



MP POWER TRANSMISSION COMPANY LIMITED

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No.07-05/SG-9B-II/1269

Jabalpur, dated 02-07-2010

To

Sub: Minutes of 19th meeting of Operation and Coordination Committee of MP.

Dear Sir,

Please find enclosed herewith the minutes of 19th meeting of the Operation and Coordination Committee of MP held on 04th May 2010 at SGTPS, Birsinghpur. The minutes are also available on the website of SLDC.

Thanking you.

Yours faithfully,

(P.A.R. Bende)
Member Secretary, OCC
S.E.(LD-OPN), SLDC
MPPTCL, Jabalpur

Encl : As above.

Distribution List

The Officer on Special Duty (T&C), MP Power Transmission Co. Limited, Jabalpur.	The Superintending Engineer (DCC-WZ), DISCOM Control Centre, MP Paschim Kshetra Vidyut Vitaran Co. Limited, Near Polo Ground, Jail Road, Indore.
The Chief Engineer (S/S), MP Power Transmission Co. Limited, Jabalpur.	The Executive Engineer (DCC-EZ), DISCOM Control Centre, MP Poorva Kshetra Vidyut Vitaran Co. Limited, Jabalpur.
The Chief Engineer (Power System), MP Power Transmission Co. Limited, Jabalpur	The Additional General Manger (LM), DISCOM Control Centre, MP Madhya Kshetra Vidyut Vitaran Co. Limited, Bhopal.
The Executive Director (O&M:Gen.), MP Power Generating Co. Limited, Jabalpur.	The Chief Engineer (PM&C), Narmada Hydroelectric Development Corpn. Ltd, NHDC Parisar, Shamlia Hills, Bhopal – 462013.
The Chief Engineer (O&M:Hydel), MP Power Generating Co. Limited, Jabalpur.	The General Manager, Indira Sagar Power Station, NHDC Office complex, PO : Narmada Nagar, Distt : Khandwa (MP) – 450 119.
The Chief General Manager (Comml.), MP Power Trading Company, Jabalpur.	The General Manager, Omkareshwar Power Station, Prashnik Bhawan, Urja Vihar, Sidhwarkut, Distt : Khandwa (MP) – 450 554.
The Addl Superintending Engineer, Sub Load Despatch Centre, MPPTCL, Indore	The Executive Director (Gen), Sanjay Gandhi Thermal Power Station, Birsinghpur.
The Executive Engineer, Sub Load Despatch Centre, MPPTCL, Bhopal	

MINUTES OF 19TH MEETING OF OPERATION & COORDINATION COMMITTEE OF MP HELD ON 4TH MAY 2010 AT SGTPS, BIRSINGHPUR.

The 19th meeting of Operation & Co-ordination Committee of MP was held on 4th May 2010 at Sanjay Gandhi Thermal Power Station, Birsinghpur, hosted by MPPGCL. The list of participants is enclosed at Annexure-1.0.

The meeting was commenced after lighting of lamp by Shri S.B. Singh, Executive Director, SGTPS, Birsinghpur. He has extended warm welcome to the participants of the OCC meeting representing various power utilities of MP and SLDC, Jabalpur. He requested Shri P.A.R. Bende, Member Secretary, OCC to take up further proceedings and wished that the discussions in 19th OCC Meeting would be fruitful. Member Secretary, OCC welcomed the members and participants of the 19th OCCM. He expressed his gratitude and thanked Shri S.B. Singh, Executive Director for consenting to host 19th OCCM at SGTPS, Birsinghpur. He further thanked Shri S.C. Shukla, SE and Shri S.M. Solapurkar, SE and their team of executives for making excellent arrangement for transport, stay and venue of the meeting.

Referring to system operation, Member Secretary, OCC stated that the system frequency was within the permissible range of 49.2-50.3 Hz above 92% of the time during the period January to March 2010. He further stated that the revised IEGC has become effective from 3rd May 2010 and the frequency band has been narrowed down from 49.2-50.3 Hz to 49.5-50.2 Hz. The UI regulation has also been amended and now overdrawal below 49.5 Hz shall attract 40% additional UI of the UI charge of Rs 8.73/kwh corresponding to grid frequency 49.5 Hz and overdrawal below 49.2 Hz shall attract 100% additional UI, whereas underdrawal in excess of 10% has been capped at Rs. 4.03 corresponding to UI rate at 49.70 Hz. Similarly for under injection in the frequency band 49.5 Hz to 49.2 Hz, the additional UI charge shall be 20% of the UI charge of Rs 8.73/kwh corresponding to grid frequency 49.5 Hz, the same shall be 40% of the UI charge of Rs 8.73/kwh below frequency 49.2 Hz. He expressed the need for greater grid discipline among utilities so that Grid security is ensured.

After initial briefing, the agenda items have been taken up for discussion by the members.

ITEM NO. 1 : CONFIRMATION OF MINUTES

The Member Secretary, OCC stated that the Minutes of 18th meeting of Operation & coordination committee of MP held on 28.01.2010 at Bhopal were posted on the SLDC website and informed to the committee members vide letter no. 07-05/SG-9B-II/464 dated 19.03.2010. No comments have been received. The minutes of the 18th meeting of Operation & coordination committee of MP have been confirmed by the Committee.

ITEM NO. 2 : REVIEW OF SYSTEM OPERATION DURING THE MONTH OF JANUARY TO MARCH 2010.

2.1 Frequency Particulars

The brief details of frequency profile as given in Annexure 2.1 of the agenda was discussed. The same is reproduced hereunder :

Month	Average frequency	minimum integrated frequency over an hour	maximum integrated frequency over an hour	instantaneous minimum frequency	instantaneous maximum frequency
Jan 10	49.71 Hz	49.13 Hz	50.65 Hz	48.79 Hz	51.08 Hz
FEB 10	49.85 Hz	49.32 Hz	50.41 Hz	48.84 Hz	50.59 Hz
MAR 10	49.61 Hz	48.93 Hz	50.68 Hz	48.8 Hz	50.69 Hz

2.2 Operational Matters

2.2.1 Operational Discipline

The Member Secretary, OCC stated that the frequency profile during March 2010 was poorer than previous two months. The system operated in terms of frequency profile for the period January 2010 to March 2010 is as given below:

Month	% of time Frequency Below 49.2 Hz	% of time Frequency above 50.30 Hz	% of time frequency within the permissible range of 49.2-50.3 Hz	The average monthly frequency	No. of times frequency dipped below 48.8 Hz
Jan-10	3.43	1.50	95.07	49.71	4
Feb-10	0.35	1.63	98.37	49.85	0
Mar-10	5.99	1.71	92.30	49.61	44

The instances of significant violation of IEGC by the DISCOMs by overdrawing at frequency below 49.2 Hz during the month of January to March 2010 were detailed in the Annexure 2.2.1 attached with the agenda. It was informed that during March 2010 the total number of blocks in which violation at frequency 49.2 Hz and below was noticed for 137 blocks by East DISCOM and 138 blocks by West DISCOM, while Central DISCOM has violated for 23 time blocks. The details of violation is as given hereunder :

MONTH	East Discom	Central Discom	West Discom	Total
Jan-10	13	4	19	36
Feb-10	1	0	2	3
Mar-10	137	23	138	298

The representative of Central DISCOM has pointed out that the violation is based on the schedule/drawal data as displayed by the SCADA system and there may be some variation at actual energy meter data. MS OCC informed that the idea is to identify the consistent and large scale violation so that the defaulting entity takes appropriate action to maintain grid security.

The MS, OCC requested all DISCOMs to maintain their drawal within the schedule to avoid any violation of grid discipline as there is heavy penalty for overdrawing at low frequency and the Congestion charge may also be levied on the under drawing DISCOM as per the CERC regulation . The DISCOMs have agreed to follow grid discipline.

2.3.1 Voltage Profile

Committee noted the voltage profile at some of the important 400 KV and 220 KV substations of MP during the month of January to March 2010 as enclosed at Annexure -2.3 of agenda notes.

During the month of January to March 2010, the deviation of voltage from the accepted limits on either side was recorded at following location in MP Grid.

Sr. No.	Name of Substation	JAN-10		FEB-10		MAR-10	
		Max. Voltage		Max. Voltage		Max. Voltage	
		Voltage	Date	Voltage	Date	Voltage	Date
1	Indore	426	10	423	20,28	--	--
2	Itarsi	430	13,26	428	12,25	429	18
3	Bina	--	--	425	9,25	426	28,31
4	Gwalior	428	02	432	09	425	07
5	Nagda	431	13	431	21	429	13

MINIMUM VOLTAGE

Sr. No.	Name of Substation	JAN-10		FEB-10		MAR-10	
		Min. Voltage		Min. Voltage		Min. Voltage	
		Voltage	Date	Voltage	Date	Voltage	Date
1	Indore	--	--	--	--	--	--
2	Itarsi	--	--	--	--	--	--
3	Bina	--	--	--	--	--	--
4	Gwalior	360	30	354	4,07	--	--
5	Nagda	--	--	--	--	--	--

It was explained that the problem of overvoltage conditions at Indore 400 KV s/s and Nagda 400 KV s/s was primarily due to low demand period/load shedding and the low voltage conditions at Gwalior 400 KV s/s was due to overdrawal by NR.

In the 16th OCC meeting, the C.E.(PS), MPPTCL and OSD, SLDC had suggested that the line reactors of 400 KV Nagda–Rajgarh line may be converted to Bus reactors to utilize the same for voltage control at Nagda 400 KV s/s and desired that the Planning Cell may work out necessary modification required for the same. Planning section was requested to take necessary action in this regard. As the representative from Planning Cell of MPPTCL has not attended the meeting, it is decided that the issue shall be discussed in the next OCC meeting.

2.3.2 Status of Capacitor Banks in sub-transmission system

All three DISCOMs have informed that the target for 2009-10 has been completed as on 31st March. The details of capacitor bank installation on 33 & 11 KV feeders for the period 2010-11 as furnished by respective DISCOMs is as detailed below:

UTILITY	600 KVAR Capacitor Banks		1200 KVAR Capacitor Banks		Remark
	Ordered	Commissioned	Ordered	Commissioned	
East Zone	-	-	-	-	There is no order for 2010-11.
West Zone	150	-	136	-	
Central Zone	-	-	-	-	No plan at present.

The DISCOMs may furnish the latest details of number of capacitors as commissioned till 31st March 2010 and their status before next OCC meeting.

2.4.1 Status of completion of on going Transmission Schemes being executed by MPPTCL

The updated status on various ongoing Transmission Schemes for the current financial year i.e. Year - 2010-2011 has not been submitted by MPPTCL for discussion in the meeting. The CE(S/S) may submit the same to the OCC for discussion in the next OCC meeting.

2.4.2 U/F and df/dt Relay Operation :

- (i) **U/F and df/dt Relay Operation:** During January to March 2010, the system frequency touched 48.8 Hz for 4 occasions in January, 44 occasions in March and not touched 48.8 Hz during February 2010. The details of under frequency and DF/DT operation are already given in annexure 2.4.2 of agenda.

The AGM(LM), Central DISCOM has stressed the need of revising the cutoff frequencies for operation of under frequency relays as the frequency band has been narrowed down. He proposed u/f relay operation at 49.2 Hz for Rural and Tahsil feeders, 49.00 for District feeders and 48.8 Hz for Commissionerial feeders. The MS OCC and CE(PS), MPPTCL have pointed out that the frequency band has been narrowed down by the Commission as a grid discipline measure and the under frequency relays are meant for ensuring grid security. Further, the cut-off frequency has been decided by the CEA and is common throughout the country. CE(PS), MPPTCL and AGM(LRM), Tradeco also opined that the issue can be put up before Protection Committee of WRPC if T&C section of MPPTCL agree to the proposal of Central DISCOM.

The CE(PS) has submitted the list of installation of u/f relays on newly commissioned EHV substations on 33 KV feeders.

- (ii) **Defective u/f, df/dt relays :** The OSD(T&C), MPPTCL has informed by UO note that there are no defective u/f or df/dt relays in the system.
- (iii) **Review of df/dt scheme :** It was informed that owing to commissioning of new substations and lines some of the feeders where df/dt relays are installed no longer exists to be radial feeders and

adequate load relief from df/dt relay operation is not available. The matter was studied in the meeting represented by OSD(T&C), OSD(SLDC) and CE(PS) and necessary decision for reallocation of feeders for df/dt relay installation has been finalized. The OSD(T&C) has accordingly issued necessary instructions to the field units. The revised list of feeders for df/dt relay installation is given in annexure-2.4.2(iii)

The MS, OCC requested the representative from T&C to ensure that the df/dt relays are installed/ shifted on the new feeders as per the instructions of OSD (T&C) and inform the OCC accordingly.

2.4.3 Confirmation of Healthiness status of SERs/DRs equipment in the system

The Member Secretary, OCC informed the committee that though agreed by the MPPTCL & MPPGCL in earlier OCC meetings that the consolidated information regarding status of healthiness of DRs & SERs and GPS time stamping facility, shall be made available to SLDC in the first week of each month as per the format given, the consolidated information is not being received except NHPC, Bhopal. However, the information from few substations of MPPTCL is also being received directly.

The OSD(T&C) vide UO note had mentioned that it would take long time to download the data from EHV substations and hence the information may be obtained directly from substations by SLDC. The MS OCC informed the committee that, when explained to SE o/o OSD(T&C), MPPTCL over phone that SERs/DRs downloaded data is not required, only statement of healthiness of DRs & SERs and GPS time stamping facility is required on monthly basis, it was agreed that the same shall be made available to SLDC every month as desired. The representatives of T&C, MPPTCL and MPPGCL assured the committee to furnish the required information by 5th of every month. ***(However, SLDC has not received the information so far)***

2.5 Power Cuts / Load restrictions/Differential Load Shedding by DISCOMS

- (i) Details of Discom wise power cuts & regulatory measures during January to March 2010 as enclosed at Annexure 2.5 of agenda have been noted by the committee.
- (ii) **Differential Load Shedding** : The MS, OCC stated that the DCCs are being requested since November 2009 to furnish to SLDC the hourly Schedule & Unschedule load shedding data including load relief from differential LS and weekly off in MW on daily basis to work out the unrestricted demand in realistic manner at the end of each day. However, except Central DISCOM, the information is not being furnished by other two DCCs in the prescribed format. The Director EZ DCC informed that they have started furnishing the information on daily basis since last 3-4 days. The representative of West DISCOM has assured the committee that they will start furnishing the data to SLDC from 21st may 2010. ***(However, West DCC has not started furnishing the data).***
- (iii) **GROUP ALLOCATION OF 33 KV FEEDERS** : As desired by the CE(PS), MPPTCL, the DISCOMS have been requested to furnish the information of group allocation of 33 KV feeders emanating from various newly commissioned EHV sub-stations. The DISCOMS have been agreed for the same. The CE(PS) and MS, OCC requested the East and West DISCOM to start allocating the groups to 33 KV feeders themselves as is being done by Central DISCOM. In this regard necessary approval may be obtained by the concerned DISCOM. The Director, EZ DCC stated that the group allocation activity can be taken up by East DISCOM which will be confirmed at the

earliest. The SE, WZ DCC assured to take up the group allocation activities after DCC is fully functional.

ITEM NO. 3 : OPERATIONAL PLANNING

3.1 Anticipated Power Supply Position for the Month of April-2010 to March 2011 and Demand estimation :

MS, OCC informed the committee that the details of Anticipated Demand and Source wise Availability for the period April 2010 to March-2011 is as enclosed in Annexure-3.1, which has been worked out on the basis of Demand Estimation as furnished by the DISCOMs and availability as furnished by the respective authorities for 2010-11. The committee noted the same.

MS, OCC further told that as per MPERC regulation (MPEGC), the DISCOMs have to provide daily demand on month ahead by 25th for the next month. However, the data on daily demand on month ahead for the next month is not being submitted by any of the DISCOMs. The DISCOMs have assured that they shall start furnishing month ahead demand estimation data from June 2010 (to be furnished by 25th May) **(However the data is not received from any DISCOM)**

3.2 Generating Units under planned outage and proposed maintenance programme-

The details of proposed maintenance programme for April 2010 to March 2011 as given in Annexure-3.2 of the agenda has been noted by the committee. The MPPGCL representative informed that the Revision 5 for the maintenance of thermal units

3.3 Proposed shutdown programme of Transmission lines / Transformers -

The proposed maintenance programme for the period 15th May to 15th June-2010 as detailed in Annexure-3.3 has been discussed in the meeting and found in order.

3.4 Long Outages of transmission elements :

3.5

The transmission elements as detailed below are under long outages.

S N	Line/Transformer/Breaker/ Reactor etc under long outage	Outage date	Reason	Expected date of restoration.
1	63 MVAR Bus-I Reactor at Satpura TPS	24.05.2005	Damage of all three limbs along with reactor tank	Order has been placed to BHEL. The delivery schedule is 15 months.

The representative of MPPGCL informed that the order for bus reactor has been placed and the delivery of the same is expected within 15 months from May 2010.

ITEM NO. 4 : OPERATIONAL STATISTICS FOR THE MONTH OF JANUARY TO MARCH 2010.

The details of actual generation, schedule from Central Sector, demand etc. as given in Annexure 4.1 to 4.5 of the agenda of 19th OCC meeting has been noted by the Committee.

ITEM NO. 5 : SYSTEM DISTURBANCE IN MP FOR THE MONTH OF NOVEMBER AND DECEMBER 2009

There was no significant system disturbance reported during the period January to March 2010.

ITEM NO. 6 : REVIEW OF SYSTEM OPERATION & MANAGEMENT

6.1 Progress of functioning of Discom Control Centre (DCC)

The MS, OCC pointed out that despite constant persuasion from SLDC, the West DISCOM has not taken up the load management functions. He further stressed the need for taking up the load regulatory measures by West DISCOM so as to comply with the Balancing and Settlement code. The AGM(LM) CZ DCC has also raised the issue of repeated inaction by West DCC and requested SLDC to take appropriate action. The SE, WZ DCC informed the Committee that the as soon as they get sufficient manpower required for round the clock shift duty the load management functions shall be taken up. The committee requested the WZ DCC to expedite the process.

The issue of excessive exemption from load shedding for longer durations in the West DISCOM was discussed and the committee felt necessary that the exemptions should be exceptional and it should be decided centrally at DISCOM level. This is necessary for smooth load management activities. The SE, WZ DCC agreed to look into the matter.

6.2 PREPAREDNESS OF MPPGCL FOR IMPLEMENTATION OF BALANCING & SETTLEMENT CODE -

The MPERC has implemented the Balancing & Settlement code in the state from 1st November 2009. The matter of establishing full fledged ABT monitoring cells at thermal power stations and providing adequate communication facility at thermal and hydel power stations has been discussed in the last OCC Meetings in which MPPGCL was requested to submit the report to SLDC.

The MS, OCC informed that MPPGCL has not submitted its report to SLDC in this regard. The MPPGCL representative informed the committee that the ABT monitoring cells are functional at all thermal power stations in RTC shift. They have agreed to submit the report by 15th May 2010 (*The report is not received so far*).

ITEM NO 7 : SCADA/EMS RELATED ISSUES :

7.1 PROGRESS OF INSTALLATION OF NEW RTUS ALONG WITH PLCC DATA LINKS AT EHV S/S :

As representative from CE(S/S) has not attended the meeting the progress of installation of RTUs could not be discussed.

7.2 MAINTENANCE OF TELEMETERING EQUIPMENTS AT EHV STATIONS AND POWER STATIONS :

The MS, OCC informed that as requested by OSD (T&C), MPPTCL the SLDC has started action, on behalf of MPPTCL for procurement of spares required for maintenance of RTUs by MPPTCL. As regards maintenance of Remote Terminal Units installed in power stations, MPPGCL representative informed that finalization of AMC is under progress.

7.3 DISCREPANCY IN TELEMETERED VALUES RECEIVED FROM DIFFERENT EHV S/S & POWER STATIONS :-

It has been informed to the committee that the discrepancy in telemetered values from Power Stations & EHV Substations is being brought to the notice of the concerned officials from time to time. Though the action is being taken for restoration of some of the parameters, many telemetered values are still not received correctly in SCADA system or are not extended / configured in the telemetry equipments in the field. The committee noted the list of faulty telemetered values/process connections as detailed in annexure-7.3(i) & 7.3(ii) of agenda. MS, OCC requested MPPTCL and MPPGCL to take up the matter with field units to restore the telemetry data.

7.4 UPGRADATION OF EXISTING RTUS :-

The MS, OCC informed that the OSD(T&C), MPPTCL, has forwarded the details for upgradation of existing RTUs and based on the details, details of scope of work for upgradation of the existing RTUs on account of commissioning of new feeders and transformers has been worked out by SLDC and forwarded to OSD (T&C) on 30th April 2010. MPPTCL may initiate action for upgradation of existing RTUs so that the telemetry of new feeders/transformers is available before coming Rabi season.

7.5 SHIFTING OF OPGW IN PROPOSED DIVERTED ROUTE FROM 220 KV JABALPUR TO 400 KV SUKHA S/S

During last OCC meeting representatives from Planning, MPPTCL had informed that the order for procurement of OPGW cable has been placed and the OPGW shifting shall be done at the time of route diversion. The discussion on this matter could not be taken up as representative from CE(S/S) has not attended the meeting.

ITEM NO. 8: Intra-State Long Term Open Access Customers :-

The CE(PS) has desired the Discoms to furnish the detailed list of existing Intra-State long term open access customers whose agreement period expired / likely to be expired. The representative from Power System confirmed that West DISCOM has furnished the information. The East DISCOM has informed that the detailed have not been received from commercial section, however they will furnish the reply to CE(PS) by 20th May 2010. The Central DOSCOM has mentioned that the issue is related with commercial section of MP for which representative of Power system asked to confirm the same by a letter, which the Central DISCOM agreed.

ITEM No. 8 : DATE AND VENUE OF NEXT OCC MEETING ::

It is proposed to hold 20th meeting of Operation and Coordination Committee of MP on 19th July 2010 at SLDC, MPPTCL, Jabalpur.

LIST OF PARTICIPANTS OF 19TH OCC MEETING OF MP HELD ON 04TH MAY 2010

Sr.No.	Name S/Shri	Desgn.	Company
1	P.A.R. Bende	S.E.(Opn.) & Member Secy., OCC	SLDC, Jabalpur
2	S.B. Singh	ED(Gen), SGTPS, Birsinghpur	MPPGCL
3	S.C. Gupta	Addl. C.E. SGTPS, Birsinghpur	
4	B.L. Newal	Addl. C.E. SGTPS, Birsinghpur	
5	S.C. Shukla	S.E. SGTPS, Birsinghpur	
6	P.K. Jain	S.E. SGTPS, Birsinghpur	
7	S.M. Solapurkar	S.E. SGTPS, Birsinghpur	
8	Subhash Deshpande	E.E., MPPGCL, Jabalpur	
9	Girish Dixit	A.E., MPPGCL, Jabalpur	
10	R.C. Chakravarty	E.E. o/o CE(PS), MPPTCL, Jabalpur	
11	Vijay Kumar Jain	S.E.(T&C), MPPTCL, Satna	T&C, MPPTCL
12	M.P. Patel	EE o/o SE(T&C), MPPTCL, Satna	
13	Suryabali	AGM o/o CGM(S), MPTRADECO	MP TRADECO
14	O.P. Gupta	SE, DCC, Indore	MPPaKVVCL, Indore
15	R. H. Buchade	SE o/o CMD (WZ), Indore	
16	Shyamji Tiwari	Director, DCC, Jabalpur	MPPuKVVCL, Jabalpur
17	Ashok Nikose	EE, DCC, Jabalpur	
18	Rajeev Keskar	AGM, DCC, Bhopal	MPMKVVCL, Bhopal
19	S. J. Marathe	AEE, DCC, Bhopal	
20	Pradeep Sachan	EE, Sub LDC, Bhopal	Sub LDC, Bhopal
21	Vinod Kumar Singh	Dy Manager(E), NHDC, Bhopal	NHDC, Bhopal
22	Harish Sharma	Dy Manager, OHPS	Omkareshwar HPS

FREQUENCY PARTICULARS

Particulars	Jan-10		Feb-10		Mar-10	
INTEGRATED OVER AN-HOUR						
Maximum Frequency	50.65 Hz	Between 03.00 hrs & 04.00 Hrs on 02.10.09	50.41 Hz	Between 0200 Hrs & 0300 Hrs on 09.02.10	50.68 Hz	Between 0100 Hrs & 0200 Hrs on 02.03.10
Minimum Frequency	49.13 Hz	Between 09.00 hrs & 10.00 Hrs on 09.01.10	49.32 Hz	Between 22.00 hrs & 23.00 Hrs on 26.02.10	48.93 Hz	Between 04.00 hrs & 05.00 Hrs on 19.03.10
Average Frequency	49.71 Hz		49.85 Hz		49.61 Hz	
INSTANTANEOUS FREQUENCY						
Maximum Frequency	51.08 Hz	AT 03.04 HRS ON 02.01.10	50.59 Hz	AT 22.50 HRS ON 0	50.69 Hz	AT 01.06 HRS ON 02.03.10
Minimum Frequency	48.79 Hz	AT 16.42 HRS ON 08.01.10	48.84 Hz	AT 06.40 HRS ON 1	48.8 Hz	AT 21.16 HRS ON 18.03.10

Percentage of time when frequency was :-

	Jan-10	Feb-10	Mar-10
Below 48.5 Hz	0.00	0	0
Between 48.50 Hz and 48.8 Hz	0.00	0	0
Between 48.80 Hz and 49.2 Hz	3.43	0.35	5.99
Between 49.20 Hz and 49.5 Hz	23.37	8.11	27.5
Between 49.50 Hz and 49.8 Hz	34.06	35.5	34.53
Between 49.80 Hz and 50.2 Hz	35.04	51.54	19.62
Between 50.20 Hz and 50.3 Hz	2.60	2.87	10.65
Between 50.30 Hz and 51.0 Hz	1.49	1.63	1.71
Above 51.0 Hz	0.01	0	0
No. of times frequency touched 48.80 Hz	4	0	44
No. of times frequency touched 48.60 Hz	0	0	0
No. of times frequency touched 51.0 Hz	1	0	0

DF/DT RELAY APPROVED PLAN

SR.NO.	NAME OF S/S	df/dt 0.4Hz/s	Load in MW	df/dt 0.2Hz/s	Load in MW	df/dt 0.1Hz/s	Load in MW	TOTAL LOAD M.W.
		Base freq.49.9 Hz. Lines to be tripped		Base freq.49.9 Hz. Lines to be tripped		Base freq.49.9 Hz. Lines to be tripped		
(I)	<u>EASTERN MP.</u>							
1	220 KV S/s JABALPUR			132 KV MANERI	15			
	132 KV S/S SEONI			132 KV NAINPUR-MANDLA	20			
	220 KV S/s KATNI			132 KV SLEEMNABAD	25			
	220 KV S/s SAGAR			132/33 KV TRANSFORMER AT GOURJHAMER	25			
2	220 KV S/s NARSINGHPUR			160MVA XMER-I&II (At 132KV NSP Shrinagar fdr will get cut off due to overloading)	75			
3	220 KV S/s SATNA			132 KV PANNA	30			
				132 KV Majhgawan-Pawai	20			
4	220 KV S/s REWA	132 KV MANGAWAN-KATRA	20					
		132 KV RAMPUR BAGHELAN AT X-MER	35					
5	220KV S/s BINA					132KV SIRONJ	15	
						132KV GANJBASODA	15	
TOTAL EASTERN M.P.			55		210		30	295
(II)	<u>CENTRAL MP.</u>							
1	220 KV S/s BHOPAL					132/33 KV TR I,II,III LALGHATI	50	
2	220 KV S/s MEHGAON	160MVA XMER	110					
		132 KV MALANPUR	-					
3	132 KV VIDISHA	132 KV GAIRATGANJ	20					
		132 KV RAISEN	15					
4	132 KV CHHANERA					132/33 KV TRANSFORMER AT CHHANERA	15	
5	220 KV HANDIYA			132 KV NASRULLAGANJ	40			
6	132 KV BETUL					132 KV GUDGAON	15	
7	132 KV KHILCHIPUR			132 KV ZEERAPUR	15			
8	132 KV AGAR			132 KV SUSNER	10			
9	220KV MALANPUR	132 KV AMBAH	30					
10	220KV S/s GUNA			132/33 KV XMER-I,II & III		132/33 KV TRANSFORMERS AT 132 KV RAGHOGARH	40	
					75			
TOTAL CENTRAL MP.			175		140		120	435
(III)	<u>WESTERN M.P.</u>							
1	220 KV S/Z INDORE	132 KV DHAR (TAPPED G.BILLOD)	40					
2	220 KV RAJGARH	132 KV DHAR	-					
		132 I/C-I&II	105					
		132KV KUKSHI	-					
3	220 KV RATLAM					132KV SAILANA	10	
4	400 KV NAGDA					220KV NEEMUCH I&II		
	132 KV NEEMUCH					132 KV MANASA & MALHARGARH	145	
5	220KV SHUJALPUR					132/33 KV XMER-I & II	25	
6	220 KV PITHAMPUR			132 KV JAMLI	35			
7	220 KV DEWAS			132 KV CHAPDA	30			
8	220KV JULWANIA	132 KV XMER-I & II	30					
		132 KV SENDHWA (& PANSEMAL)	40					

DF/DT RELAY APPROVED PLAN

SR.NO.	NAME OF S/S	df/dt 0.4Hz/s	Load in MW	df/dt 0.2Hz/s	Load in MW	df/dt 0.1Hz/s	Load in MW	TOTAL LOAD M.W.
		Base freq.49.9 Hz. Lines to be tripped		Base freq.49.9 Hz. Lines to be tripped		Base freq.49.9 Hz. Lines to be tripped		
9	220 KV UJJAIN					132 KV TARANA I & II	15	
10	220 KV BADNAGAR					132 KV DEPALPUR	30	
						132 KV GOUTAMPURA	20	
						132 KV KANWAN	30	
11	220 KV NAGDA					132 KV MAHIDPUR I&II	15	
						132KV A LOT	35	
TOTAL WESTERN MP.			215	65			325	605
TOTAL M.P.			445	415			475	1335
LOAD RELIEF DESIRED BY WRLDC w.e.f. 01.07.2008			361	355			392	1108

Additional requirement of df/dt relay- 08 Nos.

23.27

16.9

21.17