	0.00	0.00	250.50	250.50
49.94	49.92	279.00	279.00	0.00	0.00	279.00	279.00
49.92	49.90	307.50	307.50	0.00	0.00	307.50	307.50
49.90	49.88	336.00	336.00	0.00	0.00	336.00	336.00
49.88	49.86	364.50	364.50	0.00	0.00	364.50	364.50
49.86	49.84	393.00	393.00	0.00	0.00	393.00	393.00
49.84	49.82	421.50	421.50	0.00	0.00	421.50	421.50
49.82	49.80	450.00	421.50	0.00	0.00	421.50	450.00
49.80	49.78	478.13	421.50	0.00	0.00	421.50	478.13
49.78	49.76	506.25	421.50	0.00	0.00	421.50	506.25
49.76	49.74	534.38	421.50	0.00	0.00	421.50	534.38
49.74	49.72	562.50	421.50	0.00	0.00	421.50	562.50
49.72	49.70	590.63	421.50	0.00	0.00	421.50	590.63
49.70	49.68	618.75	421.50	84.3	180.00	505.80	798.75
49.68	49.66	646.88	421.50	84.3	180.00	505.80	826.88
49.66	49.64	675.00	421.50	84.3	180.00	505.80	855.00
49.64	49.62	703.13	421.50	84.3	180.00	505.80	883.13
49.62	49.60	731.25	421.50	84.3	180.00	505.80	911.25

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

UI Rate wef 02.04.2012							
Below	Not Below	Rate P/Kwh	UI Charges for generator Using Coal/Lignite/ APM Gas	Additional UI Charge		Total	
				For Under Injection by Generator	Overdrawal by Beneficiary	For Under Injection by Generator	Overdrawal by Beneficiary
1	2	3	4	5	6	7=4+5	8=3+6
49.60	49.58	759.38	421.50	84.3	180.00	505.80	939.38
49.58	49.56	787.50	421.50	84.3	180.00	505.80	967.50
49.56	49.54	815.63	421.50	84.3	180.00	505.80	995.63
49.54	49.52	843.75	421.50	84.3	180.00	505.80	1023.75
49.52	49.50	871.88	421.50	84.3	180.00	505.80	1051.88
49.50	49.48	900.00	421.50	168.6	360.00	590.10	1260.00
49.48	49.46	900.00	421.50	168.6	360.00	590.10	1260.00
49.46	49.44	900.00	421.50	168.6	360.00	590.10	1260.00
49.44	49.42	900.00	421.50	168.6	360.00	590.10	1260.00
49.42	49.40	900.00	421.50	168.6	360.00	590.10	1260.00
49.40	49.38	900.00	421.50	168.6	360.00	590.10	1260.00
49.38	49.36	900.00	421.50	168.6	360.00	590.10	1260.00
49.36	49.34	900.00	421.50	168.6	360.00	590.10	1260.00
49.34	49.32	900.00	421.50	168.6	360.00	590.10	1260.00
49.32	49.30	900.00	421.50	168.6	360.00	590.10	1260.00
49.30	49.28	900.00	421.50	168.6	360.00	590.10	1260.00
49.28	49.26	900.00	421.50	168.6	360.00	590.10	1260.00
49.26	49.24	900.00	421.50	168.6	360.00	590.10	1260.00
49.24	49.22	900.00	421.50	168.6	360.00	590.10	1260.00
49.22	49.20	900.00	421.50	168.6	360.00	590.10	1260.00
49.20	49.18	900.00	421.50	168.6	900.00	590.10	1800.00

10.9 Annexure I: UI Cap rates and Additional UI rates

GIST OF CERC (UI Charges and related matters) (Second amendment) Regulations, 2012 implemented w.e.f. 02.04.2012

The frequency band – 49.70 to 50.20 Hz

UI Charges for Generating Stations-

(a) The UI cap rate shall be 421.50 Paise / Kwh for all generating stations using coal or lignite or APM Gas as the fuel, in case when actual generation is higher or lower than the scheduled generation.

For other Generating Stations the UI charges shall be as per regulation.

(b) Provided that the UI Cap rate shall be 165 Paise / Kwh for the injection by a generating station in excess of 105% of the declared capacity of the station in a time block or in excess of 101% of the average Declared Capacity over a day

(c) The under injection by a Generating Station during a time block shall not exceed 12% of its schedule injection when frequency is below 49.8 Hz and 3% on a daily aggregate basis for all the time blocks when frequency is below 49.8 Hz.

Additional UI charges for under injection by Generation Stations –

(a) Additional UI charges rate for the under injection by a Generating Station using coal or lignite or APM Gas below the frequency 49.7 Hz and up to 49.5 Hz shall be 20% of the cap rate of 421.50 Paise/ Kwh i.e. 84.30 Paise/ Kwh ($421.50 + 84.30 = 505.80$ paise/ kwh).

For other Generating Stations the additional UI charges below the frequency 49.7 and up to 49.5 Hz shall be 20% of the maximum UI rate 900 Paise/ per Kwh i.e. 180 Paise /per Kwh, over and above the corresponding UI rate below frequency 49.7 Hz and up to 49.50 Hz.

(b) Additional UI charges rate for the under injection by a Generating Station using coal or lignite or APM Gas below the frequency 49.5 Hz shall be 40% of the cap rate of 421.50 Paise/ Kwh i.e. 168.60 Paise/ Kwh. ($421.50 + 168.60 = 590.10$ Paise/ kwh)

For other Generating Stations the additional UI charges below the frequency 49.5 Hz shall be 40% of the maximum UI rate 900 Paise/ per Kwh i.e. 360 Paise /per Kwh ($900 + 360.00 = 1260.00$ Paise/ Kwh)

UI Charges for over injection by Seller -

(a) UI charges rate for the over injection by a seller upto of 120 % of the schedule shall be as per the UI rate.

(b) The UI Cap rate shall be 450.00 Paise/ Kwh for the injection by seller 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 or in excess of 101% of the average declared Capacity over a day.

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(c) The UI Cap rate shall be 165.00 Paise/ Kwh for the injection by seller in excess of 105 % 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 or in excess of 101% of the installed Capacity over a day.

UI Charges for the under drawal by beneficiary / buyer -

(a) The UI Cap Rate shall be 450.00 Paise / Kwh for under drawal by the beneficiary / buyer in excess of 10% of the schedule or 250 MW whichever is less.

UI Charges for the over drawal by beneficiary / buyer -

(a) UI charges rate for over drawal by the beneficiary / buyer up to the frequency 49.5 Hz shall be as per UI rate. However the over drawal during a time block shall not exceed 12% of its schedule drawal or 150 MW, whichever is lower when frequency is below 49.8 Hz and 3% on a daily aggregate basis for all the time blocks when frequency is below 49.8 Hz.

Additional UI charges for over drawal by beneficiary / buyer –

(a) Additional UI charges rate for over drawal by the beneficiary / buyer for each time-block when grid frequency is below 49.7 Hz and upto “ Not below 49.5 Hz” shall be equivalent to 20% of UI Charge corresponding to grid frequency “ Below 49.5 Hz” i.e. 180 Paise/ Kwh, over and above the corresponding UI rate below frequency 49.7 Hz and up to 49.50 Hz.

(b) The additional UI charges rate below frequency 49.5 Hz and up to 49.2 Hz shall be equivalent to 40% of the UI charge 900.00 Paise/ Kwh i.e. 360 Paise/ Kwh. (Total $900+360=1260$ paise / Kwh)

(c) The additional UI charges rate below frequency 49.2 Hz shall be equivalent to 100% of the UI charge 900.00 Paise/ Kwh i.e. 900 Paise/ Kwh. (Total $900+900=1800$ paise / Kwh)

Cap Rates for the Infirm Power Injected by Generating Station

The cap rates for the infirm power injected into the grid by unit of a generating station during the testing / commissioning prior to COD of the unit shall be as follows corresponding to the fuel used for the Generation:

Domestic Coal / Lignite / Hydro : Rs. 1.65 per Kwh

APM Gas as fuel : Rs. 2.60 per Kwh

Imported Coal / RLNG : Rs. 3.30 per Kwh

Liquid Fuel : Rs. 9.00 per Kwh

10.10 Annexure J: Regulatory requirements for MP DCC

In this section relevant clauses of CERC regulations / orders, MPERC regulations / orders and WRLDC operating procedures are summarized which are required to be compiled by the MP distribution companies with respect to functions/operation of DCC.

Sr. No.	Description	Page No.
1.	CERC (Indian Electricity Grid Code) Regulations, 2010	157
2.	MPERC (Madhya Pradesh Electricity Grid Code)	159
3.	Central Electricity Authority (Grid Standard) Regulation, 2006	166
4.	Operating procedure for Western Region (June 2011)	168
5.	Recovery procedure for Western Region (April 2011)	175
6.	MPERC (Madhya Pradesh Electricity Balancing and Settlement Code, 2009)	176
7.	CERC (Unscheduled Interchange charges and related matters) Regulations, 2009	179
8.	MPERC (Madhya Pradesh Electricity Distribution Code)	180
9.	MPERC (Terms and Conditions for Intra-State Open Access in Madhya Pradesh) Regulations, 2005	186
10.	CERC (Measures to relieve congestion in real time operation) Regulation, 2009	188
11.	CERC (Open Access in inter-State Transmission) Regulations, 2008	189
12.	Aggregate revenue requirement and retail supply tariff order for FY 2011-12	190

10.10.1 Indian Electricity Grid Code 2010 and its amendment dated 05.03.2012

Indian Electricity Grid Code 2010 and its amendment dated 05.03.2012																													
Sr. No.	Clause Ref.	Details																											
1.	5.2 (m)	All Users, SEB, SLDCs, RLDCs, and NLDC shall take all possible measures to ensure that the grid frequency always remains within the 49.7 - 50.2 Hz band.																											
2.	5.2 (s)	All Users, RLDC, SLDC STUs, CTU and NLDC shall take all possible measures to ensure that the grid voltage always remains within the following operating range. <table border="1" data-bbox="436 561 944 875"> <thead> <tr> <th colspan="3">Voltage – (kVrms)</th> </tr> <tr> <th>Nominal</th> <th>Maximum</th> <th>Minimum</th> </tr> </thead> <tbody> <tr> <td>765</td> <td>800</td> <td>728</td> </tr> <tr> <td>400</td> <td>420</td> <td>380</td> </tr> <tr> <td>220</td> <td>245</td> <td>198</td> </tr> <tr> <td>132</td> <td>145</td> <td>122</td> </tr> <tr> <td>110</td> <td>121</td> <td>99</td> </tr> <tr> <td>66</td> <td>72</td> <td>60</td> </tr> <tr> <td>33</td> <td>36</td> <td>30</td> </tr> </tbody> </table>	Voltage – (kVrms)			Nominal	Maximum	Minimum	765	800	728	400	420	380	220	245	198	132	145	122	110	121	99	66	72	60	33	36	30
Voltage – (kVrms)																													
Nominal	Maximum	Minimum																											
765	800	728																											
400	420	380																											
220	245	198																											
132	145	122																											
110	121	99																											
66	72	60																											
33	36	30																											
3.	5.4.2 (a), (b)	(a) SLDC/ SEB/distribution licensee and bulk consumer shall initiate action to restrict the drawal of its control area, from the grid, within the net drawal schedule whenever the system frequency falls to 49.8 Hz (b) The SLDC/ SEB/distribution licensee and bulk consumer shall ensure that requisite load shedding is carried out in its control area so that there is no overdrawl when frequency is 49.7 Hz. or below.																											
4.	5.4.2 (c)	Each User/STU/SLDC shall formulate contingency procedures and make arrangements that will enable demand disconnection to take place, as instructed by the RLDC/SLDC, under normal and/or contingent conditions. These contingency procedures and arrangements shall regularly be / updated by User/STU and monitored by RLDC/SLDC. RLDC/SLDC may direct any User/STU to modify the above procedures/arrangement, if required, in the interest of grid security and the concerned User/STU shall abide by these directions.																											
5.	5.4.2 (d)	The SLDC through respective State Electricity Boards/Distribution Licensees shall also formulate and implement state-of-the-art demand management schemes for automatic demand management like rotational load shedding, demand response (which may include lower tariff for interruptible loads) etc. before 01.01.2011, to reduce overdrawl in order to comply para 5.4.2 (a) and (b). A Report detailing the scheme and periodic reports on progress of implementation of the schemes shall be sent to the Central Commission by the concerned SLDC.																											
6.	5.4.2 (e)	In order to maintain the frequency within the stipulated band and maintaining the network security, the interruptible loads shall be arranged in four groups of loads, for scheduled power cuts/load shedding, loads for unscheduled load shedding, loads to be shed through under frequency relays/ df/dt relays and loads to be shed under any System Protection Scheme identified at the RPC level. These loads shall be grouped in such a manner, that there is no overlapping between different Groups of loads. In case of certain contingencies and/or threat to system security, the RLDC may direct any SLDC/ SEB/distribution licensee or bulk consumer connected to the ISTS to decrease drawal of its control area by a certain quantum. Such directions shall immediately be acted upon. SLDC shall send compliance report immediately after compliance of these directions to RLDC.																											

Indian Electricity Grid Code 2010 and its amendment dated 05.03.2012		
Sr. No.	Clause Ref.	Details
7.	5.4.2 (h)	All Users, SLDC/ SEB/distribution licensee or bulk consumer shall comply with direction of RLDC/SLDC and carry out requisite load shedding or backing down of generation in case of congestion in transmission system to ensure safety and reliability of the system. The procedure for application of measures to relieve congestion in real time as well as provisions of withdrawal of congestion shall be in accordance with Central Electricity Regulatory Commission (Measures to relieve congestion in real time operation) Regulations, 2009.
8.	5.4.2 (i)	The measures taken by the User's, SLDC SEB/distribution licensee or bulk consumer shall not be withdrawn as long as the frequency remains at a level lower than the limits specified in para 5.2 or congestion continues, unless specifically permitted by the RLDC/SLDC.
9.	Petition No. 208/2011 (Suo-motu)	<p>Implementation of Automatic Demand Management Schemes in compliance as defined in clause 5.4.2 (d) and (e) of Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 and the Suo-Motu petition filed by CERC, The discom have to perform following tasks:</p> <p>In order to maintain the frequency within the stipulated band and maintaining the network security, the interruptible loads shall be arranged in four groups of loads, for scheduled power cuts/load shedding, loads for unscheduled load shedding, loads to be shed through under frequency relays/df/dt relays. These loads shall be grouped in such a manner, that there is no overlapping between different Groups of loads. As u/f and df/dt relays are installed on 33 KV feeders at EHV substations its planning shall be reviewed regularly by STU and SLDC.</p> <ul style="list-style-type: none"> • The second stage is to implement the automatic demand management by tripping of feeders either through Programmable Logic Controller (PLC) or through SCADA by DISCOMs.

Other sections of IEGC are not included here, because they are covered in MPEGC regulations below.

10.10.2 Madhya Pradesh Electricity Grid Code

Madhya Pradesh Electricity Grid Code		
Sr. No.	Clause Ref.	Details
1.	4.5 Planning Responsibility 4.5.1	The Distribution Companies shall determine peak load and energy forecasts of their areas for each category of loads for each of the succeeding 5 years and submit the same annually by 31st March to STU along with details of the demand forecasts, data, methodology and assumptions on which the forecasts are based along with their proposals for transmission system augmentation. The load forecasts shall be made for each of the prevalent as well as proposed interconnection points between STU and Discoms and shall include annual peak load and energy projections. The demand forecasts shall be updated annually or whenever major changes are made in the existing forecasts or planning. While indicating requirements of single consumers with large demands (1 MW or higher) the Distribution Company shall satisfy itself as to the degree of certainty of the demand materialising.
2.	System Security Aspects 6.1.9	SLDC in consultation with WREB/WRLDC and Discoms shall prepare a plan for automatic load relief during the low frequency conditions
3.	6.1.10	Similarly, no User shall cause a sudden decrease/increase in its load due to imposition/lifting of power cuts etc., without prior intimation to and consent of the SLDC, particularly when frequency is deteriorating.
4.	Load Despatch & System Operation Code 7.3.2	Discoms shall provide to the SLDC their estimates of demand for the year ahead on month-basis at each inter connection point for the next financial year by 15th November each year. Discoms shall also provide daily demand on month ahead at each inter connection point by 25th for the next month.
5.	7.3.3	Discoms shall provide to SLDC estimates of load that may be shed when required, in discrete blocks with the details of arrangements of such load shedding.
6.	7.3.4	Discoms shall also furnish realistic category-wise demand for their respective companies along with details of essential loads, supply hours to be maintained in rural areas, details of power cuts imposed or to be imposed and specific requirements, if any.
7.	7.3.5	The demand estimation shall cover active power as well as reactive power requirements forecasted for each sub-station.
8.	Demand control 7.4.6	Demand control can also be exercised by the SLDC through direct circuit breaker tripping affected from SLDC using RTUs and under frequency detection by SLDC SCADA or through telephonic instructions. No demand shed by operation of under frequency relays shall be restored without specific directions from SLDC.
9.	7.4.7	Rotational Load Shedding Schemes using Under Frequency Relay (UFR) shall be prepared time to time by the Utility in accordance with the guidelines/instructions issued by WRLDC/WREB. The STU shall inform such decisions to MPERC within seven days from the issue of instructions by

Madhya Pradesh Electricity Grid Code		
Sr. No.	Clause Ref.	Details
		WRLDC/WREB.
10.	Amendment-4	<p>8.3 General Principles of scheduling:</p> <p>8.3.2 Merit Order Operation: DISCOMs, will give their requisitions based on the merit order i.e. on ascending order of cost of energy of ISGS/ SSGS/ Joint Ventures/IPPs and bilateral exchanges and collective transaction.</p> <p>8.3.5 The DISCOMs shall endeavour to maintain their drawals in such a manner that they do not overdraw from the grid whenever the frequency is below normal value and do not under draw whenever frequency is above the normal value.</p> <p>8.3.6 Generation Schedules and Drawal Schedules issued/ revised by SLDC shall become effective from designated time block irrespective of communication success.</p> <p>8.3.7 For any revision of Scheduled Generation of GENCO, including post facto deemed revision; there shall be a corresponding revision of Scheduled Drawals of the DISCOMs.</p> <p>8.3.10 The following specific points would be taken into consideration while preparing the schedules.</p> <p>ii..... SLDC to moderate the schedule to the required extent under 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.</p> <p>8.3.11 For calculating the net Drawal Schedules of DISCOMs, the transmission losses shall be apportioned in proportion to their drawal schedules.</p>
11.	Amendment-4	<p>8.4 Scheduling Process:</p> <p>iii. On the basis of above information SLDC will compile Generator availability for both ISGS & SSGS and MW and MWH entitlement of each DISCOMs during the following day at 15 minutes interval shall be intimated to MP Tradeco /DISCOMs by 12.00 hrs.</p> <p>iv. After receipt of information in regard to the availability from different SSGS and ISGS, all DISCOMs, on the basis of their demand pattern, will furnish requisition through MP Tradeco in each ISGS & SSGS stations to SLDC by 13.00 hrs. MP Tradeco / DISCOMs shall also indicate surplus/ deficit if any of other DISCOMs.</p> <p>v. By 13.30 hrs SLDC shall intimate to MP Tradeco / DISCOMs regarding surplus/ deficit if any to other DISCOMs</p> <p>vi. By 14.00 hrs the MP Tradeco / DISCOMs would advise SLDC their requisition in SSGS and ISGS along with bilateral exchanges of DISCOMs and Inter- DISCOMs/Inter-State Open Access transactions. While indicating their station wise requisitions DISCOMs must ensure that change is not more than 10% of the previous requisition, DISCOMs while finalizing their requisition from SSGS, shall also consider estimated losses that would be deducted from their ex-power plant schedules.</p> <p>viii. By 18.00 hrs..... • SLDC will intimate Drawal Schedule to MP Tradeco /</p>

Madhya Pradesh Electricity Grid Code		
Sr. No.	Clause Ref.	Details
		<p>DISCOMs as follows</p> <p>(a) The drawal schedule i.e. the schedule at the EHV periphery (sum of schedule from SSGS and ISGS), for monitoring of drawal at real time demand in MW.</p> <p>(b) The above drawal schedule will also contain the net drawal schedule i.e. the schedule at the periphery of DISCOM after deducting the apportioned estimated transmission losses (sum of schedule from SSGS and ISGS), for UI computation on the basis of actual energy drawal as per ABT meters.</p> <p>ix. The DISCOM /SSGS may inform the modifications to be made if any, in the above schedule to SLDC by 21.30 hrs.</p> <p>xi. After receipt of final drawal schedule of ISGS from WRLDC at 23.00 hrs and taking into account all the modifications indicated by DISCOMs, SLDC shall issue the final Generation / Drawal Schedule to each SSGS and MP Tradeco / DISCOMs by 23.30 hrs</p>
12.	8.6	<p>RULES FOR REVISION IN SCHEDULE IN REAL TIME OPERATION:</p> <p>ii. In the event of a situation arising due to bottleneck in evacuation of power due to transmission constraint, SLDC shall revise the schedule which shall become effective from the time block, counting the time block in which the transmission constraint has been brought to the notice of SLDC as the first one. During the first three time blocks also the schedule shall deemed to have been revised to be equal to the actual generation by the SGS and drawal by the DISCOMs.</p> <p>iii. In case of any grid disturbance, the Scheduled Generation of all the generating stations 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 grid disturbance. The exact duration of such grid disturbance would be declared by SLDC/RLDC on the basis of mutually agreed guidelines.</p> <p>iv. Revision of Declared Capability by SSGS and requisitions by DISCOMs for the remaining period of the day will 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 SLDC to be the first one.</p> <p>v. Similarly, in case any DISCOM seeks a revision in the bilateral schedules, the same would have to be confirmed by the other partner within a period of one hour. The revised schedule will come in effect from 6th time block, counting the time block in which the request for revision has been received in SLDC to be the first one.</p> <p>vi. If, at any point of time SLDC observes that there is a need for revision of its schedule in the interest of better system operation, it may do so on its own and in such cases, the revised schedule shall become effective from 4th time block, counting the time block in which the revised schedule is issued by SLDC to be the first one.</p> <p>vii. If a revision is received from any ISGS stations, RLDC will flash the information in real time basis containing all the relevant information needed to revise the schedule based on which SLDC will parallel process the revision. The</p>

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		implementation time of revision will be same for RLDC and SLDC.
13.	Frequency and voltage management 9.1	<p>Introduction</p> <p>This section describes the method by which all Users of the State Transmission System shall cooperate with SLDC and STU in contributing towards effective control of the system frequency and managing the EHV voltage of the State Transmission System.</p> <p>SLDC shall also regulate the load as may be necessary to meet the objective.</p> <p>SLDC shall also instruct Discoms to regulate demand, if necessary</p>
14.	9.3.2	<p>Falling frequency:</p> <p>Under falling frequency conditions, SLDC shall take appropriate action to issue instructions, in co-ordination with WRLDC to arrest the falling frequency and restore it to be within permissible range. Such instructions may include dispatch instruction to SSGS and/or instruction to Discoms and Open access users to reduce load demand by appropriate manual and/or automatic load shedding.</p>
15.	9.3.3	<p>Rising Frequency:</p> <p>Under rising frequency conditions, SLDC shall take appropriate action to issue instructions to SSG in co-ordination with WRLDC, to arrest the rising frequency and restore frequency within permissible range. SLDC shall also issue instructions to Discoms and Open access users in coordination with WRLDC to lift Load shedding (if exists) in order to take additional load.</p>
16.	9.4.3	Discoms and Open access users shall co-operate with SLDC in managing load & reactive power drawal on instruction from SLDC as required.
17.	9.5.2	SLDC and STU shall co-ordinate with the Discoms to determine voltage level at the interconnection points.
18.	9.5.3	SLDC shall take appropriate measures to control State Transmission System voltages, which may include but not be limited to transformer tap changing, capacitor / reactor switching including capacitor switching by Discoms at 33kV sub-stations , operation of Hydro unit as synchronous condenser and use of MVar reserves with SSGS within technical limits agreed to between STU and Generators.
19.	9.5.5	Discoms and Open access users shall participate in voltage management by providing Local VAR compensation (as far as possible in low voltage system close to load points) such that they do not depend upon EHV grid for reactive support.
20.	9.6	<p>General</p> <p>Close co-ordination between Users and SLDC and STU shall exist at all times for the purposes of effective frequency and voltage management.</p>
21.	Monitoring of generation and drawal	The monitoring of scheduled Drawal is important to ensure that STU and Discoms contributes towards improving system performance, and observes Grid discipline.

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22.	10.2	The objective of this section is to define the responsibilities of all SSGS in the monitoring of Generating Unit reliability and performance, and STU's/ Discoms' compliance with the scheduled Drawal to assist SLDC in managing voltage and frequency.
23.	Outage Planning 11.3	<p>Outage Planning Process</p> <p>Each User shall provide their outage programme for ensuing financial year to the SLDC for preparing an overall outage plan for State Transmission System as a whole. SLDC shall be responsible for analyzing the outage schedules of the SSGS, Discoms and STU schedule for outage of Transmission network and preparing a draft annual outage Plan for State Transmission System in coordination with the Outage Plan prepared for the region by the WREB.</p> <p>However, SLDC is authorised to defer the planned outage in case of any of the following events:</p> <ul style="list-style-type: none"> (a) Major grid disturbance (b) System Isolation (c) Black out in the State (d) Any other event in the system that may have an adverse impact on system security by the proposed outage <p>Each User shall obtain approval of SLDC, prior to availing the Outage. SLDC while releasing the any circuit for outage shall issue specific code. Similarly, no inter user boundary circuits shall be connected back to the State Transmission System the code without specific code/approval by SLDC.</p>
24.	11.4.6	<p>Scheduled outage of power stations and EHV transmission lines shall be affected only with the approval of WRLDC in co-ordination with SLDC.</p> <p>Scheduled outage of power stations of capacity 5 MW and above, of all EHV lines and HV lines (i.e. 33kV and 11kV lines) forming interconnection between two EHV sub-stations (and these notified as such by SLDC) shall be approved by Sub-LDC/SLDC, 24 hours in advance based on prevalent operating conditions.</p>
25.	Contingency Planning 12.2	<p>12.4 Restoration Procedure</p> <p>The procedure for restoration of State Transmission System shall be prepared by the SLDC for the following contingency and shall be in conformity to the System Restoration Procedure of the Western Region prescribed under IEGC.</p> <ul style="list-style-type: none"> (a) Total system black out (b) Partial System Blackout (c) Synchronisation of System Islands and System Split <p>The restoration process shall take into accounts the generator capabilities and the operational constraints of Regional and State Transmission System with the object of achieving normalcy in the shortest possible time. All Users are aware of the steps to be taken during major Grid Disturbance and system</p>

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		restoration process.
26.	12.5	<p>Special Considerations</p> <p>During restoration process following State Transmission System or Regional system blackout conditions, normal standards of voltage and frequency shall not apply. Distribution companies with essential loads will separately identify non-essential components of such loads, which may be kept off during system contingencies. Distribution Companies shall draw up an appropriate schedule with corresponding load blocks in each case. The non-essential loads can be put on only when system normally is restored, as advised by SLDC. All Users shall pay special attention in carrying out the procedures so that secondary collapse due to undue haste or inappropriate loading is avoided. Despite the urgency of the situation, careful prompt and complete logging of all operations and operational messages shall be ensured by all Users to facilitate subsequent investigation into the incident and the efficiency of the restoration process. Such investigation shall be conducted promptly after the incident.</p>
27.	Inter User Boundary Safety 13.3	<p>Designated Officers</p> <p>STU and all Users shall nominate suitably authorized persons to be responsible for the coordination of safety across that company boundary. These persons shall be referred to as Designated Officer.</p>
28.	Operational Event / Accident Reporting 14.3	<p>Reportable Incidents</p> <p>Any of the following events that could affect the State Transmission System requires reporting:</p> <ul style="list-style-type: none"> (a) Exceptionally high / low system voltage or frequency. (b) Serious equipment problem i.e. major circuit breaker, transformer or bus bar. (d) System split, State Transmission System breakaway or Black Start. (e) Tripping of Transmission Line, ICT (Inter connecting transformer and capacitor banks) (f) Major fire incidents. (g) Major failure of protection. (h) Equipment and transmission line overload. (i) Accidents-Fatal and Non-Fatal. (j) Load Crash / Loss of Load (k) Excessive Drawal deviations. (l) Minor equipment alarms.
29.	14.4	<p>Reporting Procedure</p> <p>14.4.1 Reporting Time for events and accidents</p> <p>(a) All reportable incidents occurring in lines and equipment of 33kV and above affecting the State Transmission System shall promptly be communicated by the User whose equipment has experienced the incident</p>

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		<p>(The Reporting User) to any other significantly affected Users and to SLDC.</p> <p>(b) Within 1 (one) hour of being informed by the Reporting User, SLDC may ask for a written report on any incident.</p> <p>(c) If the reporting incident cannot be classed as minor then the Reporting User shall submit an initial written report within two hours of asking for a written report by SLDC. This has to be further followed up by the submission of a comprehensive report within 48 hours of the submission of the initial written report.</p> <p>(d) In other cases the Reporting User shall submit a report within 5 (five) working days to SLDC.</p>
30.	14.4.2	SLDC may call for a report from any User on any reportable incident affecting other Users and STU, in case the same is not reported by such User whose equipment might have been source of the reportable incident. The above shall not relieve any User from the obligation to report events in accordance with IE Rules.
31.	14.6	<p>Major Failure</p> <p>Following a major failure, SLDC and other Users shall co-operate to inquire and establish the cause of such failure and produce appropriate recommendations. The SLDC shall report the major failure to Commission immediately for information and shall submit the enquiry report to the Commission within 2(two) months of the incident.</p>
32.	Standard Planning Data (Distribution)	<p>A.3.6 Load forecast data</p> <p>Peak load and energy forecast for each category of loads for each of the succeeding 5 years. Details of methodology and assumptions on which forecasts are based. If supply is received from more than one sub-station, the sub-station wise break up of peak load and energy projections for each category of loads for each of the succeeding 5 years along with estimated</p> <ul style="list-style-type: none"> • Daily load curve. • Details of loads 1 MW and above. • Name of prospective consumer. • Location and nature of load/complex. • Sub-Station from which to be fed. • Voltage of supply. • Phasing of load.

10.10.3 Central Electricity Authority (Grid Standard) 2010

Central Electricity Authority (Grid Standard) 2010																										
Sr. No.	Clause Ref.	Details																								
1.	3 (1)(a)	<p>Standards for Operation and Maintenance of Transmission Lines.-</p> <p>(1) All Entities, Appropriate Load Despatch Centres and Regional Power Committees, for the purpose of maintaining the Grid Standards for operation and maintenance of transmission lines, shall,-</p> <p>(a) make all efforts to operate at a frequency close to 50 Hz and shall not allow it to go beyond the range 49.2 to 50.3 Hz or a narrower frequency band specified in the Grid Code (Note: CERC has revised frequency band wef 02.04./2012 as 49.7 to 50.2 Hz), except during the transient period following tripping.</p>																								
2.	3 (1)(b)	<p>maintain the steady state voltage within the limits specified below in Table 1:</p> <table border="1"> <thead> <tr> <th>Nominal System Voltage (kV rms)</th> <th>Maximum (kV rms)</th> <th>Minimum (kV rms)</th> </tr> </thead> <tbody> <tr> <td>765</td> <td>800</td> <td>728</td> </tr> <tr> <td>400</td> <td>420</td> <td>380</td> </tr> <tr> <td>220</td> <td>245</td> <td>198</td> </tr> <tr> <td>132</td> <td>145</td> <td>122</td> </tr> <tr> <td>110</td> <td>121</td> <td>99</td> </tr> <tr> <td>66</td> <td>72</td> <td>60</td> </tr> <tr> <td>33</td> <td>36</td> <td>30</td> </tr> </tbody> </table>	Nominal System Voltage (kV rms)	Maximum (kV rms)	Minimum (kV rms)	765	800	728	400	420	380	220	245	198	132	145	122	110	121	99	66	72	60	33	36	30
Nominal System Voltage (kV rms)	Maximum (kV rms)	Minimum (kV rms)																								
765	800	728																								
400	420	380																								
220	245	198																								
132	145	122																								
110	121	99																								
66	72	60																								
33	36	30																								
3.	3 (1) (d)	<p>Ensure that the maximum permissible values of voltage unbalance shall be as specified in Table 3 below:-</p> <table border="1"> <thead> <tr> <th>Nominal System Voltage (kV rms)</th> <th>Voltage Unbalance (%)</th> </tr> </thead> <tbody> <tr> <td>765 and 400</td> <td>1.5%</td> </tr> <tr> <td>220</td> <td>2%</td> </tr> <tr> <td>33</td> <td>3%</td> </tr> </tbody> </table> <p>Provided that Bulk consumers shall avoid unbalanced load during operation: Provided further that the distribution licensees shall ensure that their loads are not unbalanced.</p>	Nominal System Voltage (kV rms)	Voltage Unbalance (%)	765 and 400	1.5%	220	2%	33	3%																
Nominal System Voltage (kV rms)	Voltage Unbalance (%)																									
765 and 400	1.5%																									
220	2%																									
33	3%																									
4.	3 (1) (h)	<p>Observe the following permissible limits of voltage fluctuation:-</p> <p>(i) the permissible limit of voltage fluctuation for step changes which may occur repetitively is 1.5 percent;</p> <p>(ii) for occasional fluctuations other than step changes the maximum permissible limit is 3 percent;</p>																								

Central Electricity Authority (Grid Standard) 2010		
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5.	6 (1) Coordination in Operations	(1) No Entity shall introduce or take out the element of the grid without the concurrence of the Appropriate Load Despatch Centre except in case of imminent risk of safety of plant and personnel in which case it must intimate Appropriate Load Despatch Centre giving reasons therefore.
6.	6 (2)	(2) The Appropriate Load Despatch Centre shall inform all affected parties of the outage.
7.	9 Automatic under frequency Relay.-	(1) All Entities shall set their under frequency (UF) Relays and rate of change of frequency with time Relays in their respective systems, in accordance with the plan made by the Regional Power Committee, to provide adequate load relief for grid security and ensure the operation of these relays at the set frequencies.
8.	10. Islanding Schemes	(1) The Regional Power Committees shall prepare Islanding schemes for separation of systems with a view to save healthy system from total collapse in case of grid disturbance. (2) The Entities shall ensure proper implementation of the Schemes referred to in sub-regulation (1).
9.	14. Restoration of grid following grid incident and grid disturbance.-	The Regional Load Despatch Centre, in consultation with Regional Power Committee, shall develop procedures for enabling restoration and normalisation of the Grid for inter-State system at the earliest, following grid incident and grid disturbance of the categories specified in regulation 11. (2) The State Load Despatch Centre shall also develop procedures accordingly for restoration of intra-State system. (3) The restoration procedures shall be reviewed following any addition of generating station or transmission line or at least once in two years, and revised, if considered necessary by the Regional Load Despatch Centre and State Load Despatch Centre, as the case may be. (4) The procedures specified in sub-regulations (1), (2) and (3) shall be made available to, and be followed by all concerned Entities, Regional Load Despatch Centres and State Load Despatch Centres.

10.10.4 Operating procedure for Western Region (June 2011)

Operating procedure for Western Region (June 2011)		
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1.	2.2.2.1	<p>It is therefore imperative that the exchanges between regions are contained to a level of ATC and in no case exceed the TTC between the regions. All the regional constituents will reduce their drawal to the level advised by WRLDC whenever such breach in TTC level among the regions takes place to ensure the grid security irrespective of frequency and schedule.</p>
2.	2.2.2.2	<p>1) Automatic Under Frequency Load Shedding Scheme.</p> <p>In line with clause 5.2(n) of IEGC, all SEBS, distribution licenses /STUs shall provide Automatic Under Frequency and df/dt load shedding in their respective system to arrest frequency decline that could result in a collapse / disintegration of the grid as per the scheme formulated by WRPC forum and shall ensure its effective application and functionality at all times to prevent cascade tripping of generating units in case of any contingency. All SEBs Distribution licensee SLDC shall ensure the above under frequency & df/dt load shedding/islanding schemes are always functional.....</p> <p>.....It is extremely important that there should be no overlapping between the areas covered by under frequency load shedding and that included in the manual load shedding plan as part of demand control.</p> <p>2) Automatic Under Voltage Relay Load Shedding Scheme</p> <p>In addition to AUFLS & df/dt scheme, automatic under voltage load shedding scheme to prevent voltage collapse in the system in WR as given as annexure -IV</p>
3.	2.2.2.3	<p>Congestion Management:</p> <p>(1) To relieve congestion in the real time, a congestion charge shall be applied as a commercial measure. The congestion charge will be payable by a Regional entity or entities causing congestion in the inter-regional link or intra-regional link and receivable by a Regional entity or entities relieving congestion</p> <p>(3) The congestion charge shall be payable by the overdrawing regional entity in addition to the Unscheduled Interchange charges which would be payable as per Central Electricity Regulatory Commission (Unscheduled Interchange charges and related Matters) Regulations, 2009 or any re-enactment thereof.</p>
4.	2.2.2.3.3	<p>Notice for application of congestion charge. When, in the opinion of the National/Regional Load Dispatch Centre, flow of electricity on an interregional/intra-regional corridor/ link used for transfer of electricity has crossed the ATC of such corridor/link, the NLDC/RDLC shall issue a warning notice to the defaulting entities. If the flow of electricity on the inter-regional /intra-regional corridor/ link exceeds the TTC, the NLDC/RDLC may, after notice through fax/voice message and through posting on its website and the common screen available on the Energy Management System, which is common to NLDC, RDLC and SLDCs, decide to apply congestion charge on</p>

Operating procedure for Western Region (June 2011)		
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		the defaulting entities from a particular time-block in accordance with regulation 4:Provided that notice of at least two clear time blocks shall be given by the Regional Load Dispatch Centre before congestion charge becomes applicable, not counting the time block in which the notice is issued.
5.	2.2.2.3.4	<p>Notice for withdrawal of congestion charge. When in the opinion of the National / Regional Load Dispatch Centre, flow of electricity on the affected- 5 - transmission link /corridor has come down to the ATC, it may, after notice through fax/voice message and through posting on its website and the common screen available on the Energy Management System, withdraw congestion charge from a particular time-block: Provided that notice of one time block shall be given by the Regional Load Dispatch Centre before congestion charge is withdrawn, not counting the time block in which the notice is issued.</p>
6.	2.2.2.4	<p>Operational area of importance</p> <p>v) All constituents would endeavour to operate the connected generation and reactive power management devices such as Capacitors, Reactors, Synchronous Condensers, Fixed Series Capacitors (FSCs), Static Var Compensators (SVCs) etc. in a manner which enables stable voltage behaviour at various points of the grid under different operating conditions.</p> <p>vi) All constituents would also maintain in good operating conditions of all control measures such as defence mechanism, SPS, U/F & U/V load shedding, AVR, PSS, FGMO, Operating reserves, emergency back-up power supplies etc., and ensure that the operational security standards are maintained for reliable and secured operation of the interconnected system.</p>
7.	3.1.1 Frequency Control	<p>3.1.1.1 Frequency Band</p> <p>All the regional constituents would make all possible efforts to ensure the maintenance of grid frequency within the normal IEGC band that is 49.7 to 50.2 Hz. This would be ensured by implementing following measures.</p> <p>i) Each SLDC shall regulate the load / own generation under its control so that it may not draw more than its schedule whenever the system frequency is below 49.7 Hz and less than its drawal whenever frequency is above 50.2 Hz.</p> <p>iv) In no case, a constituent would resort to over drawal at a frequency of 49.7 Hz and below. Similarly, no constituent would under drawal / ISGS generate more than schedule at frequency above 50.2 Hz.</p> <p>vi) Whenever frequency falls below 49.7 Hz, all partly loaded generating units, particularly of overdriving constituents shall pick up additional load to come back declining system frequency.</p> <p>vii)...when frequency is falling or is below 49.7 Hz. Similarly any user shall not cause a sudden variation of load by more than 100 mw without consent of WLRDC</p>

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8.	3.1.1.2	<p>Measures during high frequency conditions</p> <p>iii) All the constituents shall endeavour to ensure that their drawal from the grid is not less than their schedule by following actions:-</p> <ul style="list-style-type: none"> • Phase out scheduled load shedding • Surrender relatively high cost entitled power from ISGS through revision of schedules. • Follow merit order and conserve fuel by reducing or shutting down high cost generators including IPPs. • Explore additional export through STOA.
9.	3.1.1.3	<p>Measures during low frequency conditions</p> <p>iii) all the constituent endeavour to ensure that that their drawal from the grid not more than their schedule by maximizing generation in line with frequency link despatch guidelines, implement unscheduled/ distress load shedding. They may arrange to buy power through STOA to ensure drawal as per schedule.</p> <p>vi) Each regional constituent shall make arrangements that will enable manual demand disconnection to take place as instructed by WRLDC/SLDCs under normal and contingent conditions</p> <p>vii) In case of certain contingencies and / or threat to system security, WRLDC may direct SLDCs to decrease its drawal by a certain quantum. Such directions shall immediately be acted upon.</p>
10.	3.1.2.3the beneficiaries shall endeavour to minimize the VAR drawal at interchange point when the voltage at that point is below the nominal value and shall not inject VARs when the voltage above the nominal value. In fact, the beneficiaries are expected to provide local VAR compensation so that they do not draw any VARs from the grid during low voltage conditions and do not inject any VARs to the grid during high voltage conditions.
11.	3.1.4	<p>Operating Manpower</p> <p>The Control Centers of WRLDC, CPCC, SLDCs, Power plants, grid sub-stations(above 110kV) as well as any other control centres of regional constituents shall be manned / monitored round the clock by qualified and adequately trained manpower who would remain vigilant and</p>

Operating procedure for Western Region (June 2011)		
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		cooperative at all the times so as to maintain safe and secure grid operation.
12.	4.3	<p>The need for demand control arises on account of following conditions:</p> <ul style="list-style-type: none"> • Variation in demand from the estimated value (by more than 2%) which cannot be absorbed by the grid. • Unforeseen generation / transmission outages resulting in reduced power availability. • Heavy reactive power demand, particularly during Rabi load / high industrial activity causing low voltages • Critical loading on inter-regional corridors/flow gates • Commercial reasons
13.	4.3.3	<p>The constituents shall endeavour to restrict their net drawal from the grid to within their respective drawal schedule whenever the system frequency falls to 49.8 Hz in line with section 5.4.2(a) of IEGC. However, when the frequency falls below 49.7 Hz, requisite load shedding (manual) shall be carried out in the concerned State to curtail the over drawal in order to improve the frequency above 49.7Hz.</p>
14.	4.3.6	<p>(a)Demand response</p> <p>The SLDC through respective SEBs/Distribution licensees shall also formulate & implement state-of-art-demand-management scheme for automatic demand management like rotational load shedding, demand response (which may include lower tariff for interruptible load) etc. before 01.01.2011 to reduce over drawal...</p>
15.	4.3.6	<p>(b)Demand control would have to be exercised under low frequency conditions by taking the following actions by constituents.</p> <ul style="list-style-type: none"> • Scheduled load shedding as decided in OCCM/Board meetings. • Un-scheduled load shedding for the load generation balancing exercise which is planned for the following day • Distress load shedding due to load generation imbalance in real time leading to frequency going below 49.7 Hz. This will be carried out through already identified radial feeders.
16.	4.4	<p>Load Crash</p> <p>In the event of load crash in the system due to weather disturbance or other reasons, the situation would be controlled by SLDCs / ISGS by the following methods:-</p> <ul style="list-style-type: none"> • Lifting the load restrictions, if any.

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		<ul style="list-style-type: none"> • Exporting the power to neighbouring regions by STOA
17.	5.2	<p>Operational planning</p> <p>5.2.1.1. For the purpose of operational planning on annual basis, the year considered begins in July of the current year and extends till June next year</p> <p>5.2.2.2 The quarter October-December is having high demand in the grid due to onset of Rabi season when agricultural demand is predominant with many pump sets operating</p> <p>5.2.2.3 The quarter January-March will have high demand similar to that of previous quarter due to continuation of agricultural activities. The industrial demand would also be at its peak as this is the last quarter of the financial year and target needs to be achieved before the budget.</p> <p>5.2.2.4 The quarter April-June is having residential and commercial loads due to summer conditions</p>
18.	5.3	<p>5.3.1.2 The scheduled load shedding takes care of about 80% of the projected shortfall of the States and is given wide publicity.</p> <p>5.3.1.3 The scheduled load shedding is implemented in the following ways:-</p> <ul style="list-style-type: none"> • Statutory cut on the maximum demand of high tension and low tension industries • Statutory cut on the consumption of high tension and low tension industries • The rural feeders are arranged into groups and each group is shed for 8-12 hours in a day with number of groups shed at any point of time. • Load shedding in urban areas for 1 ½ to 3 hours in a day during morning and evening peak hours. • Single phasing through which the agricultural load and residential / commercial loads in the rural areas are separated and only three phase loads are subjected to shedding. • Staggering of holidays through which power supply to a particular is totally cut for about 12 hours. • Recess staggering through which the lunch break and shift timings are staggered.
19.	5.3	<p>5.3.2 Unscheduled Load Shedding</p> <p>5.3.2.1 The unscheduled load shedding is effected through different set of feeders other than those selected for scheduled load shedding.</p> <p>5.3.2.2 Unscheduled load shedding is done only when the frequency dips below the acceptable level.</p> <p>5.3.2.3 Since unscheduled load shedding is not announced before hand to the</p>

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		<p>public such load shedding gets maximum public resentment.</p> <p>5.3.3 Distress Load Shedding</p> <p>5.3.3.1 In case of sudden loss of generation / breach of TTC / grid contingency, distress load shedding is carried out immediately to ensure security of the grid.</p> <p>5.3.3.2 The distress load shedding is carried out by tripping of identified 66/132/220kV radial feeders which are opened by emergency call from State Load Despatch Centre.</p> <p>5.3.4 Automatic Under Frequency Load Shedding (AUFLS)</p> <p>5.3.4.1 AUFLS is basically defence mechanism against disturbances and includes both discrete relays and trend relays.</p> <p>5.3.4.2 The approved AUFLS scheme in Western region and the recommended df/dt with changed scenario in NEW grid is enclosed at Annex-III.</p>
20.	7.2.8	<p>While approving / consenting the STOA application, WRLDC shall check primarily the following points of relevance.</p> <p>3) consent from all the relevant utilities and RLDCs</p>
21.	7.3.3	<p>1) the revision in the advance & FCFS STOA category is allowed with two days' advance notice</p> <p>2) No revision in day ahead & contingency</p>
22.	7.3.5	No post-facto revisions of schedule would be carried out on account of bilateral transactions.
23.	7.4	<p>STOA curtailment</p> <p>During transmission constraints, the STOA transactions will be curtailed first to ease the congestion. Open access bilateral transactions would generally be curtailed first followed by the collective transactions. The curtailment will be done on pro-rata basis.</p> <p>As per IEGC 2010 real time revision are permissible in STOA, where a generator of capacity of 100 MW and above is seller, the generator shall immediately intimate the same along with the requisition for revision of schedule and estimated time of restoration of the unit, to SLDC/RLDC as the case may be. Consent of buyer shall not be the prerequisite for such revision of schedule. The schedule of the generator and the buyer are revised accordingly. The revised schedule shall become effective from the 4th time block, counting in which the forced outage is declared to be the first one. The RLDC shall inform revised schedule to the buyer and seller. The original schedule shall become effective from the estimated time of restoration of the unit. However the transmission charges as per original schedule shall continue to be paid for 2 days.</p>
24.	8.2.2	The power system under each SLDC constitutes a notional control area and hence the State would be required to maintain their actual drawal from the grid

Operating procedure for Western Region (June 2011)		
Sr. No.	Clause Ref.	Details
		close to such net drawal schedule by regulating own generation and / or load, particularly when frequency falls to 49.8Hz and going above 50.2 Hz
25.	8.2.4	Clause 5.2. (m) of IEGC stipulates the grid frequency operation in the band of 49.7-50.20 Hz, however, for the safety and security of the system operation, the normal range of desirable frequency is 49.8-50.2 Hz. The state shall initiate action to restrict the drawal of its control area from the grid whenever the frequency falls to 49.8 Hz and do not under drawal whenever the frequency is above 50.2 Hz provided that when the frequency is higher than 50.2 Hz, the actual net injection shall not exceed the scheduled despatch for that time block.
26.	17	<p>Scheduling of medium term open access transaction</p> <p>a. Under utilisation of transmission capacity</p> <p>In case it is observed by RLDC that the MTOA customer request for scheduling is consistently (for more than 5 days) lower than the capacity granted by the nodal agency (i.e. CTU) RLDC may issue a notice to such MTOA customer asking the reason for such under utilisation. The MTOA customer shall furnish the reason for such under utilisation and will period such details like reduce requirement, likely period etc. by the following day.</p>

10.10.5 Recovery procedure for Western Region (April 2011)

Recovery procedure for Western Region (April 2011)		
Sr. No.	Clause Ref.	Details
1.		Recovery procedure for Western Region (April 2011)
2.	3.6	(i) Constituent-wise priorities of load which are to be connected in steps should be well documented and while restoring loads, essential loads such as railway traction loads, underground coal mines/deep gassy mines, Air Port, TV station, Telephone exchange, hospital, pumping stations etc., should be given priority depending on available generation on bar.
3.	Chapter-5	Restoration procedures for Madhya Pradesh

10.10.6 Madhya Pradesh Electricity Balancing and Settlement Code, 2009

Madhya Pradesh Electricity Balancing and Settlement Code, 2009		
Sr. No.	Clause Ref.	Details
1.	3.1; 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)
2.	3.1; 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)
3.	4.1	Respective Entity shall ensure adequate Infrastructure and Capability development to fully implement this Code:
4.	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.
5.	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
6.	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.
7.	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.
8.	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.
9.	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-

Madhya Pradesh Electricity Balancing and Settlement Code, 2009		
Sr. No.	Clause Ref.	Details
		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 Scheduled Drawals of the Discoms shall be deemed to have been revised to be equal to their Actual Drawals.
10.	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.
11.	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.
12.	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
13.	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.
14.	Page 9	<p>Scheduling timelines</p> <ul style="list-style-type: none"> • DCC should intimate its demand for the next day by 12:00 hrs to MP Tradeco • MP Tradeco in consultation with Discoms shall perform demand-supply matching for each Discom. DCC should provide necessary inputs to MP Tradeco during 13:00 - 14:00 hrs. • DCC may modify the schedules, if any from 18.00-21:30 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 MP Tradeco. / respective Discom
15.	7	Energy Accounting and Settlement:
16.	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

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Madhya Pradesh Electricity Balancing and Settlement Code, 2009		
Sr. No.	Clause Ref.	Details
		shall finalise the same within another five (5) days.
17.	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
18.	9	<p>Data Archiving Requirements: DCC shall keep records for</p> <ul style="list-style-type: none"> • Demand, Entitlement and Requisition (all revisions) • Short-term Open Access transactions: Bilateral transactions (direct and through Traders) and Collective transactions through Power Exchanges • Schedules of ISGS, SSGS, Discoms, Open Access Customers (all revisions) • Any other information deemed necessary for Operational, Commercial or Market Audit purpose

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10.10.7 CERC (Unscheduled Interchange charges and related matters)
Regulations, 2009 and its amendment dated 05.03.2012

Please refer Annexure H: UI Rates (Page no. 152) and Annexure I: UI Cap rates and Additional UI rates (Page no. 154).

10.10.8 Madhya Pradesh Electricity Distribution Code

Madhya Pradesh Electricity Distribution Code		
Sr. No.	Clause Ref.	Details
1.	2.1 Definitions	DSOCC -Distribution System Operations Control Centre established by Distribution licensee having adequate communication facilities including SCADA (Supervisory control and data acquisition).
2.	5.2	Distribution Planning
3.	7.2 Demand estimation	<p>7.2.1 The Licensee shall estimate its requirement (demand and energy) for 15 minutes blocks at Transmission - Distribution Interface points on day-ahead/week-ahead/month-ahead basis based on following inputs:</p> <ul style="list-style-type: none"> (a) Historical information (b) Requirement from EHT and HT Consumers /Open access consumers (c) The generators connected to distribution system shall furnish their availability on 15 minutes basis at least 10 days before the commencement of the each calendar month or as required as per the Balancing and Settlement Code specified by the Commission. (d) Reasonable estimation of system losses
4.	7.2.2	The Licensee shall maintain adequate historical data and shall use scientific techniques / methods for demand estimation.
5.	7.2.3	<p>Revision of Demand Forecast</p> <p>When certain events occur changing the circumstances and necessitating revision of Demand Forecast, the revised values of demand shall be promptly intimated</p> <ul style="list-style-type: none"> (a) by Users to the Licensees by Fax, immediately after revision (b) by the Licensees to STU by Fax, immediately after revision <p>The revised values hold good for the balance period of a day, a week or a month as relevant and supersede the data originally furnished.</p>
6.	7.3.1	<p>The Licensee shall carry out annual /half yearly/quarterly/monthly maintenance works on</p> <p>all equipment such as:</p> <ul style="list-style-type: none"> (c) The Licensee shall coordinate the maintenance works of all Sub-stations with STU maintenance works so as to minimize interruptions
7.	7.4.1 Outage planning	The licensee shall furnish a proposed outage program to the SLDC/Sub-LDC for next financial year by 30th November of each year.
8.	7.4.2	The outage programme shall contain identification of lines and equipment of distribution system (not below 11 kV system) proposed to be taken out of service, date of start of outage, duration of outage and quantum of load restricted at any interconnection point during outage. Further the licensee shall get the information

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Madhya Pradesh Electricity Distribution Code		
Sr. No.	Clause Ref.	Details
		published in newspapers about the shut downs of the system one day prior to its occurrence.
9.	7.4.3	After the SLDC/Sub-LDC releases the finally agreed transmission outage plan by 1 st March of each year, the outage plan by the licensee shall be released by 31st March so as to coincide distribution system outage with it.
10.	7.4.4	Before any lines or equipment of 11 kV and above (except Distribution transformers) are taken out of service, the licensee shall obtain consent of the designated officer of the SLDC/Sub-LDC even though the same is already included in the approved plan.
11.	7.4.6	<p>The above procedure shall not apply under the following circumstances:</p> <ul style="list-style-type: none"> i) In cases where the estimated drawal at interconnection point is not affected; ii) Emergency situations to save plant and machinery; iii) In case of unforeseen emergency situations requiring isolation of line or equipment to save human life; iv) Disconnection to be effected on any user's or consumer's installation due to violation of agreement. <p>In such cases the SLDC shall be informed wherever the load to the extent of 5 MW or more is affected.</p>
12.	7.4.7	<p>Outage of Users' Plant</p> <p>All Users shall submit their tentative outage plans to its Licensee by 20th October each year. The HV and EHV Consumers, small Generators and CPPs shall each indicate three options of the date of commencement of outage - first, second and third preference. The Licensees shall harmonize the outage plan of distribution system elements and the Users outages and the comprehensive outage plan shall be communicated to the Users by 10th November. The Licensee shall endeavour to accommodate the first preference dates of outage commencement of the Users. By 20th November the Users shall convey either their acceptance of the revised programme (if revised by the Licensee) or their inability to accept the same. The Licensee shall further revise the outage plan incorporating the requirements of all Users by 25th November. The Licensee may convene coordination meetings with the Users before the second revision.</p>
13.	7.4.8	<p>Implementation of Distribution Outage Plan On receipt of final verified overall Outage Plan as agreed by all users from STU on 1st March, each Licensee shall prepare a list of outages which involve interruption of supply to its areas/large consumers. The Licensees shall intimate the Consumers of the date and time of interruption. Area interruption is to be announced in the media while large Consumers and Organizations which cater essential loads shall be intimated individually. A list of essential loads is given in Annexure-3 of this section. However maximum effort shall be made to arrange alternate feeding to essential loads. If interruption is inevitable, the duration shall be minimized. The Licensees shall synchronize outages for maintenance of 33/11kV Transformers, 33kV and</p>

Madhya Pradesh Electricity Distribution Code		
Sr. No.	Clause Ref.	Details
		11kV lines, Distribution Transformers and LV lines with one another and with the Transmission outages involving interruption of supply. That is, maintenance works from upstream to downstream points of power flow in the total system(up to 33 KV lines and 33/11 KV sub-stations) shall be carried out in one interruption, wherever alternate feeding cannot be arranged. The Licensees shall take action to draw additional power from the transmission system during outages of small Generators and CPPs. The Licensees shall transmit the relevant parts of the final verified overall outage plan to its Users immediately, after it is received from STU.
14.	7.4.9	<p>Specific Release from SLDC before Actual Shut-down Not withstanding any approved outage plan the Licensee shall not take any feeder or equipment out of service nor permit any small Generator to shut-down without specific release from SLDC unless:</p> <ul style="list-style-type: none"> (a) The drawal at any connection point does not increase beyond the scheduled value (b) The shut-down will not lead to avoidable repeated interruption to Consumers' loads <p>Even in cases (a) and (b), SLDC or the relevant EHV Sub-station shall be informed telephonically before the shut-down operations are conducted.</p>
15.	7.5.1	<p>Contingency Mitigation and Contingency Averting</p> <ul style="list-style-type: none"> (a) The Licensee and the Users shall have standing joint action procedures for responding to: <ul style="list-style-type: none"> (i) An impending emergency/blackout, when alerted, with a view to avert the emergency; (ii) Grid Warnings from SLDC to meet an impending emergency by conducting necessary operations efficiently with an objective to minimize the impact of the contingency; (iii) Urgent requests for emergency load relief by pre-planned programmes to arrange load relief with minimum disruption to essential loads and process industries. This action may avert system collapse due to low frequency. This issue is dealt in detail in section 7.5 (b) The Licensees shall pass on the advance warnings received from SLDC to selected Users.
16.	7.5.1	<p>(c) Establishment of the Distribution System Operations Control Centre (DSOCC):</p> <p>All Licensees shall identify important 33kV Sub-station(s) which is / are strategically located near the geographic centre and load centres of each Licensee's supply area to act as Distribution System Operations Control Centre (DSOCC) having adequate communication facilities including SCADA (Supervisory control and data acquisition). The DSOCC shall be manned round the clock with additional shift staff during emergency periods. The action to be</p>

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Madhya Pradesh Electricity Distribution Code		
Sr. No.	Clause Ref.	Details
		taken as a response to the Grid Warnings from SLDC as decided by the Managers of the Distribution Licensee shall be conveyed to the operation staff by the DSOCC. Standing instructions may also be spontaneously followed by DSOCC by conveying remedial actions and standard responses to various stations and Officers in various situations. DSOCC shall be responsible to coordinate with SLDC and for receiving instructions regarding blackout management, emergency operating instructions, restoration etc.
17.	Demand Management or Load Shedding 7.6.1	Load shedding shall be carried out by the Licensees promptly whenever requisitioned by SLDC for maintaining load-generation balance and system frequency.
18.	7.6.2	Advance information from SLDC will enable preparation for load shedding by the Licensees with minimum disruption and minimum inconvenience to Users.
19.	7.6.3	Amount of Load Shedding required at any time shall be assessed as per (i) The information and instructions received from SLDC and (ii) The system frequency as indicated by the frequency meters installed at DSOCC and other locations The quantum of load shedding depends on the amount of generation shortage and expressed as a percentage of existing load.
20.	7.6.4	The nature of load shedding may be classified as under: (i) Temporary, one time basis (ii) Repetitive and periodic (e.g. a given amount of load to be shed during peak load hours every day) (iii) Continuous, till a new generating station or a new power transformer is commissioned or (iv) Emergency basis (unforeseen cause) The load relief is therefore specified by a percentage of existing load or by the amount of load in MW to be shed and the duration and commencement time and whether one time, repetitive continuous or periodic
21.	7.6.5	Communication of Load Relief Requirement The Licensee shall communicate the requirements of load relief using DSOCC and media. DSOCC shall inform all 33kV sub-stations, which shall in-turn intimate the users in their jurisdiction of supply in case of scheduled load shedding. If necessary, load relief operations may be conducted in the sub-stations by tripping 11kV feeders. Load shedding planned in advance (day earlier etc) shall be published in the newspaper widely circulated in the area where intended load is to be shed
22.	7.6.6	Guiding Principles

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Madhya Pradesh Electricity Distribution Code		
Sr. No.	Clause Ref.	Details
		The total load relief required in the Licensee's area is to be spread in the entire area and to be distributed among maximum number of consumers so that the impact is mitigated. Also when long term load relief is required rotational load shedding should be resorted to. To the extent possible essential loads and process industries to be exempted. The Licensee shall study the behaviour of its system especially under ABT and try to establish links between grid frequency and load shedding time such as to minimize unscheduled load shedding under low grid frequency conditions.
23.	7.9.1	At the Distribution System Operations Control Centre an additional set of fire fighting equipment shall be provided.
24.	7.11	<p>Monitoring and Control of Voltage, Frequency and Power Factor</p> <p>(v) The licensee shall abide by the instructions issued by the SLDC from time to time on load management for maintaining frequency of supply within specified limits.</p> <p>(vi) Unfair action by SLDC or WRLDC: If a particular Licensee promptly arranges load relief as required by SLDC but SLDC and WRLDC fail to obtain proportionate relief in the systems of other Licensees and States which is proved by lack of improvement of frequency despite load shedding in the Licensee's area, the matter shall be reported by the Licensee to MPERC or CERC depending on whether the default has occurred within Madhya Pradesh or in another State under the jurisdiction of Western Region respectively.</p>
25.	7.12.2	<p>Communication</p> <p>Reliable communication links shall be established for exchange of data, information and operating instructions between the licensees and consumers with a Demand of more than 5MW, generators connected to distribution system and the SLDC.</p>

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

Madhya Pradesh Electricity Distribution Code																										
Sr. No.	Clause Ref.	Details																								
26.	Annexure-3	<p>Essential load</p> <table border="1"> <thead> <tr> <th>Priority</th><th>Type of Load</th></tr> </thead> <tbody> <tr><td>1</td><td><blank></td></tr> <tr><td>2</td><td>Mining</td></tr> <tr><td>3</td><td>Railways (Traction)</td></tr> <tr><td>4</td><td>Ports & Important Industrial Loads</td></tr> <tr><td>5</td><td>Important cities</td></tr> <tr><td>6</td><td>Hospitals, Water Works, TV and Radio Stations</td></tr> <tr><td>7</td><td>Process Industries</td></tr> <tr><td>8</td><td>Defence Establishments</td></tr> <tr><td>9</td><td>Telecommunication Exchanges/Stations</td></tr> <tr><td>10</td><td>Police Stations</td></tr> <tr><td>11</td><td>Fire Stations</td></tr> </tbody> </table>	Priority	Type of Load	1	<blank>	2	Mining	3	Railways (Traction)	4	Ports & Important Industrial Loads	5	Important cities	6	Hospitals, Water Works, TV and Radio Stations	7	Process Industries	8	Defence Establishments	9	Telecommunication Exchanges/Stations	10	Police Stations	11	Fire Stations
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10.10.9 MPERC (Terms and Conditions for Intra-State Open Access in Madhya Pradesh) Regulations, 2005

MPERC (Terms and Conditions for Intra-State Open Access in Madhya Pradesh) Regulations, 2005		
Sr. No.	Clause Ref.	Details
1.	2.1	“Reserved distribution capacity” means the power transfer allowed (in MW) between the specific point(s) of injection and point(s) of drawal allowed to a short-term customer on the distribution system depending on availability of distribution capacity and the expression “reservation of distribution capacity” shall be construed accordingly.
2.	8.2	The nodal agency for arranging all types of short-term open access, such as transmission or distribution or combination of both, shall be State Load Despatch Centre who shall nominate the officer not below the rank of Superintendent Engineer to receive and respond to the request of open access customers.
3.	8.3	The transmission and the distribution licensees operating in the State shall also nominate the officers not below the rank of Superintending Engineer to co-ordinate with the STU for processing the open access applications
4.	8.8	A customer intending to avail open access shall also submit a copy of his application to the distribution licensee who is supplying electricity to him or in whose area of supply, the point of drawal lies
5.	8.11	The nodal agency shall forward a copy of the application to the transmission licensee and to the distribution licensee who is supplying electricity or in whose area of supply, the point of drawal lies
6.	9	Time Schedule for Processing Application
7.	11.1	Notwithstanding anything contained in these regulations, the State Load Despatch Centre may on its own reduce or cancel the reserved transmission and/or distribution capacity of a short-term customer when such a short-term customer frequently underutilises the reserved transmission and/or distribution capacity
8.	15.1	Bills against charges mentioned in clause 13 shall be prepared by the licensee concerned or the SLDC, as the case may be. The open access customers shall pay these bills directly to the entity raising such bills
9.	16.5	Reading of main and check meters shall be taken periodically at appointed day and time by authorized officer of the concerned licensee, the generator and the customer or his representative, as the case may be. Meter reading shall be communicated to SLDC, the open access customer, and the generating company or trader, as the case may be, by the licensee, within 24 hours of meter reading
10.	18.2	An open access customer shall have facilities of telephone, fax and email. The details of their communication systems shall be provided to the SLDC and the

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

MPERC (Terms and Conditions for Intra-State Open Access in Madhya Pradesh) Regulations, 2005		
Sr. No.	Clause Ref.	Details
		nodal agency.
11.	18.11	For the success of open access implementation, it is imperative that the licensees and the SLDC carry out information exchange among themselves on a daily basis to determine the level of open access transactions in their respective areas of supply, with emphasis on energy flows, load on transmission and distribution lines and equipments to determine system stability, available capacity, congestions in the networks, etc.
12.	18.12	The licensee must use all reasonable endeavours to ensure that the quality of supply standards as prescribed by the Commission under section 57 of the Act, the Indian Electricity Grid Code and the MP Electricity Grid Code are met in respect of all open access users of its network, to the extent these quality parameters are applicable to such users.

10.10.10 CERC (Measures to relieve congestion in real time operation) Regulation, 2009

CERC (Measures to relieve congestion in real time operation) Regulation, 2009		
Sr. No.	Clause Ref.	Details
1.	4	(3) The congestion charge shall be applicable to the overdrawing/under drawing/over-injecting/under-injecting regional entity in addition to the Unscheduled Interchange charges which would be payable / receivable as per Central Electricity Regulatory Commission (Unscheduled Interchange charges and related Matters) Regulations, 2009 or any re-enactment thereof.
2.	6	Notice for application of congestion charge: When, in the opinion of the National/Regional Load Despatch Centre, flow of electricity on an interregional /intra-regional corridor/ link used for transfer of electricity has crossed the ATC of such corridor/link, the NLDC/RLDC shall issue a warning notice to the defaulting entities. If the flow of electricity on the inter-regional /intra-regional corridor/ link exceeds the TTC, the NLDC/RLDC may, after notice through fax/voice message and through posting on its website and the common screen available on the Energy Management System, which is common to NLDC, RLDC and SLDCs, decide to apply congestion charge on the defaulting entities from a particular time-block in accordance with regulation 4
3.		Suo moto order dated 8.1.2010 Rate of Congestion charge in real time operation in inter-State transmission of electricity by CERC
4.	4	Congestion charge is proposed to be fixed at Rs 5.45/kWh which will be applicable to all regions
5.	5	At frequency below 50 Hz, congestion charge would be levied for overdrawal in the importing control area and at frequencies above 50 Hz, congestion charge would be levied for under-drawal in the exporting control area.

10.10.11 CERC (Open Access in inter-State Transmission) Regulations, 2008

CERC (Open Access in inter-State Transmission) Regulations, 2008		
Sr. No.	Clause Ref.	Details
1.	2 (h)	“intra-State entity” means a person whose metering and energy accounting is done by the State Load Despatch Centre or by any other authorized State utility;
2.	8 (1)	Wherever the proposed bilateral transaction has a State utility or an intra-State entity as a buyer or a seller, concurrence of the State Load Despatch Centre shall be obtained in advance and submitted along with the application to the nodal agency. The concurrence of the State Load Despatch Centre shall be in such form as may be provided in the detailed procedure.
3.	8 (2)	When a State utility or an intra-State entity proposes to participate in trading through a power exchange, it shall obtain a “no objection” or a prior standing clearance from the State Load Despatch Centre in such form as may be prescribed in the detailed procedure, specifying the MW up to which the entity may submit a buy or sell bid in a power exchange.
4.	20 (2)	Based on net metering on the periphery of each regional entity, composite UI accounts shall be issued for each regional entity on a weekly cycle and transaction-wise UI accounting, and UI accounting for intra-State entities shall not be carried out at the regional level.
5.	20 (4)	Any mismatch between the scheduled and the actual drawal at drawal points and scheduled and the actual injection at injection points for the intra-State entities shall be determined by the concerned State Load Despatch Centre and covered in the intra-State UI accounting scheme.
6.	20 (5)	Unless specified otherwise by the concerned State Commission, UI rate for intra-State entity shall be 105% (for over-drawals or under generation) and 95% (for under-drawals or over generation) of UI rate at the periphery of regional entity.

10.10.12 Aggregate revenue requirement and retail supply tariff order for FY 2011-12

Aggregate revenue requirement and retail supply tariff order for FY 2011-12																	
Sr. No.	Clause Ref.	Details															
1.	1.30	<p>The Commission while issuing the tariff order for FY 2010-11 had sought the details of supply hours to various areas and had accordingly directed the Distribution Licensees of the State to maintain the minimum assured daily supply hours as given below:</p> <ul style="list-style-type: none"> (a) Commissionary Headquarters - 22 Hours (b) District Head Quarters - 19 Hours (c) Tehsil Headquarters - 14 Hours (d) Rural Areas - 12 Hours (Out of which Minimum for 06 (Six) Hours Three Phase supply is to be maintained.) 															
2.	1.31	<p>The Commission again directs the Licensees' to maintain minimum supply hours in accordance with above. The Commission may consider reduction in the fixed charges proportionately if the minimum supply hours as specified are not maintained by the Discoms.</p>															
3.	3.31	<p>Loss Targets (in %) as per the Regulations:</p> <table border="1"> <thead> <tr> <th>Loss Targets</th> <th>2011-12</th> <th>2012-13</th> </tr> </thead> <tbody> <tr> <td>East Discom</td> <td>27%</td> <td>24%</td> </tr> <tr> <td>West Discom</td> <td>24%</td> <td>22%</td> </tr> <tr> <td>Central Discom</td> <td>29%</td> <td>26%</td> </tr> <tr> <td>State</td> <td>26.45%</td> <td>-</td> </tr> </tbody> </table>	Loss Targets	2011-12	2012-13	East Discom	27%	24%	West Discom	24%	22%	Central Discom	29%	26%	State	26.45%	-
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4.	3.53	<p>The merit order has also revealed that in some months the availability remained partly unutilized by the Discoms even after considering the intra-Discom trade. The Commission suggests that the Discoms should use this surplus energy for banking with other States so that the shortfall, if any, in the requirement in the Rabi season could be met from such banked power itself i.e. without any cost implications. The Commission expects that the Discoms would avail the opportunity of inter-State trading of surplus power only after fully meeting demand of their consumers.</p>															
5.	12 th Meeting of FOR 11th - 12 th .06.09	<p>The Forum deliberated on the recommendations of the Standing Committee on Energy and decided that SERCs should not permit in ARR (w.e.f. 01.08.2009) the inclusion of 'additional UI charge' imposed on the utilities under CERC's UI Regulations for overdrawl during the time blocks when frequency was below 49.2 Hz</p>															

SOP FOR DISTRIBUTION CONTROL CENTRES OF MP

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