Annexure-B2.1

Eastern Regional Power Committee, Kolkata

Draft Procedure on Monthly Outage Planning for Communication System–ER

1. Introduction:

The communication needs of the power sector have amplified significantly with the increase in the size and complexity of the grid. Communication is also a key pre-requisite for efficient monitoring, operation and control of power system. For integrated operation of the Grid, uninterrupted availability of the real time data of various Power System elements assumes utmost importance. Hence, Communication systems plays vital role to facilitate secure, reliable and economic operation of the grid.

To facilitate the above, Central Electricity Regulatory Commission (CERC) had notified Communication System for Inter-State Transmission of Electricity, Regulations, 2017 which came in force w.e.f. 01.07.2017.

2. Regulatory Provisions with respect to Outage Planning for Communication System:

2.1 The following provisions of Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017 merit attention:

…….

2(i) (f) "Communication Channel" means a dedicated virtual path configured from one users' node to another user's node, either directly or through intermediary node(s) to facilitate voice, video and data communication and tele-protection system.

2(i) (g) "Communication network" means an interconnection of communication nodes through a combination of media, either directly or through intermediary node(s);

2(i) (h) "Communication system" is a collection of individual communication networks, communication media, relaying stations, tributary stations, terminal equipment usually capable of inter-connection and inter-operation to form an integrated communication backbone for power sector. It also includes existing communication system of Inter State Transmission System, Satellite and Radio Communication System and their auxiliary power supply system, etc. used for regulation of inter State and intra-State transmission of electricity;

…….

9. Periodic Testing of the Communication System:

(i) All users that have provided the communication systems shall facilitate for periodic testing of the communication system in accordance with procedure for maintenance and testing to be prepared by C'[U within 60 days of notification of Regulations and approved by Commission.

(ii)Testing process for communication network security should also be included even for third party system if exists in accordance with procedure for maintenance and testing to be

prepared by CTU and approved by Commission.

2.2 The following provisions of Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 notified on 27.02.2020 merit attention:

…….

7. Reliability:

(1) Total outage period shall be less than sixteen hours on monthly basis each for interface node, wideband node and communication network.

(2) The total outages in a rolling twelve months assessment period shall be less than forty-eight hours.

(3) The communication system shall be designed to ensure adequate redundancy.

…….

8. Design and planning :

…….

(5) User shall ensure centralized monitoring or management of its communication network and shall provide necessary facilities for configuration, identification of fault and generation of various reports on availability of the communication system.

(6) User shall be responsible for planning, design, implementation, secured operation and maintenance of its own communication infrastructure to be interfaced with the communication system.

…….

21. Training :

(1) Specialized training shall be provided to the persons manning the centralized monitoring center and to the field support staff to ensure quick fault detection and restoration of the communication system.

(2) Training shall be provided to the maintenance persons on all communication equipment for its operation and maintenance.

3. Objective :

3.1 Regulation 7.3 of Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017 states

7.3 Role of National Power Committee (NPC) and Regional Power Committee (RPC):

…….

(iv) The RPC Secretariat shall be responsible for outage planning for communication system in its region. RPC Secretariat shall process outage planning such that uninterrupted communication system is ensured.

…….

3.2 Regulation 10 Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 notified on 27.02.2020 states

10. Outage planning: Monthly outage shall be planned and got approved by the owner of communication equipment in the concerned regional power committee, as per detailed procedure finalized by the respective regional power committee.

3.3 The objective of this Procedure on Outage Planning of communication System is to carry out outage planning for communication system in ER such that uninterrupted communication system is ensured. Monthly outage of Communication Equipment/system shall be planned by the owner of communication equipment / link in coordination with ERPC/ERLDC/SLDCs and placed in the forum of ERPC and shall be discussed for approval as per the procedure.

4. Scope and applicability:

4.1 The scope and applicability as per Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017 is given below:

…….

5. Scope and Applicability:

(i) These regulations shall apply to the communication infrastructure to be used for data communication and tele-protection for the power system at National, Regional and inter-State level and shall also include the power system at the State level till appropriate regulation on Communication is framed by the respective State Electricity Regulatory Commissions.

(ii) All Users, SLDCs, RLDCs, NLDC, CEA, CTU, STUs, RPCs, REMC, FSP and Power Exchanges shall abide by the principles and procedure as applicable to them in accordance with these regulations.

…….

4.2 The applicability as given in Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 notified on 27.02.2020 is given below:

…….

3.Application:These regulations shall apply to all the users; National Load Despatch Centre, Regional Load Despatch Centres, State Load Despatch Centres, Load Despatch Centres of distribution licensee, Central Transmission Utility, State Transmission Utilities, Regional Power Committees, Renewable Energy Management Centres, forecasting service provider and power exchanges.

…….

4.3 All concerned entities stated above would coordinate with ERPC / ERLDC for outage planning of Communication System.

4.4 Communication System Outage Planning will be limited to the following system:

(i) ISTS Communication System including ISGS
(ii) Intra-state Communication System being utilized for ISTS Communication
(iii) ICCP links between Main & Backup RLDCs, Main & Backup SLDCs &Main & Backup NLDCs
(iv) VC links between LDCs
(v) Inter regional AGC links
(vi) Any other system agreed by the forum

4.5 Communication Equipment/link within the scope of the Procedure would include:

(i) Optic Fibre links
(ii) Any other link being used for ISTS communication
(iii) ICCP links between Main & Backup RLDCs, Main & Backup SLDCs & Main& Backup NLDCs
(iv) SDH & PDH
(v) DCPC
(vi) RTU& its CMU cards
(vii) DTPCs
(viii) Battery Banks and Charging Equipment
(ix) EPABX
(x) Any other equipment/link agreed by the forum

Note: PLCC would not be included, if the link is not used for SCADA Data.

5. Procedure on Monthly Outage Planning of Communication System-ER:

5.1 Each concerned Entity would nominate a Nodal Officer/ Alternate Nodal Officer along-with details to the ERPC/ERLDC along-with designation, mobile number; email ID etc. Nodal Officer/ Alternate Nodal Officer would interact internally and would be single point contact for outage planning with ERPC/ERLDC.

5.2 The outage proposal of the communication equipment/links for the succeeding month shall be submitted in the prescribed format (attached as Annexure: COF-I & COF-II) to ERPC Secretariat via mail (erpcscada@gmail.com) only.

The type of services (viz. data, voice, protection etc.) being affected/ not affected may be mentioned in the format. If there is no interruption to any service, the precautions and actions (like redundant path) being taken to ensure data, voice etc availability may also be mentioned, which facilitates to avoid simultaneous outage for the same service(s). Any other communication system related issues would be addressed to this mail (erpcscada@gmail.com) only.

5.3 The proposed list of communication outages for the succeeding month shall be submitted to ERPC latest by 8th day of the current month.

5.4 Users / Owners of the communication equipments/links need to furnish their monthly outage proposal in respect of their equipments/links in the prescribed (in excel) format only. Modification of this format is not allowed. However, suggestion for improving the format is solicited. Outage proposals not in the format or through Fax/PDF etc may liable to be rejected.

5.5 RPC will consolidate the list of outage proposals received from various Users/ Owners of the communication equipments/links and publish the list by 11th of every month.

5.6 Communication outages affecting other regions would be coordinated by ERLDC through NLDC.

5.7 A meeting will be conducted every month during 2nd/3rd week of the month through VC to discuss and approve / dispose the proposed list of outages pertaining to communication links/

equipments. The date of VC will be informed during the 1st week of the month.

5.8 The VC for approving the communication outage will be termed as "Communication System Outage Planning Meeting for Eastern Region (COMER)" prefixed with the no of meeting and suffixed with the name of month for which the outages are proposed.
For example, for availing outage of communication equipments for the month of June 2021, COMER-June 2021 (1st COMER for June 2021) will be held on the middle of May, 2021.

5.9 In the VC, the system constraints pertaining to the outage of communication equipments/links, if any, shall be discussed and the outage proposals will be approved/ revised/ disposed based on the outcome arrived in the VC. Therefore, all the Users/Owners of the communication equipments/links shall attend the VC without fail including ERLDC. It is requested that the Nodal Officers who do not have VC facility may join in the nearby VC available with State SLDC / PGCIL.

5.10 The final approved list of communication equipments will be published by ERPC after 3 days from the date of VC.

5.11 In case of any emergency outage requirement of communication equipments, Users/ Owners may directly apply on D-1 basis to ERLDC via mail ID erldcscada@posoco.in.

5.12 For the outages of communication equipments/links which are approved in the VC, concerned entities shall confirm availing of approved outages of communication equipments on D-2 day to ERLDC at erldcscada@posoco.in or intimate the dropping of approved outages, if any.

5.13 The concerned entity shall give intimation to ERLDC Control room/ERLDC SCADA team before start of the work & after completion of the work.

5.14 ERLDC shall coordinate with the concerned entities that are likely to be affected by the outage of communication equipments/links.

5.15 All Users / Owners of the communication equipments/links will submit their deviation report by 10th of the month in respect of the outages of communication links/ equipments availed during the previous month as per the format attached at Annexure: DCOA-I & DCOA-II.

****

Annexure -COF I

List of outages of Communication Links, proposed to avail during the month of June, 2021

Dated :
COMER VC Date :

A Details of Communication Links (Point to Point) proposed :

SL	Name of Requesting Agency	Description of Link	Source	Destination	Channel Routing/Alternate channel status	Ownership/Coordinating agencies	Reason for availing outage & Precautions / actions being taken to ensure communication system availability	Outage proposed from	Outage proposed upto	Total hours of outage proposed now	Approved ? (Y/N)	RPC Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13
1	**Example**	Data/Voice, PLCC - OFC	Thirubuvanai	Pondy SCC	Thirubuvanai – Villianur 230 – Pondy SCC	PED, Puducherry	Preventive Maintenance. 110KV Thirubuvanai power flow data would be available from Villianur 230KV RTU	07-Jan-21, 10:00	07-Jan-21, 13:00	**03:00**		

Name of Communication links/channels
1. OF links
2. Any other link being used for ISTS communication
3. ICCP links
4. Any other link

Format

Annexure - COF II

List of outages of Communication Equipment, proposed to avail during the month of June, 2021

Dated :

Communication VC Date :

B Details of Communication Equipment proposed :

SL	Name of Requesting Agency	Name of the communication equipment	Location of the Equipment / Name of Station	Name of the Channel / Path / directions affected	Alternate Channel / Path available (Furnish details)	Ownership/Coordinating agencies	Reason for availing outage and precautions / actions being taken to ensure communication system availability	Outage proposed from	Outage proposed upto	Total hours of outage proposed now	Approved ? (Y/N)	RPC Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13
	Example	PLCC, ABB, ETL41, TK1 SPS protection trip	Thingalore 230 kV SS	Ingur 230 kV SS	No	TANTRANSCO	Maintenance work	20-Jan-21, 10:00	20-Jan-21, 14:00	**04:00**		

Name of Communication links/channels

1. SDH & PDH

2. DCPC

3. RTU & its CMU Cards

4. DCPCs

5. Battery banks and Charging equipment

6. EPBAX

7. Any other equipment

Annexure: DCOA-I

Outage Deviation Report : List of outages of Communication Links, availed / deviated during the month of June, 2021

Dated :

A Details of Communication Links (Point to Point) availed :

SL	Name of Requesting Agency	Description of Link	Source	Destination	Channel Routing	Ownership	Reason for availing outage with the details of equipment attended	Approved Start Date : Time [dd-mm-yy<><>hh:mm]	Approved End Date : Time [dd-mm-yy<><>hh:mm]	Approved Outage Hours	Outage availed Start Date : Time [dd-mm-yy<><>hh:mm]	Outage availed End Date : Time [dd-mm-yy<><>hh:mm]	Total hours of outage availed now	Deviation ? (Y/N)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**Example**	Back up Control Center (BCC) : Data	KAYATHAR 230 kV SS	MADURAI LDC	Data will be availble throu	TANTRANSCO	Shifting of FODB panel at Kayathar 230 KV SS	10-Mar-2021 09:00	10-Mar-2021 18:00	**09:00**	10-Mar-2021 14:07	10-Mar-2021 17:30	**03:23**	**N**

Annexure: DCOA-II

Outage Deviation Report : List of outages of Communication Equipment availed / deviated during the month of June, 2021

Dated : **00:00**

B Details of Communication Equipment availed :

SL	Name of Requesting Agency	Name of the communication equipment	Location of the Equipment / Name of Station	Name of the Link/Channel/Path / directions affected	Alternate Channel/Path available ? (Furnish details)	Ownership	Reason for availing outage with the details of faults	Approved Start Date : Time [dd-mm-yy<><>hh:mm]	Approved End Date : Time [dd-mm-yy<><>hh:mm]	Approved Outage Hours	Outage availed Start Date : Time [dd-mm-yy<><>hh:mm]	Outage availed End Date : Time[dd-mm-yy<><>hh:mm]	Total hours of outage availed now	Deviation ? (Y/N)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**Example**	DC Charger -2, Amararaja, 48v,	Edamon	Nil	Nil	KSEBL	Monthly maintenance. No interruption as alternate chargers	16-Mar-21, 11:00	16-Mar-21, 16:00	**05:00**	16-Mar-21, 10:30	16-Mar-21, 16:00	**05:30**	**Y**

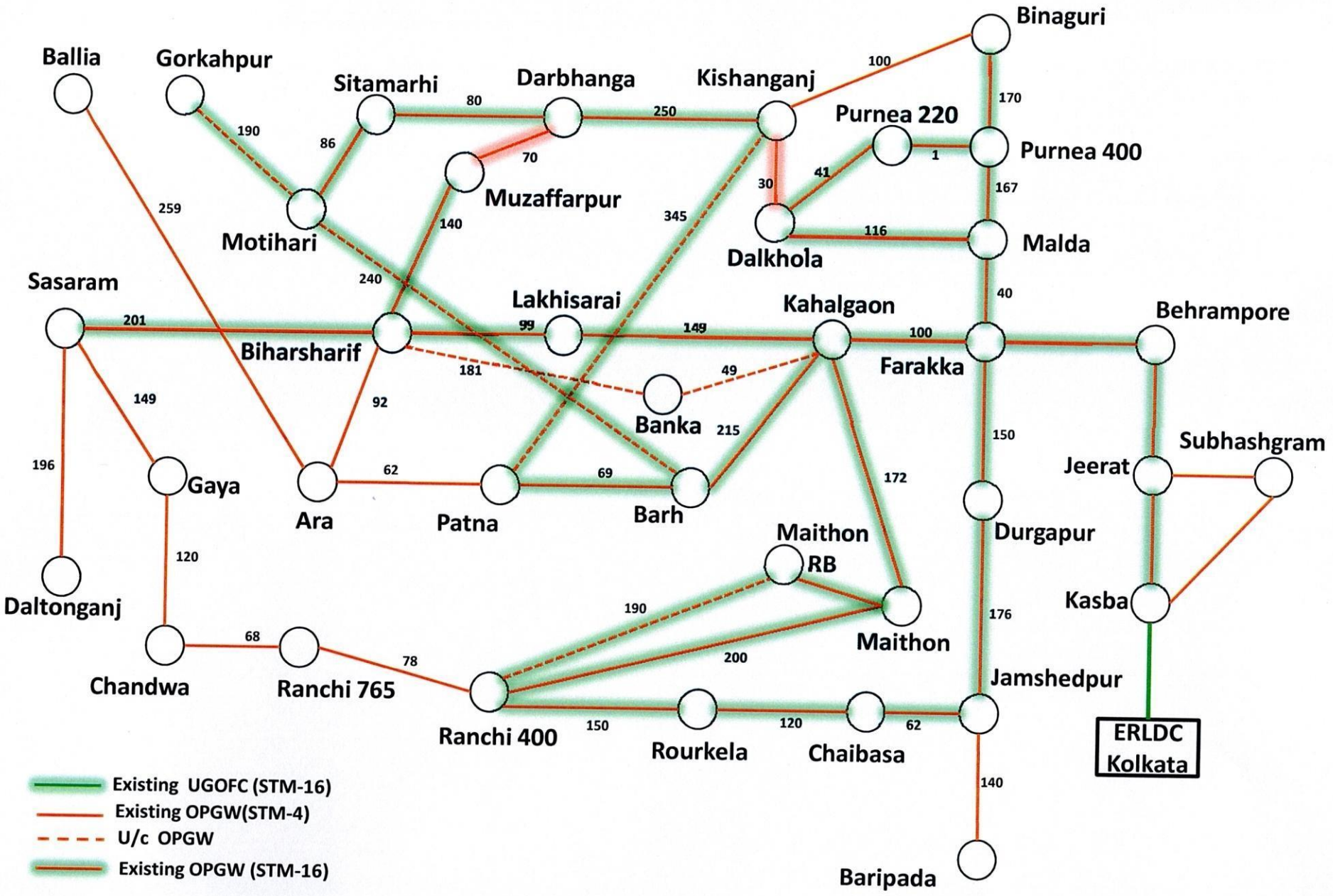
Annexure-B.3

LIST OF THE SUBSTATIONS UNDER OPTCL JURISDICTION WHOSE UPDATED DISPLAY & DATABSE ARE NOT PRESENT WITH ERLDC

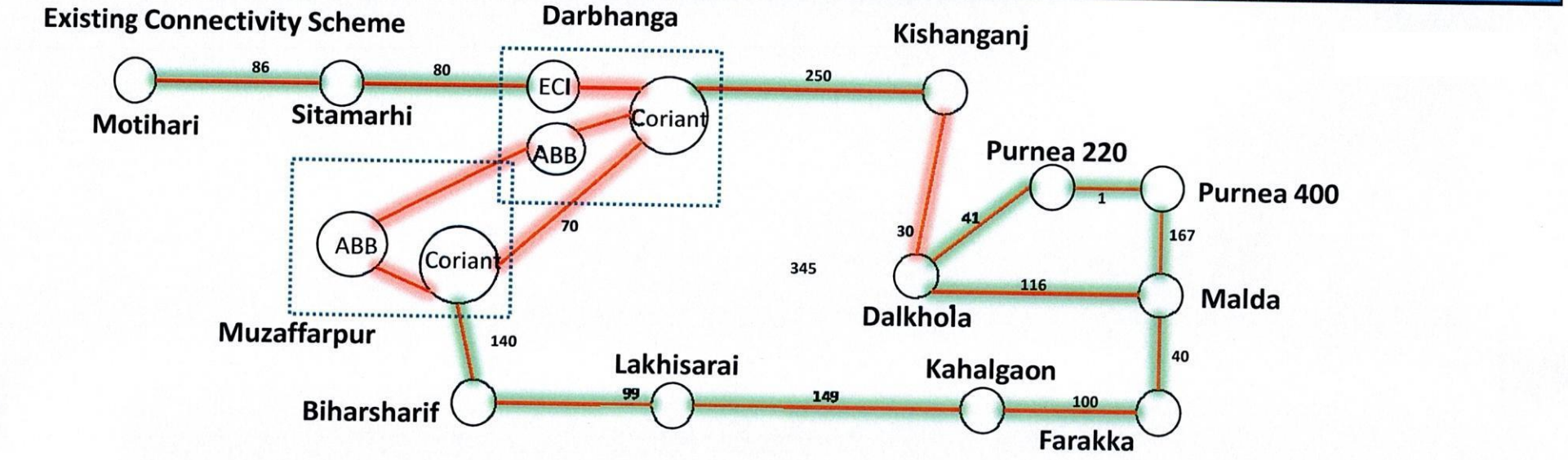
S No	SUBSTATION NAME	VOLTAGE LEVEL
1	JAYPATNA	220
2	KASIPUR	220
3	BALASORE	220
4	CUTTACK	220
5	BASUNDARA	220
6	BUDHIPADAR	220
7	BIDANASI	220
8	CHANDAKA B	220
9	ESSAR STEEL	220
10	IOCL	220
11	TATA GOPALPUR	220
12	IRE	220
13	ISPAAT ALLOYS	220
14	SAMANGARA	220
15	ROHIT	220
16	NARENDRAPUR	220
17	THERUVALI	220
18	BOGRAI	132
19	BRAJABIHARIPUR	132
20	B C MOHANTY COLONY	132
21	CHANDBALI	132
22	CHANDPUR	132
23	CHIKITI	132
24	BETANATI	132
25	DABUGAON	132
26	DIGAPAHANDI	132
27	DPCL	132
28	DPCL PORT	132
29	BIRLA TYRES	132
30	EMAMI	132
31	FACOR	132
32	GANJAM	132
33	GORAKHNATH	132
34	JABAMAYEE	132
35	JAGANATHPUR	132
36	JAGATSINGHPUR	132
37	KENDAPARA TSS	132
38	KIPADRA TR.	132
39	KONARK	132
40	KSURA	132

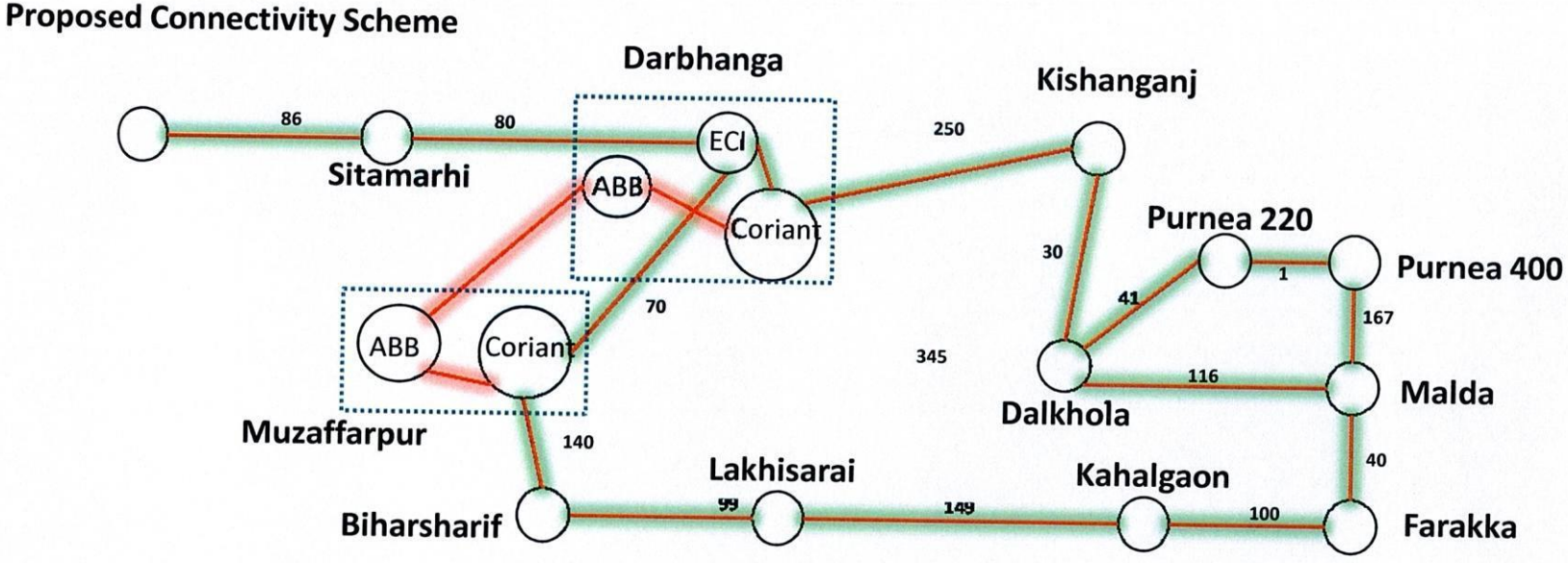
41	MASHAGHAI	132
42	MESCO	132
43	IFFCO	132
44	NEW ASKA	132
45	OVALAR	132
46	PARADEEP	132
47	PATTAMUNDAI	132
48	PPL	132
49	PPT	132
50	PRATAPASA	132
51	PURI	132
52	PURUSHOTTAMPUR	132
53	RAIRANGPUR	132
54	R.S. PUR	132
55	RTSS	132
56	SATASANKHA2	132
57	S F ALLOYS	132
58	SHAMUKA	132
59	SOLARI	132
60	SOMNATHPUR	132
61	T KHUNTI	132
62	TOMKA	132
63	ARGUL	132
64	BALIMUNDA	132
65	UDALA	132
66	UMERKOTE	132
67	BAMUPAL	132

SLD of OPGW Connectivity of ERTS-I Stations



Proposed Provisioning/Upgradation





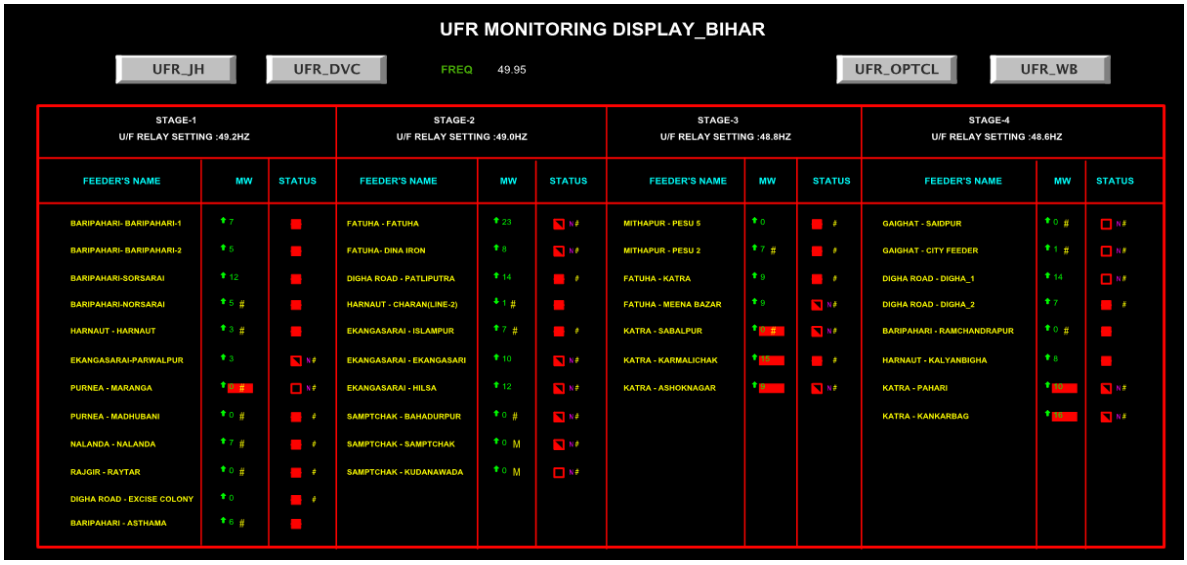
Issue of LDMS, Inverter in BSPTCL

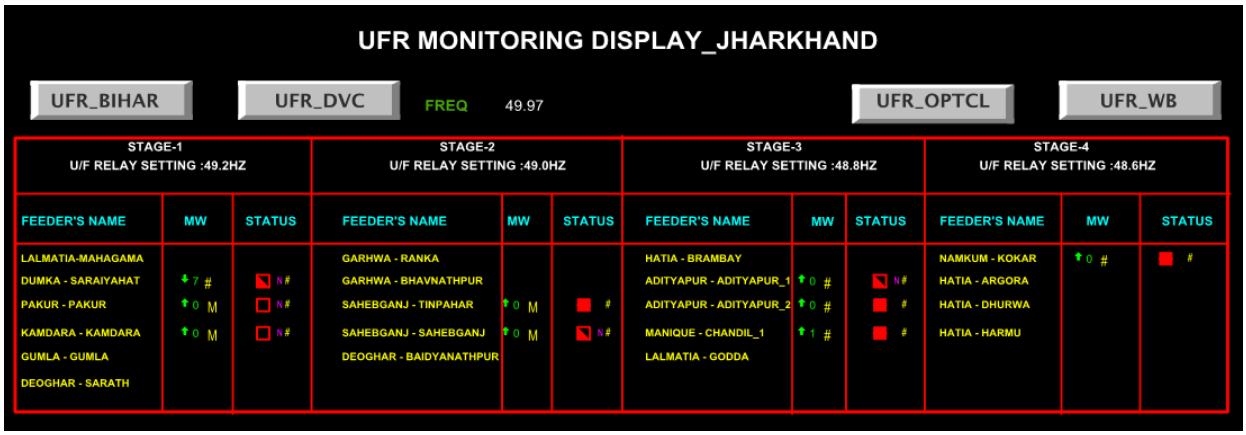
Annexure-B14.5

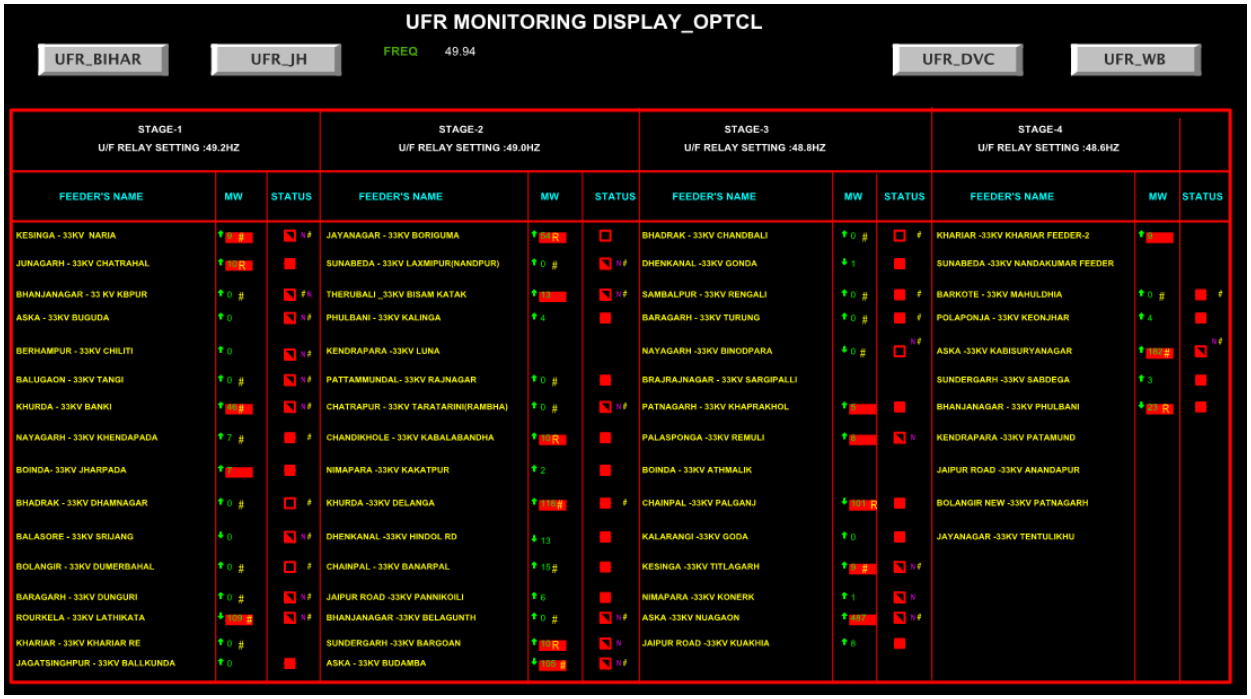
S.No.	SITE NAME	ISSUE	REMARKS
1	Kishanganj Old	RTU & SMPS issue	SMPS issue
2	Madhepura	LDMS Issue	
3	Kusheshwar Asthan	Inverter Issue	
4	Aurangabad	LDMS not getting ON	Inverter and SMPS issue
5	Banjari	Inverter of LDMS Issue	Invertor Faulty
6	Banka	LDMS displaying mismatched data.	Meerkat Software Issue
7	Begusarai	Inverter Issue	
8	Bettiah	Inverter Issue	Inverter faulty
9	Chapra	Inverter Issue	Inverter faulty
10	Dalsinghsarai	CPU Issue	inverter and SMPS issue
11	Goh	Meerkat Software Issue. Data is not displaying on SLD	Inverter faulty
12	Jagdishpur	Power Supply of Inverter not working	Inverter faulty
13	Jahanabad	Inverter Issue	Inverter faulty
14	Jainagar	CPU Issue.	
15	Jandaha	LDMS and Inverter issue.	Inverter faulty
16	Kahalgaon	LDMS and Inverter issue.	Inverter and SMPS issue
17	Karmanasa	Keyboard and Mouse of LDMS Faulty.. Modbus faulty only data of 33 KV is	Node Unhealthy and inverter isssue
18	Kataiya (kosi)	LDMS Monitor Issue	inverter and SMPS issue
19	Katihar	Inverter faulty, UPS faulty	inverter and SMPS issue
20	Kochas (Dinara)	LDMS not getting ON	
21	Pandaul	LDMS software issue	Meerkat corrupted
22	Phulparas	LDMS and Inverter issue	inverter and SMPS issue
23	Purnea	System restart with Blue Screen Error	
24	Rafiganj	LDMS monitor not getting ON	
25	Raxaul	Inverter & LDMS Issue	inverter and SMPS issue
26	Saharsa	Invertor Issue	Invertor Faulty
27	Samastipur	Meerket software Corrupted and Inverter Issue	Meerkat Software and Inverter Issue
28	Sheikhpura	HDD faulty, Front panel faulty	CPU handed over to M/s Chemtrols Representative
29	Sipara	Meerkat software Issue	Meerkat sofware Issue
30	Sitamarhi	LDMS CPU and Inverter Issue	Inverter and SMPS issue
31	Siwan	Inverter & LDMS Issue	Inverter and SMPS issue
32	Sonebarsa	CPU Issue	Inverter and SMPS issue
33	Sonenagar	Software not updated	Meerkat Software issue
34	Tekari	CPU issue	Inverter and VGA Cable
35	Valmikinagar	CPU issue	Inverter issue
36	Wazirganj	LDMS CPU Issue	LDMS not Starting (SMPS issue)

List of feeder and SCADA data integration status under AUFLS scheme of Eastern Region

Stages	Bihar		DVC		West Bengal (Including CESC)		Jharkhand		OPTCL	
	No of Feeders	SCADA data Integrated	No of Feeders	SCADA data Integrated	No of Feeders	SCADA data Integrated	No of Feeders	SCADA data Integrated	No of Feeders	SCADA data Integrated
Stage – I(49.2 HZ)	12	12	6	6	31	13	6	3	16	16
Stage – II (49.0 HZ)	10	10	14	12	26	13	5	2	16	15
Stage – III(48.8 HZ)	7	7	16	14	29	7	5	3	15	13
Stage – IV(48.6 HZ)	8	8	11	8	23	12	4	1	11	6
Total	**37**	**37**	**47**	**40**	**109**	**45**	**20**	**9**	**58**	**50**






UFR MONITORING DISPLAY_OPTCL
UFR_BIHAR
UFR_JH
FREQ 49.94
UFR_DVC
UFR_WB
STAGE-1
U/F RELAY SETTING :49.2HZ
STAGE-2
U/F RELAY SETTING :49.0HZ
STAGE-3
U/F RELAY SETTING :48.8HZ
STAGE-4
U/F RELAY SETTING :48.6HZ
FEEDER'S NAME
MW
STATUS
KESINGA - 33KV NARIA
JUNAGARH - 33KV CHATRAHAL
BHANJANAGAR - 33 KV KBPUR
ASKA - 33KV BUGUDA
BERHAMPUR - 33KV CHILITI
BALUGAON - 33KV TANGI
KHURDA - 33KV BANKI
NAYAGARH - 33KV KHENDAPADA
BOINDA- 33KV JHARPADA
BHADRAK - 33KV DHAMNAGAR
BALASORE - 33KV SRIJANG
BOLANGIR - 33KV DUMERBAHAL
BARAGARH - 33KV DUNGURI
ROURKELA - 33KV LATHIKATA
KHARIAR - 33KV KHARIAR RE
JAGATSINGHPUR - 33KV BALLKUNDA
JAYANAGAR - 33KV BORIGUMA
SUNABEDA - 33KV LAXMIPUR(NANDPUR)
THERUBALI _33KV BISAM KATAK
PHULBANI - 33KV KALINGA
KENDRAPARA -33KV LUNA
PATTAMMUNDAL- 33KV RAJNAGAR
CHATRAPUR - 33KV TARATARINI(RAMBHA)
CHANDIKHOLE - 33KV KABALABANDHA
NIMAPARA -33KV KAKATPUR
KHURDA -33KV DELANGA
DHENKANAL -33KV HINDOL RD
CHAINPAL - 33KV BANARPAL
JAIPUR ROAD -33KV PANNIKOILI
BHANJANAGAR -33KV BELAGUNTH
SUNDERGARH -33KV BARGOAN
ASKA - 33KV BUDAMBA
BHADRAK - 33KV CHANDBALI
DHENKANAL -33KV GONDA
SAMBALPUR - 33KV RENGALI
BARAGARH - 33KV TURUNG
NAYAGARH -33KV BINODPARA
BRAJRAJNAGAR - 33KV SARGIPALLI
PATNAGARH - 33KV KHAPRAKHOL
PALASPONGA -33KV REMULI
BOINDA - 33KV ATHMALIK
CHAINPAL -33KV PALGANJ
KALARANGI -33KV GODA
KESINGA -33KV TITLAGARH
NIMAPARA -33KV KONERK
ASKA -33KV NUAGAON
JAIPUR ROAD -33KV KUAKHIA
KHARIAR -33KV KHARIAR FEEDER-2
SUNABEDA -33KV NANDAKUMAR FEEDER
BARKOTE - 33KV MAHULDHIA
POLAPONJA - 33KV KEONJHAR
ASKA -33KV KABISURYANAGAR
SUNDERGARH -33KV SABDEGA
BHANJANAGAR - 33KV PHULBANI
KENDRAPARA -33KV PATAMUND
JAIPUR ROAD -33KV ANANDAPUR
BOLANGIR NEW -33KV PATNAGARH
JAYANAGAR -33KV TENTULIKHU

UFR MONITORING DISPLAY_DVC

FREQ → 50.03

STAGE-1
U/F RELAY SETTING :49.2HZ

FEEDER'S NAME	MW	STATUS
GIRIDIH SUB STATION - JSEB LINE 1	↑ 27	
GIRIDIH SUB STATION - JSEB LINE 2	↑ 9	N
KODERMA SUB STATION - JSEB LINE 1	↓ 5 #	N #
KODERMA SUB STATION - JSEB LINE 2	↑ 11 #	N #
BURDWAN- WBSEB LINE 3	↑ 0 #	N #
BURDWAN- WBSEB LINE 4	↑ 0 #	N #

STAGE-2
U/F RELAY SETTING :49.0HZ

FEEDER'S NAME	MW	STATUS
HAZARIBAGH- JSEB LINE 1	↑ 7 #	#
HAZARIBAGH- JSEB LINE 2	↑ 7 #	#
HAZARIBAGH- JSEB LINE 3		
RAMGARH- JSEB LINE 1	↑ 0 M	N #
RAMGARH- JSEB LINE 2	↑ 6 #	N #
PUTKI SUB STATION- JSEB GODHOR F#1	↓ 2 #	#
PUTKI SUB STATION- BHULI F#2(GODHOR F#2)	↑ 0 #	
PUTKI SUB STATION- JSEB GANESHPUR F#1	↑ 0 #	#
PUTKI SUB STATION- JSEB GANESHPUR F#2	↑ 6 #	#
PUTKI SUB STATION- BCCL BHALGORA LINE1	↑ 0 #	N #
PUTKI SUB STATION- BCCL BHALGORA LINE2	↓ 1 #	N #
PUTKI SUB STATION- KATRAS LINE 1 (KATRAS SIJUA)	↑ 0 #	#
PUTKI SUB STATION- KATRAS LINE 2	↑ 5 #	#
PUTKI SUB STATION- KATRAS LINE BCCL		

STAGE-3
U/F RELAY SETTING :48.8HZ

FEEDER'S NAME	MW	STATUS
PATHERDIH SUB STATION - GOVINDAPUR_1	↑ 0 #	#
PATHERDIH SUB STATION - GOVINDAPUR_2	↓ 11 #	N #
PATHERDIH SUB STATION - GOVINDAPUR_3	↑ 0 M	#
PATHERDIH SUB STATION - GOVINDAPUR_4	↑ 0 M	#
PATHERDIH SUB STATION - MUKUNDA		
PATHERDIH SUB STATION - DIGWADI_1	↑ 5 #	#
PATHERDIH SUB STATION - DIGWADI_2	↓ 11 #	#
KALAYNESWARI SUB STATION- BMA STEEL	↑ 124 R	#
KALAYNESWARI SUB STATION- IMPEX STEEL	↑ 0 M	N #
KALAYNESWARI SUB STATION- HIRA CONCAST	↑ 0 M	#
KALAYNESWARI SUB STATION- MPL	↑ 0 M	N #
KUMARDHUBI SUB STATION - MUGMA_1	↑ 5 #	#
KUMARDHUBI SUB STATION - MUGMA_2	↑ 9 #	#
KUMARDHUBI SUB STATION - KUMARDHUBI_1	↑ 8 #	#
KUMARDHUBI SUB STATION - KUMARDHUBI_2	↑ 0 M	#
KUMARDHUBI SUB STATION - SANJOY CHOWK(MUGMA 1 & 2)		

STAGE-4
U/F RELAY SETTING :48.6HZ

FEEDER'S NAME	MW	STATUS
DURGAPUR SUB STATION- GRAPHITE INDIA_1	↑ 0 M	#
DURGAPUR SUB STATION- GRAPHITE INDIA_2	↑ 0 M	#
DURGAPUR SUB STATION- JAI_BALAJI INDUS_1	↑ 0 #	N #
DURGAPUR SUB STATION- JAI_BALAJI INDUS_2	↓ 0 #	#
DURGAPUR SUB STATION- LAI_BALAJI SPONJ		
DURGAPUR SUB STATION- RR_BALAJI INDUS_1	↑ 0 M	#
DURGAPUR SUB STATION- RR_BALAJI INDUS_2	↑ 5	#
DURGAPUR SUB STATION - BRAHMA ALLOY		
DURGAPUR SUB STATION- VENKY STEEL	↑ 4 #	#
DURGAPUR SUB STATION- VSP UDYOG	↑ 0 M	#
DURGAPUR SUB STATION - SHREE GOPAL HI TE		

UFR MONITORING DISPLAY_WEST BENGAL

UFR_BIHAR | UFR_JH | FREQ 49.96 | UFR_DVC | UFR_OPTCL

STAGE-1
U/F RELAY SETTING :49.2HZ

FEEDER'S NAME	MW	STATUS
NBU - 33KV TCF	NA	NA
NBU - 33KV KHANBARI	NA	NA
NBU - 33KV UJANU	NA	NA
NBU - 11KV TEESTA NBU - 11KV BAGDOGRA	NA	NA
NBU - 11KV PHANSIDEWA	NA	NA
ULBERIA - UIGC 1	↑ 4 #	#
ULBERIA - BANITABLA	↑ 12 #	#
ULBERIA - FOODPARK	↑ 10 #	#
ULBERIA - AMTA	↑ 2 #	#
ULBERIA - UIGC 2	↑ 9 #	#
KALYANI - 33KV WBIDC_1	NA	NA
KALYANI - 33KV WBIDC_2	NA	NA
KALYANI - 33KV UNIVERSITY_1	NA	NA
KALYANI - 33KV UNIVERSITY_2	NA	NA
KALYANI - 33KV 1*6.3 MVAR & 1 * 5 MVAR 33/11 KV TR 1,2,3	NA	NA
DHARMAPUR - 33KV PANPUR	NA	NA
DHARMAPUR - 33KV KACHARAPARA	NA	NA
DHARMAPUR - 33KV GAURIPUR	NA	NA
DHARMAPUR - 33KV CHORD RD_1	NA	NA
DHARMAPUR - 33KV CHORD RD_2	NA	NA
DHARMAPUR - 33KV JEERAT	NA	NA
GANGARAMPUR - 33KV BUNIADPUR_1	NA	NA
GANGARAMPUR - 33KV BUNIADPUR_2	NA	NA
GANGARAMPUR - 33KV SALAS	NA	NA
GANGARAMPUR - 33KV RAMPUR	NA	NA
GANGARAMPUR - 2*6.3 MVA R (33/11) TR 1 AND 2	NA	NA
CHAKMIR 55MVA T1(CESC)	↑ 29	
CHAKMIR 55 MVA T2(CESC)	↑ 29	
NCSS KAMARHATI T1(CESC)	NA	NA
NCSS KUTIGHAT T3(CESC)	NA	NA

STAGE-2
U/F RELAY SETTING :49.0HZ

FEEDER'S NAME	MW	STATUS
DOMJUR - 33KV JANGALPUR	NA	NA
DOMJUR - 33KV JALADHULAGURI _1	NA	NA
DOMJUR - 33KV MUNSHIRHAT	NA	NA
BAGNAN - 33KV BAGNAN_1	↑ 12	
BAGNAN - 33KV BAGNAN_2	↑ 0	
BAGNAN - 33KV AMTA	↑ 5	
BAGNAN - MUNGKALYAN_1	↑ 5	
BAGNAN - MUNGKALYAN_2	↑ 6	
MALDA - 33KV NARAYANIPUR	NA	NA
MALDA - HABIBPUR RABINDRA BHAWAN	NA	NA
MALDA - MANIKCHAK	NA	NA
MALDA - 33KV KPS	NA	NA
MALDA - 33KV KALIYACHAK	NA	NA
MALDA - GAZOLE	NA	NA
MALDA - 1*6.3 MVA 1* 5 MVA (33KV/11) TR 1 ,2	NA	NA
NEW BISHNUPUR - 33KV SONAMUKHI	↑ 8	N #
NEW BISHNUPUR - 33KV PATRASAYAR	↑ 0	
BARJORA - 33KV BARJORA - 2	↑ 4 #	
BARJORA - 2 * 6.3 MVA (33KV/11) TRF 1	↑ 1 #	
BARJORA - 2 * 6.3 MVA (33KV/11) TRF 2	NA	NA
DUM DUM - NEW DUM DUM T1(CESC)	↓ 10	
DUM DUM - NEW DUM DUM T2(CESC)	↓ 11	
DUM DUM - SOUTH DUM DUM T1(CESC)		
DUM DUM - DUM DUM T3(CESC)	↓ 10	
BGSS - BAURIA 1 & 3(CESC)	↓ 16	
BGSS - FORE SHORE RD D/S(CESC)	NA	NA
BGSS - SHALIMAR RD D/S(CESC)	NA	NA

STAGE-3
U/F RELAY SETTING :48.8HZ

FEEDER'S NAME	MW	STATUS
LILUHA - 33 KV KONA	NA	NA
LILUHA - 33KV NJP	NA	NA
LILUHA - 33KV KTT	NA	NA
LILUHA - 33KV MKO	NA	NA
LILUHA - 33KV BALTIKURI_1	NA	NA
LILUHA - 33KV BALTIKURI_2	NA	NA
NJP - 33KV RADHABARI	NA	NA
NJP - 33KV RANINAGAR	NA	NA
NJP - 33KV DEBOGRAM	NA	NA
NJP - 33/11 KV 6.3 MVA TRF 1 AT NJP	NA	NA
NJP - 33/11 KV 6.3 MVA TRF 2 AT NJP	NA	NA
SALTLAKE - 33/11 KV MSF 1 AT SALTLAKE	NA	NA
SALTLAKE - 33/11 KV MSF 2 AT SALTLAKE	NA	NA
OLD BISHNUPUR - 33KV KOTOLPUR	NA	NA
OLD BISHUNPUR - 33KV JAIPUR	NA	NA
OLD BISHUNPUR - 33KV SIMLAPUR	NA	NA
OLD BISHUNPUR - ONDA	NA	NA
OLD BISHUNPUR - BANKADAHA	NA	NA
OLD BISHUNPUR - 2 * 5 MVA & 6.3 MVA (33/11) TR 1 ,2 ,3	NA	NA
MAJERHAT - DIAMOND CITY W(CESC)	↓ 9	
MAJERHAT -THAKURPUKUR T1(CESC)	↓ 6	
MAJERHAT -THAKURPUKUR T2(CESC)		
JADAVPORE - SOUTH CITY T2(CESC)	↑ 0 #	#
JADAVPORE - TOLLYGUNGE(CESC)	↓ 24	
KRS - BALLUGUNGE(CESC)	NA	NA
PRS - PRINCEP(CESC)	NA	NA
NCGS - KUTIGHAT T1(CESC)	↓ 5	
NCGS - KUTIGHAT T2(CESC)	↓ 5	
NCGS - KUTIGHAT T3(CESC)	↓ 9	

STAGE-4
U/F RELAY SETTING :48.6HZ

FEEDER'S NAME	MW	STATUS
SILIGURI - 33KV SILIGURI_1	↑ 11	
SILIGURI - 33KV SILIGURI_2	↑ 15	N
SILIGURI - 33KV RABINDRANAGAR_1	↑ 0	N
SILIGURI - 33KV HOUSING BOARD	↑ 1	
DARJELLING - 33KV LEBONG	NA	NA
DARJELLING - 33KV HAPPY VALLEY	NA	NA
JANGIPARA - 33KV JANGIPARA	↑ 0	
JANGIPARA - 33KV SAIKHALA	↑ 8	
JANGIPARA - 33KV SINGHATI	↑ 8	
JANGIPARA - 6.3 MVA 33/11 KV TRF 1 AT JAGNIPARA	↑ 2	
JANGIPARA - 6.3 MVA 33/11 KV TRF 2 AT JAGNIPARA	↑ 2	
TAMLUK - BARBELA	NA	NA
TAMLUK - MOYNA	NA	NA
TAMLUK - GOPALPUR	NA	NA
TAMLUK - TAMLUK	NA	NA
TAMLUK - 6.3 MVA 33/11 KV TRF 1 &2 AT TAMLUK	NA	NA
RISHRA - 33KV RAGHUNATHPUR	NA	NA
RISHRA - 33KV DANKUNI 1 &2	NA	NA
RISHRA - KAIKALA -2	NA	NA
RISHRA - 4 * 6.3 MVA (33/11 KV) TRF 1, 2,3 &4	NA	NA
LILUAH - WBSETCL 1(CESC)	↑ 25	NA
LILUAH - WBSETCL 2(CESC)	↑ 24	NA
LILUAH - WBSETCL 3(CESC)	↑ 24	NA

DETAILS REQUIRED FOR PMU-1

Annexure-1

SIGNALS REQUIRED FOR CONFIGURATION OF PMU & SWITCH	DETAILS REQUIRED FOR PMU INTEGRATION WITH LDC	REMARK
SUBSTATION NAME		Name of substaion, example: for Kankroli it is KNKRL_PG, for Rihand it is RIHND_NT
REPORTING LDC		Name of control station where PMU data is require to report
NO OF PMU		No. of PMU as per architecture, considering 1 PMU can accommodate 2 no. of line data
VLAN ID		
PMU IP		This IP is to be provided by PGCIL considering no conflict from all other PMU's reporting to RLDC
SUBNET MASK		
SWITCH IP		Switch IP will be in same series as PMU IP, it is same for all PMU's
GATEWAY IP		Gateway IP will be in same series as PMU IP, it is same for all PMU's
PDC-1 IP		PDC at control center-1
PDC-2 IP		PDC at control center-2 if pmu reporting to 2 LDC's
VT-1 Ratio		VT/CT ratio of Bay-1 connected in PMU-1
CT-1 Ratio		
VT-2 Ratio		VT/CT ratio of Bay-2 connected in PMU-2
CT-2 Ratio		
STREAM 1 ID CODE		PMU id code
PMU 1 ID CODE		Virtual PMU-1 id code for bay -1
PMU 2 ID CODE		Virtual PMU-2 id code for bay-2
PORT DETAIL OF SDH PANEL		port available in SDH panel where PMU switch is required to connect for sending data to LDC
CHANNEL NAMING		
SUBSTATION NAME		CHANNEL NAMING OF ALL ANALOG SIGNALS OF BAY-1 IN PMU, ALL MUST BE OF 16 CHARACTER
V1A		
V1B		
V1C		
V1 POS		
I1A		
I1B		
I1C		
I1 POS		
WATT		
VAR		
DIGITAL 1		CHANNEL NAMING OF ALL DIGITAL SIGNALS OF BAY-1 & BAY-2 REQUIRED IN PMU-1, ALL MUST BE OF 16 CHARACTER
DIGITAL 2		
DIGITAL 3		
DIGITAL 4		
DIGITAL 5		
DIGITAL 6		
DIGITAL 7		
DIGITAL 8		
DIGITAL 9		
DIGITAL 10		
DIGITAL 11		
DIGITAL 12		
DIGITAL 13		
DIGITAL 14		
DIGITAL 15		
DIGITAL 16		
V2A		CHANNEL NAMING OF ALL ANALOG SIGNALS OF BAY-2 IN PMU, ALL MUST BE OF 16 CHARACTER
V2B		
V2C		
V2 POS		
I2A		
I2B		
I2C		
I2 POS		
WATT		
VAR		

DETAILS REQUIRED FOR PMU-2

SIGNALS REQUIRED FOR CONFIGURATION OF PMU & SWITCH	DETAILS REQUIRED FOR PMU INTEGRATION WITH LDC	REMARK
SUBSTATION NAME		Name of substaion, example: for Kankroli it is KNKRL_PG, for Rihand it is RIHND_NT
REPORTING LDC		Name of control station where PMU data is require to report
NO OF PMU		No. of PMU as per architecture, considering 1 PMU can accommodate 2 no. of line data
VLAN ID		
PMU IP		This IP is to be provided by PGCIL considering no conflict from all other PMU's reporting to RLDC
SUBNET MASK		
SWITCH IP		Switch IP will be in same series as PMU IP, it is same for all PMU's
GATEWAY IP		Gateway IP will be in same series as PMU IP, it is same for all PMU's
PDC-1 IP		PDC at control center-1
PDC-2 IP		PDC at control center-2 if pmu reporting to 2 LDC's
VT-1 Ratio		VT/CT ratio of Bay-1 connected in PMU-2
CT-1 Ratio		
VT-2 Ratio		VT/CT ratio of Bay-2 connected in PMU-2
CT-2 Ratio		
STREAM 1 ID CODE		PMU id code
PMU 1 ID CODE		Virtual PMU-1 id code for bay -1
PMU 2 ID CODE		Virtual PMU-2 id code for bay-2
PORT DETAIL OF SDH PANEL		port available in SDH panel where PMU switch is required to connect for sending data to LDC
CHANNEL NAMING		
SUBSTATION NAME		CHANNEL NAMING OF ALL ANALOG SIGNALS OF BAY-1 IN PMU, ALL MUST BE OF 16 CHARACTER
V1A		
V1B		
V1C		
V1 POS		
I1A		
I1B		
I1C		
I1 POS		
WATT		
VAR		
DIGITAL 1		CHANNEL NAMING OF ALL DIGITAL SIGNALS OF BAY-1 & BAY-2 REQUIRED IN PMU-1, ALL MUST BE OF 16 CHARACTER
DIGITAL 2		
DIGITAL 3		
DIGITAL 4		
DIGITAL 5		
DIGITAL 6		
DIGITAL 7		
DIGITAL 8		
DIGITAL 9		
DIGITAL 10		
DIGITAL 11		
DIGITAL 12		
DIGITAL 13		
DIGITAL 14		
DIGITAL 15		
DIGITAL 16		
V2A		CHANNEL NAMING OF ALL ANALOG SIGNALS OF BAY-2 IN PMU, ALL MUST BE OF 16 CHARACTER
V2B		
V2C		
V2 POS		
I2A		
I2B		
I2C		
I2 POS		
WATT		
VAR		