

# DEPARTMENT OF ENERGY

## DISASTER MANAGEMENT PLAN 2022-23

---

Government of Odisha

4/28/2022



## Executive Summary

Disaster Management (DM) Plan of Energy Department for the year 2022-23 deliberates the responsibility of various power utilities in the State. There are thirteen (13) nos. energy sectors organizations covering coal production, power generation, transmission & distribution. All the organizations will abide the departmental DM plan and maintain a holistic inter-departmental coordination to mitigate the hazard and reduce the losses. Arrangement of adequate men and materials, is one of the challenging tasks before the utility during such calamities in order to restore power supply on war footing. Maintaining/ restoring power supply to public water works, health institutions, telecom infrastructure & important public institutions is the topmost priority in the event of any disaster such as cyclone, flood etc.

The key objective of this document is to provide the required coordination, i.e., inter-organizational, inter-departmental, inter-State, SRC, OSDMA, ODRAF, Ministry of Power and zonal/central agencies like ERPC, NDMA, NDRF, CEA, POSOCO, PGCIL etc., improve the collective preparedness & response to disasters, organizing resources & assistance, overseeing the restoration and provide administrative support & emergency assistance to the organizations. The Department has already prescribed the Standard Operating Procedure (SOP) in December 2021 for cyclones covering pre-cyclone preparedness, functioning of emergency response teams, post-cyclone response & restoration and challenges. The said SOP is annexed at **Annexure-A** and will be considered as part of the DMP of Energy Department. Salient features of the Organizational DMPs of the Energy sector utilities/ organizations are attached at **Annexure-B**.

## Contents

Executive Summary .....	2
1. Background.....	4
2. Need for the Plan .....	4
3. Vision .....	5
4. Objectives of the Plan .....	5
5. Plan Activation.....	5
6. Plan Implementation .....	6
7. Emergency Response and Recovery Overview.....	6
8. Hazard, vulnerability and Risk .....	7
Cyclone/Flood .....	8
9. Energy Department Profile.....	10
10. Institutional Framework .....	10
11. Central Control Room.....	12
12. Power Generation Capacity in the state.....	12
13. Transmission & Distribution Infrastructure .....	13
14. Advance Preparations & Mock-Drill.....	13
15. Important Recommendations of CEA Task Force Report .....	14
16. Back-Up SLDC at Meramundali Grid, Angul.....	16
17. Important Telephone Numbers .....	16
Annexure-A	
Annexure-B	

## I. Background

All Departments/ organizations need to prepare their disaster management plans & update them every year as per the provisions of Disaster Management Act 2005 as prescribed by OSDMA.

The National Disaster Management Act, 2005 (NDM Act 2005) lay down institutional coordination mechanism for effective Disaster Management (DM) at the National, State, District and local levels. Government of Odisha has created multi-layered institutional mechanisms i.e. Odisha State Disaster Management Authority (OSDMA) at State level & suitable mechanisms at District, Municipal Corporation/ Town, Block and village levels. The institutional arrangements have been set up consistent with the paradigm shift from the relief-centric approach of the past to a proactive, holistic and integrated approach for Disaster Risk Reduction by way of strengthening disaster preparedness, community involvement & holistic response.

The NDM Act 2005 defines disaster as;

*“Disaster means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.”*

The losses and impacts that characterise disasters usually have much to do with the exposure, vulnerability and coping capacity of people and places as they do with the severity of the hazard event. Therefore, there is need to relook at a natural disaster; disasters often follow natural hazards which is required to be mitigated

## 2. Need for the Plan

DM plan of Energy Dept. is a guidance for all the sectors viz. Generation, Transmission, Distribution, Electrical Inspectorate etc. under its control, to abide the responsibility during any disaster in a holistic approach.

Section 23 (I) of The Disaster Management Act, 2005 also reads –There shall be a plan for disaster management for every State to be called State Disaster Management Plan. Apart from these statutory requirements, the hazard profile and disaster history of the state demands for a comprehensive state disaster management plan to be in place for coordinated and streamlined management of disaster in the State.

In today’s situation, the energy security plays a crucial role for wellbeing of human race. Hence the Disaster Management Plan of Energy Dept. is an important component of State plan.

### 3. Vision

Enhancing the capacity of all utilities to respond to disasters in a planned way to minimize loss of lives, livelihoods and economic loss in different forms. Ensuring the continuity of power supply to critical infrastructure i.e. health, water supply, telecommunication, public administration and making them disaster resilient.

### 4. Objectives of the Plan

- Formulate various measures and guidelines for prevention and mitigation.
- To lay down preparedness measures for all sectors under Dept. of Energy.
- To build the capacity of all utilities in the state to cope with the disasters and promote community based disaster management.
- To provide clarity on roles and responsibilities for all utilities concerned with various phases of disaster management.
- To ensure co-ordination and promote productive partnership with all other agencies related to disaster management.
- To mainstream disaster management concerns into the developmental planning process.
- To develop efficient, streamlined and rapid disaster response and relief mechanism in the state.
- Invest in disaster risk reduction for resilience through structural, non-structural and financial measures, as well as comprehensive capacity development.
- To commence recovery programme as an opportunity to build back better in case of a future disaster by incorporating community in the programme.
- Strengthen disaster risk modelling, assessment, mapping, monitoring and multi-hazard early warning systems.
- Effective use of science, technology and traditional knowledge in all aspects of DM.

### 5. Plan Activation

The disaster response structure will be activated on the receipt of disaster warning/on the occurrence of the disaster. The occurrence of disaster may be reported SRC by the fastest means. The SRC will activate all *departments for emergency response* including the State SRC, District RC and Regional ERCs. Also, they will issue instructions to include the following details:

- Exact quantum of resources (in terms of manpower, equipment and essential items from key departments/stakeholders) that is required.
- The type of assistance to be provided
- The time limit within which assistance is needed
- Details of other Task/Response Forces through which coordination should take place

The State SRCs and other control rooms at the State level as well as District control rooms once activated, shall be coordinated with full strength by respective energy control room. The State Government declare such areas to be disaster-affected area under OSDMA Act. Upon such information, Dept. of Energy will activate it concerned area utilities and review the status and preparedness to handle the disaster.

Once the situation is totally controlled and normalcy is restored, the SRC declares End of Emergency Response and accordingly the resources deployed in emergency duties shall be withdrawn

## **6. Plan Implementation**

Both the DM Act 2005 and OSDM plan enjoins State Governments to make provisions for the implementation of the disaster management plans. Government of Odisha make provisions, in its annual budget, for funds for the purposes of carrying out the activities and programmes set out in its disaster management plan. Department of Energy shall take the actions as per resource allocation in the budget.

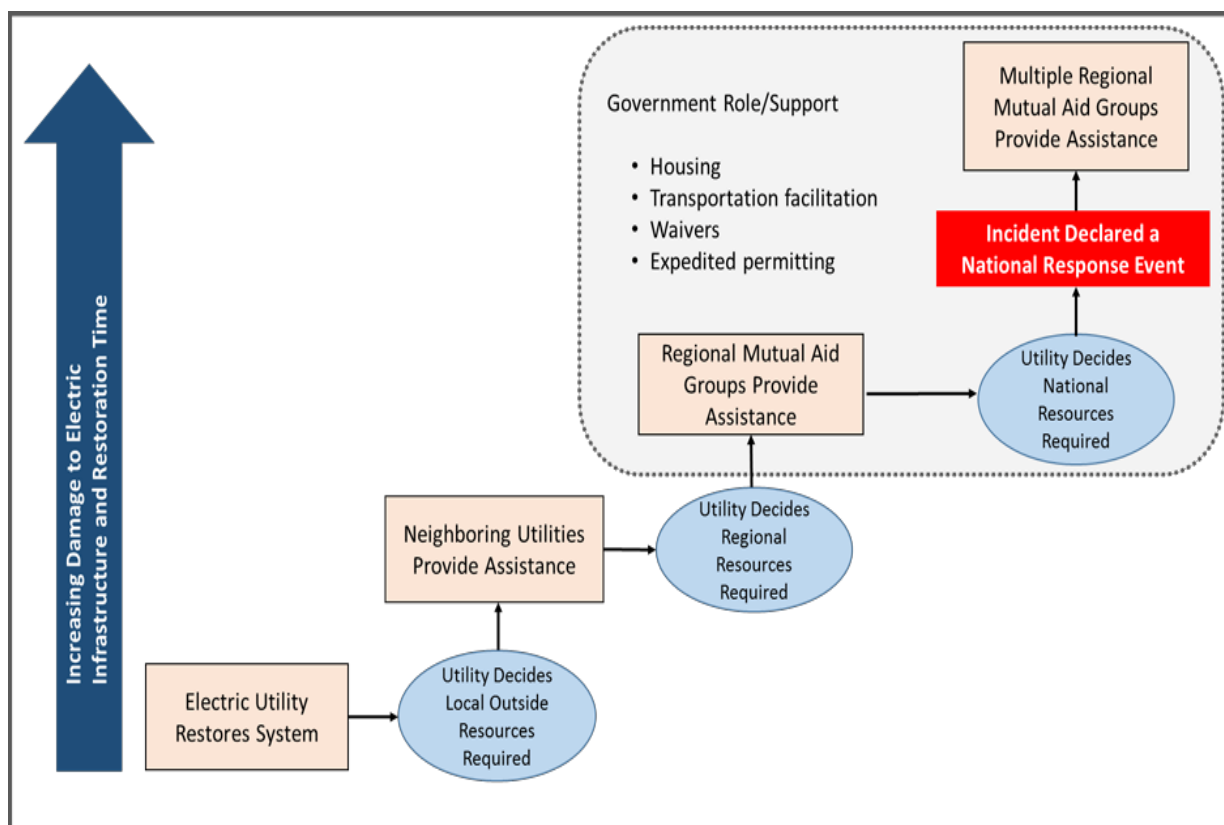
## **7. Emergency Response and Recovery Overview**

Department of Energy (DoE), at all levels is involved in responding to natural disasters, Accidents and other incidents that affect the electricity supply. The electric power providers/utilities, however, are responsible for restoring damaged infrastructure and restoring services within a minimum time. Department of Energy plays an important roles in coordinating the response, gathering and sharing of information, and communicating with concerned utilities/departments.

DoE's primary role in responding to energy crises or emergencies is one of coordination, communication and administration of the whole activities. In severe emergencies, DoE plays additional roles such as providing logistical support—for example, location and transportation of repair crews and equipment; assisting in damage assessments; regulatory relief environmental control waivers; security forces; police and fire protection; and/or escort of materials, equipment, and personnel etc.

The electric network is subject to natural and man-made events that could lead to infrastructure damage and subsequent power outages. The extent of damage to the infrastructure determines the amount of resources that will be required to restore operations.

Figure below visually displays this relationship, and, in addition, indicates that there is a “tipping point” at which external resources will be needed by utility providers to address increased damage to the infrastructure and potentially trigger a national-level response.



**Figure : Restoration Resource Process**

## 8. Hazard, vulnerability and Risk

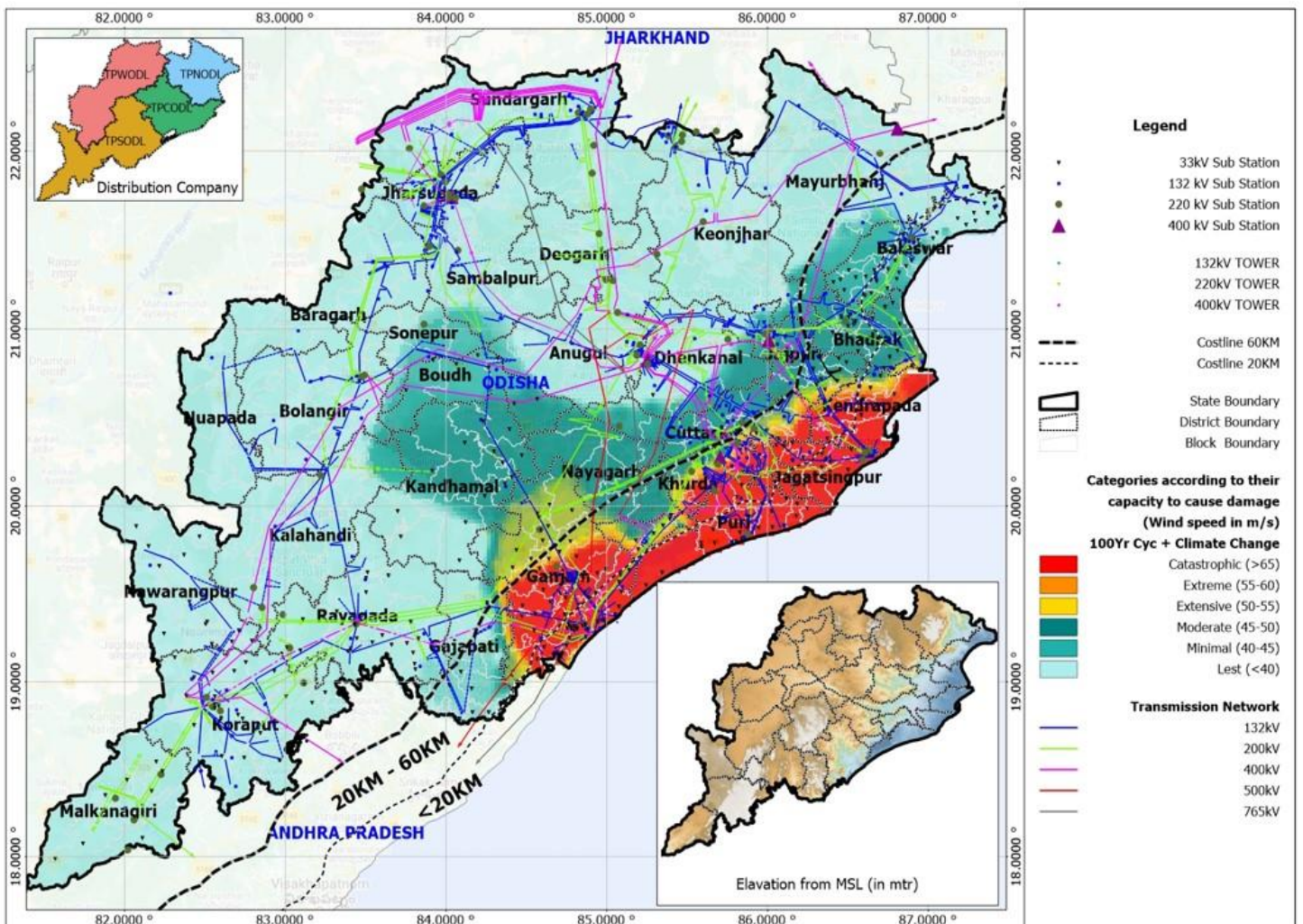
Owing to its geo-climatic, geological and physical features, Odisha is vulnerable to all major natural hazards namely, drought, flood, cyclone, whirl wind, tsunami, heat wave, earth quake, lightning etc. The State is also under constant threat of various human made hazards like that of Industrial chemical hazards, fire, transportation accidents, epidemic, accidents, etc. Odisha is a multi-hazard prone State in the eastern part of India. Odisha has approx. 480 km long coast line, which is more vulnerable to cyclones, storm surges and floods. As per IMD, 314 cyclones crossed the Eastern coast during 1891 to 2021. Out of which, Odisha faced 98 cyclones during these years. A snapshot of the cyclones faced during last 10 years is tabulated below;

Year	Oct. 2013	Oct. 2014	Oct. 2018	May 2019	Nov. 2019	May 2020	May 2021
Cyclone	PHAILIN	HUDHUD	TITLI	FANI	BULBUL	AMPHAN	YAAS
Wind Speed (Kmph)	205-220	180-190	140-150	200-215	110-120	155-165	130-150
No. of Districts Affected	19	15	17	14	9	4	13
Electricity Consumers Affected	38 lakh	7 lakh	9 lakh	30 lakh	15 lakh	45 lakh	30 lakh





## WIND & CYCLONE ZONES OF ORISSA



## 9. Energy Department Profile

Thirteen (13) public sector undertakings (PSUs) & organizations functioning under the administrative control of Energy Department. Besides that OTPCL has not started its operations yet.

Each utility has their own DM plans and shared with Energy and OSDMA

Category	PSU/ Organization
<b>Power Generation</b>	Odisha Hydro Power Corporation (OHPC) Odisha Power Generation Corporation (OPGC) Green Energy Development Corporation Ltd. (GEDCOL)
<b>Power Transmission</b>	Odisha Power Transmission Corporation Ltd. (OPTCL)
<b>Grid Operation</b>	State Load Despatch Centre (SLDC)
<b>Bulk Power Aggregator &amp; Distribution Monitoring</b>	GRIDCO Ltd (GRIDCO)
<b>Coal Mining</b>	Odisha Coal and Power Ltd (OCPL)
<b>Renewable Energy Service</b>	Odisha Renewable Energy Development Agency (OREDA)
<b>Power Distribution (<i>Privatized-M/s TPCL:51% &amp; GoO through GRIDCO:49%</i>)</b>	TP Central Odisha Distribution Ltd. (TPCODL) TP Western Odisha Distribution Ltd. (TPWODL) TP Southern Odisha Distribution Ltd. (TPSODL) TP Northern Odisha Distribution Ltd. (TPNODL)
<b>Electrical Licensing, Testing, Inspection, Electricity Duty &amp; Energy Conservation</b>	Engineer-in-Chief (Electricity)

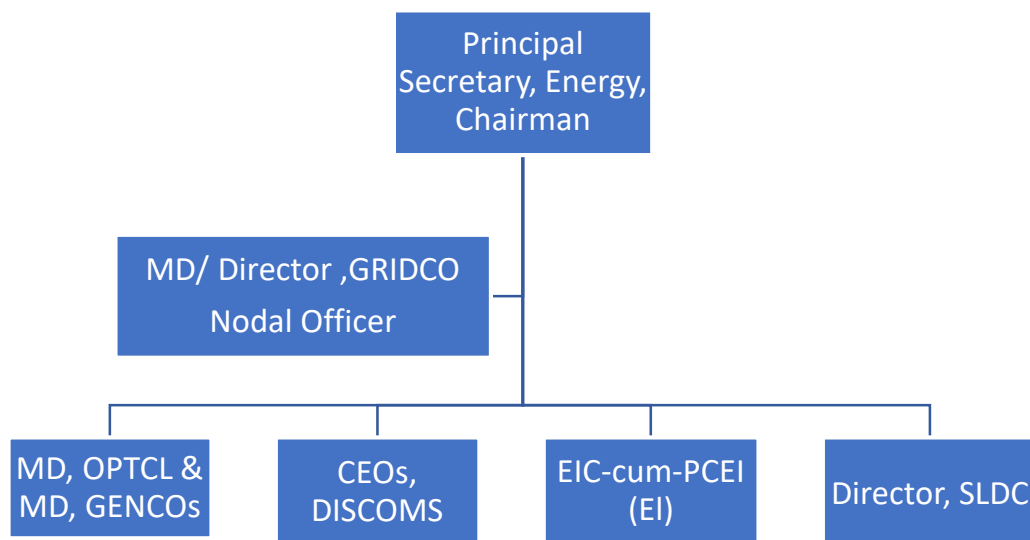
## 10. Institutional Framework

### a. State Level Disaster Management Group

The State level Disaster Management Group in Energy Department shall comprise of;

- Principal Secretary, Energy – *Chairperson*
- CMD/MD/CEOs of GENCO, GRIDCO, TRANSO & DISCOMs
- EIC (Electricity)-cum-PCEI, Odisha
- Director, SLDC
- MD/Director, GRIDCO – *Convener*

## b. Disaster Management Structure of DoE



## c. Functions

Energy Dept.	Overall monitoring of the situation, assistance to the utilities for arranging men and materials, approval from competent authority for procurement, coordination with other departments & States, approval of special rates for labour & vehicles etc.
GRIDCO	DISCOMs will directly contact GRIDCO for all kinds of support during disaster. Coordination with all stakeholders, DOE, GoO, OSDMA, OERC, CEA, MoP etc.
EIC-cum-PCEI (EI)	Responsibility to adhere to technical specifications of the materials to be used at the time of restoration. coordination with electrical contractors and arrangement of contractor manpower.
OPTCL & DISCOMs	Make the transmission & distribution network disaster resilient. Maintain stock of ERS (OPTCL), stock of essential materials. Keep rate contracts ready, establish control room during disaster, subsequent disaster restoration.
SLDC	Will provide detailed information on Generation and power flow scenario during disaster. Manage the State Grid in coordination with ERLDC & NLDC
GENCOs	Regulate power generation as per requirement of SLDC

## 11. Central Control Room

GRIDCO has been identified as the Nodal Agency for operating the Central Control Room for Energy Department, as it plays the crucial role in the energy value chain and involved with GENCOs, TRANSCO, Grid Operators, Power Exchanges & DISCOMs, at Central, intra-State & inter-State level in operation as well as policy formulations. This Central Control Room has been instrumental in assisting the affected organizations for preparedness & response during past disasters. The Central Control Room will be activated immediately on receipt of alert message from IMD and/or OSDMA/ State Govt.

Key functionalities of the Central Control Room will be;

- Continuous situation monitoring on 24x7 basis.
- Coordination with DISCOMs, OPTCL, SLDC, OSDMA and Energy Dept.
- Coordination with intra-State & inter-State agencies for arrangement/ mobilization of man-power, material, machinery, vehicle, ancillary equipment.
- Coordination with central agencies like NDMA, CEA and Ministry of Power for emergency assistance from NDRF/ SDRF, MIS reporting etc.
- Organizing reports/presentations/meetings etc. for Energy Dept.
- Support to DISCOMs for damage assessment & preparation and verification of claim.
- Monitoring of response & restoration works.
- Coordination with Central Team/Agencies for field visits.
- Assist DISCOMs for preparation of Memorandum for Central Team.
- Coordinating with OERC for regulatory assistance during restoration.

## 12. Power Generation Capacity in the State

Description	Installed Capacity (MW)	Contracted Capacity (MW)
<b>State Hydro (OHPC)</b>	<b>2,160</b>	<b>2,095</b>
a. Hirakud, Burla	287.8	282.8
b. Chipilima, Sambalpur	72	72
c. Rengali, Angul	250	250
d. Balimela, Malkangiri	510	510
e. Upper Kolab, Koraput	320	320
f. Upper Indravati, Kalahandi	600	600
g. Machhkund, Koraput	120	60
<b>State Thermal (OPGC)</b>	<b>1,740</b>	<b>1,410</b>
a. IB-Thermal (Stg. I), Jharsuguda	420	420
b. IB-Thermal (Stg. II), Jharsuguda	1,320	990
<b>Independent Power Producers (IPPs)</b>	<b>4,710</b>	<b>1,134</b>
a. Vedanta, Jharsuguda	2,400	720

b. GKEL, Dhenkanal	1,050	262.5
c. JITPL, Angul	1,200	144
d. NBVL, Dhenkanal	60	7.2
<b>Central Sector Hydro Stations</b>	<b>#</b>	<b>268</b>
<b>Central Sector Thermal (NTPC)</b>	<b>3,600</b>	<b>1,766</b>
a. Darlipalli, Sundergarh	1,600	941
b. TSTPS-I, Angul	1,000	323
c. TSTPS-II, Angul	2,000	200
d. Others	#	302
<b>Total Conventional</b>	<b>12,210</b>	<b>6,673</b>
<b>Solar Sector</b>	<b>427</b>	<b>1,002</b>
a. Solar (Inside State)	427	427
b. Solar (Others)	#	575
<b>Non-Solar Sector</b>	<b>120</b>	<b>442</b>
a. Non-Solar (Inside State)	120	120
b. Non-Solar (Others)	#	322
<b>Total Renewable</b>	<b>547</b>	<b>1,444</b>
<b>Total</b>	<b>12,757</b>	<b>8,117</b>

# Installed outside the State

### 13. Transmission & Distribution Infrastructure

Particulars	Unit	Dec. 2021
<b>Consumers</b>	Lakh	94.1
<b>Peak Demand</b>	MW	5,100
<b>Energy</b>	MU	28,731
<b>EHT Line</b>	Ckt. Kms	16,635
<b>EHT GRID Stations</b>	Nos.	175
<b>33/11 kV Sub-stations</b>	Nos.	1,115
<b>DTR Sub-stations</b>	Lakh	2.66
<b>HT &amp; LT Network</b>	Lakh Kms	3.96

### 14. Advance Preparations & Mock-Drill

As cyclones are faced mostly during pre-monsoon (Apr.-May) & return monsoon (Oct.-Nov.) period, DISCOMs and OPTCL will take following timely actions;

- Take stock of emergency inventory and submit report to Energy Dept. – by 30th April / 30<sup>th</sup> September.



In case of requirement, initiate procurement action in advance, so as to complete the procurement before Apr. during pre-monsoon period & before Sep. during post-monsoon period.

- ii. All DISCOMs to collectively will have a rolling stock of emergency line materials & DTRs etc. for repair/ restoration of at least 10% network (both HT & LT) of the coastal districts, which are prone to frequent damage.

The Department will convene preparatory meetings in advance both during pre-monsoon & post-monsoon period. DISCOMs will participate in Disaster Mitigation Mock-Drill(s) along with OPTCL & OSDMA.

## **15. Important Recommendations of CEA Task Force Report**

A Task Force was constituted by CEA on Cyclone Resilient Robust Electricity Transmission & Distribution Infrastructure in the coastal areas of the Country. The Task Force finalized its report in March 2021. Key recommendations made by the Task Force are given hereunder;

### **I. TRANSMISSION**

#### **i. Existing Lines**

- a) The replacement of failed / damaged tower (s) [designed as per old standard] with new tower (s) designed according to latest standard (replacement can be with similar tower/ tension type tower / Steel pole) and strengthening of the towers using hip bracing below the bottom cross arm level.
- b) Regular Monitoring, Patrolling and Maintenance of transmission lines and use of anti-corrosive paint coating for protection of steel structures etc.

#### **ii. New Lines**

- a) The modifications in design loads considering reliability level as per CEA Regulations, wind speed as per revised wind map & consideration of higher of two wind zones up to a distance of 50km (from the boundary of two wind zones) and by introduction K4 factor in IS 802 (in line with IS 875) & changing the drag coefficients for tower members.
- b) Reduction in number of consecutive spans between the section / angle points.
- c) Modification in configuration of transmission line towers.
- d) Use of narrow base lattice towers or steel Poles
- e) Use of underground cable system for connecting to important load centres.
- f) Use of New generation conductors.
- g) To provide protection to tower member against corrosion.

- h) To adopt proper measures for foundations & reinforcement of foundation including use of raised chimney in flood prone areas.
  - i) Focus on material quality, workmanship in construction and good maintenance practice etc.
- iii. Existing Grid Station
- a) Exploring the possibilities of conversion of existing AIS to GIS substation for transmission substations.
  - b) Examining the feasibility of conversion of Air insulated distribution substations to indoor installation with conventional switchgear / GIS without affecting power supply etc.
- iv. New Grid Station
- a) The construction of compact & modular indoor GIS installations up to 60km from the coastline above the historical water stagnation/ logging level (based on locally available data) or Highest Flood Level (HFL).
  - b) Use of high ductile strength steel for construction of buildings etc.

## **II. DISTRIBUTION**

- i. Existing Lines
- a) Refurbishment of existing line by use of rail poles / joist / Spun Poles / Double Pole (DP) structure,
  - b) Introduction of additional poles in between span.
  - c) Conversion of overhead lines to underground cable system at 33 kV and 11kV level in urban areas located within 20km of coast line and similar action to be taken in stages for areas located beyond 20km & up to 60km based on importance of connectivity with load centres.
  - d) Use of epoxy-based paint coating for protection against corrosion of steel structures.
  - e) Installation of distribution transformer on plinth mounted structure.
  - f) Use of Aerial Bunched cable for 11kV & LT overhead lines.
  - g) Splitting the large network into smaller systems for fast restoration etc.
- ii. New Lines
- a) The designing of underground cable system within 20km from coast line and similar action for areas located beyond 20km & up to 60km based on importance of the connectivity with load centres.
  - b) Use of Aerial Bunched Cable for 11kV & LT lines.
  - c) Use of robust steel monopoles, galvanized steel poles / rails / joists/ Double pole structures, tubular poles of concrete / composite material / galvanised steel lattice structure.

- d) Method of testing of structures used for overhead Distribution lines to be formulated to ensure reliability of structure.
- e) Use of HVDS system to avoid long LT line and for other benefits.
- f) Use of structures with reduced span of 40-50m (designed for span of 60-100 mtr)
- g) Use of plinth mounted Distribution transformers, designing of Ring Main Unit (RMU) and Feeder Pillars etc.

### iii. Existing Sub-Station

- a) Exploring the possibilities of conversion of existing AIS to GIS substation for transmission substations.
- b) Examining the feasibility of conversion of Air insulated distribution substations to indoor installation with conventional switchgear / GIS without affecting power supply etc.

### iv. New Sub-Station

- a) Use of indoor installation (with conventional switchgear / GIS) for all new Distribution Substation and compact substation with underground cable system.
- b) Adoption of concept of smart grid, automation, AMI and robust communication system etc.

The Report suggested for taking up the recommended measures within 20km of coastline on priority and beyond 20km & up to 60km of the coast line based on importance/criticality.

## 16. Back-Up SLDC at Meramundali Grid, Angul

A fully functional backup State Load Despatch Centre (SLDC) has been operationalized at Meramundali 400 kV STU GRID Station, Angul, which is about 100 kms from the main SLDC at Bhubaneswar. Any emergency can be handled and the Odisha as well as Eastern Region Power Network can be monitored & controlled from the back-up SLDC.

## 17. Important Contact Details

Sl.	Organisation	Office	Mobile	Email
1	SRC, Odisha & M.D., OSDMA	0674-2534180	9437445000	<a href="mailto:srcodishagov@gmail.com">srcodishagov@gmail.com</a>
2	ACS, Water Resources	0674-2536764	9810634242	<a href="mailto:wrsec.or@nic.in">wrsec.or@nic.in</a>
3	Pr. Secretary, Energy	0674-2536960	9650211500	<a href="mailto:energydept.odisha@gmail.com">energydept.odisha@gmail.com</a>
4	EIC-cum-PCEI (EI)	0674-2394873	9437423568	<a href="mailto:eic-pcei@nic.in">eic-pcei@nic.in</a>



	Secretary I/C, OERC	0674-2721930	9937170371	<a href="mailto:patnaikodisha@gmail.com">patnaikodisha@gmail.com</a>
5	M.D., GRIDCO	0674-2540877	7327035888	<a href="mailto:mdgridco@gmail.com">mdgridco@gmail.com</a>
6	Director (F&CA), GRIDCO	0674-2543452	9337780873	<a href="mailto:gridcodfca@yahoo.co.in">gridcodfca@yahoo.co.in</a>
7	M.D., OPTCL	0674-2545821	9438907005	<a href="mailto:md@optcl.co.in">md@optcl.co.in</a>
8	Director (Operation), OPTCL	0674-2543807	9438907780	<a href="mailto:dir.operation@optcl.co.in">dir.operation@optcl.co.in</a>
9	Director, SLDC	0674-2748885	9438907008	<a href="mailto:dir.sldc@optcl.co.in">dir.sldc@optcl.co.in</a>
10	CEO, TPCODL	0674-2533726	9223316470	<a href="mailto:ceo@tpcentralodisha.com">ceo@tpcentralodisha.com</a>
11	Chief (Operation), TPCODL	0674-2543721	9871800507	<a href="mailto:rajkumar.rastogi@tpcentralodisha.com">rajkumar.rastogi@tpcentralodisha.com</a>
12	CEO, TPNODL		9223512396	<a href="mailto:ceooffice@tpnodl.com">ceooffice@tpnodl.com</a>
13	Chief (Operation), TPNODL		9971555724	<a href="mailto:dk.tyagi@tpnodl.com">dk.tyagi@tpnodl.com</a>
14	CEO, TPSODL	0680-2233971	9871633588	<a href="mailto:ceo.office@tpsouthernodisha.com">ceo.office@tpsouthernodisha.com</a>
15	Chief (Operation), TPSODL		9223220833	<a href="mailto:mpkulkarni@tpsouthernodisha.com">mpkulkarni@tpsouthernodisha.com</a>
16	CEO, TPWODL	0663-2432113	9437245998	<a href="mailto:ceo.tpwodl@tpwesternodisha.com">ceo.tpwodl@tpwesternodisha.com</a>
17	Chief (Operation), TPWODL		9776470001	<a href="mailto:sumit.ghosh@tpwesternodisha.com">sumit.ghosh@tpwesternodisha.com</a>
18	CEO, OCPL	0674-2300654	7077720001	<a href="mailto:sariputta.mishra@ocpl.org.in">sariputta.mishra@ocpl.org.in</a>
19	M.D., OPGC	0674-2303752	8085957888	<a href="mailto:md@opgc.co.in">md@opgc.co.in</a>
20	Director (Operation), OPGC	0674-2302754	9937000131	<a href="mailto:md@opgc.co.in">md@opgc.co.in</a>
21	M.D., OHPC	0674-2542862	9958847222	<a href="mailto:ohpc.co@gmail.com">ohpc.co@gmail.com</a>
22	Director (Operation), OHPC	0674-2542834	7328840420	<a href="mailto:do@ohpcltd.com">do@ohpcltd.com</a>
27	DG, Police , Odisha	0671-2304451	9438916000	<a href="mailto:sphqrs.odpol@nic.in">sphqrs.odpol@nic.in</a>
28	DG, Fire Services, Odisha	0671-2300317	9868844470	<a href="mailto:dgfs-hgs-cd.od@gov.in">dgfs-hgs-cd.od@gov.in</a>
29	M.D., OFDC	0674-2534067	8895586711	<a href="mailto:md.ofdc@odishafdc.com">md.ofdc@odishafdc.com</a>
32	ERLDC	033 2423 5867		<a href="mailto:erldc@posoco.in">erldc@posoco.in</a>
33	NLDC/ POSOCO	011 26524522		<a href="mailto:cmd@posoco.in">cmd@posoco.in</a>
34	CE (DPR), CEA	011-26732661		<a href="mailto:cedpr-cea@gov.in">cedpr-cea@gov.in</a>
35	Secretary, Ministry of Power, Gol	011-23721487		<a href="mailto:secy-power@nic.in">secy-power@nic.in</a>

--xxx--

GOVERNMENT OF ODISHA  
DEPARTMENT OF ENERGY

\*\*\*\*\*

No. 11379 /En., Bhubaneswar  
ENG-GEN-MISC-0058-2021Date: 02/12/2021

From

Dhananjaya Swain, OAS (SS)  
Special Secretary to Government

To

Managing Director, OPTCL  
Managing Director, GRIDCO  
Director, SLDC  
CEO, TPSODL / CEO, TPCODL / CEO, TPNODL**Sub: Preparedness in the wake of the upcoming cyclone alert for "JAWAD".****Ref:** Letter No 6837 dated 01/12/2021 of SRC & Additional Chief Secretary to Govt.  
(Disaster Management).

Sir,

Inviting a reference to the subject cited above on the impending cyclone "JAWAD" which would impact the coastal districts of the State, I am directed to request you to take following necessary measures and furnish periodical status report;

1. Necessary Guidelines/Advisories please be issued to field functionaries.
2. Disaster Mitigation Plan please be activated immediately.
3. Set up 24x7 control room in DISCOMs, OPTCL along with a Central Control Room under GRIDCO for co-ordination with Energy Dept. and SRC. The single point contact of the designated person of control room should be shared.
4. OPTCL & SLDC to plan for Grid management during the cyclone in coordination with ERLDC, GENCOs & DISCOMs, to prevent any possible black-out/islanding.

A copy of the SOP on cyclone management prepared by the Department is enclosed.

This may be treated as most urgent.

Yours faithfully,

Encl.: as above

Memo No. 11380Dt: 02/12/2021 Special Secretary to Govt.

Copy forwarded to: Director (Operation), OHPC / Director (Operation), OPTCL / Director (F&CA), GRIDCO for information & necessary action.

Special Secretary to Govt.



**Government of Odisha**  
**Department of Energy**

SOP on CYCLONES

The following may be used as a SOP for future cyclones.

**A) Pre-cyclone Preparedness**

- (i) Control rooms are to be setup at State level, Utility level & Circle/ Division level for co-ordinating deployment of manpower and materials, information dissemination etc. A dedicated WhatsApp group may be created for quicker communication among all stakeholders.
- (ii) To follow Weather information regularly (say at 3 hourly basis) for getting advance weather information like the expected wind speed, cyclone intensity, storm surge, rain fall, likely affected area and land fall location.
- (iii) Strategic locations for pre-positioning of men & materials, equipment required for post-cyclone restoration work need to be finalised.
- (iv) Identification and mobilisation of trained manpower, materials, pole masters, cranes, DG Sets etc. available with the utility, coordination with other utilities for additional manpower, materials, etc. If necessary neighbouring States may be alerted for mobilisation of skilled manpower with tools and tackles at short notice.
- (v) Advance tie-up and mobilisation of Crane, Excavators, transportation, safety equipment, T&Ps like pole mounted tractors, power cranes, pulley, cable jointing tools, gas cutter, emergency light and other tools & tackles, portable DG sets etc. for quick restoration.
- (vi) The distribution system to be patrolled immediately on receipt of cyclone alert and the vulnerable infra to be strengthened to minimise the damage.
- (vii) Branch pruning of trees along T&D lines need to be taken up at least one month ahead of the cyclone season.

- (viii) Identify locations for setting up Sub-Stores/Road Side fabrication, free accommodation of restoration employees.
- (ix) Adequate no. of portable lights be arranged for night restoration works during late evening hours, if required.
- (x) Clear hierarchy of command system with defined roles and responsibilities including delegation of financial power with availability of sufficient fund for procurement of material & engagement of additional manpower etc. on emergency basis need to be communicated from Head Office to Sub Division/ Section level.
- (xi) The enlisted vendors, existing EPC contractors, rate contract holders etc. are to be contacted in advance for early dispatch of men & materials etc. Special wage and transportation rates need to be notified in advance.
- (xii) It is necessary to maintain a minimum stock of poles, AB cables, insulators, transformers at all times. The same may be augmented prior to the cyclone season.
- (xiii) Arrangement of sufficient no. of DG sets, diesel and manpower for running the same. DG sets available with different industries may be requisitioned.
- (xiv) SLDC to plan with critical consumers like railways authority, industries, electricity generators and the distribution companies for systematic reduction and subsequent restoration of electrical loads in order to prevent total outage of power supply/grid black out.
- (xv) RLDC/SLDC plan in advance to manage the Real time operation of Power system during and immediately after the Cyclone to balance load, generation and voltage.
- (xvi) As a safety measure, when wind speed exceeds 40/50 Km per hour, the power supply of respective distribution feeders in the cyclone impact area be switched off.
- (xvii) SOP on restoration be issued keeping in mind the safety of the consumers and workmen. Work place SOP to be adhered strictly, as per Safety Policy. Personal protective equipment like safety helmets & shoe, discharge rod, hand gloves & safety belts, masks and sanitizers (for Covid-19 pandemic situation), First Aid Box



need to be arranged for all Gangs/Groups for emergency. During summer, ORS and drinking water arrangements need to be ensured at work sites and labour camps.

- (xviii) As the telcom network is likely to be affected, satellite telephones and VHF sets to be arranged at the Division and HO levels for communication. Critical consumers like hospitals, public water works, telephone exchanges, important public offices and critical industries need to be mapped in advance for restoration of power supply on priority.
- (xix) Identify own staff as Feeder Managers, who would supervise the restoration work.
- (xx) Notify Consumers (through SMS/e-Mail/Website) about power outages, likely restoration time and location wise Nodal Officers. Advertisement in the local newspaper and TV on precautionary measures to be taken up by the consumers on safety and contact phone number in case of emergency.
- (xxi) **Functioning of Emergency Response Teams for:**
  - a. Material procurement & Contract management: Assess and procure critical materials like power transformers, Distribution transformers, LT & HT poles, conductors, AB cables, Cross-Arms, GI Pin, Insulators, and other consumables which are likely to get damaged in the cyclone and will be required for post-cyclone restoration. Standard Guidelines must be put in place for emergency procurements.
  - b. Manpower sourcing & deployment: For coordination with other Utilities, EPC contractors, HT license contractors and available rate contract and outsource agencies for arranging necessary manpower, machinery & material for restoration works.
  - c. Machineries, transportation & logistics: For arranging Hydra, Pole Master, Tractor, Truck, JCB, buses, smaller transport vehicles, fuel, emergency lights, DG sets, Pump sets, Power saw, Gas cutters, Welding machines, Drill machines etc. and will pre-position the same at strategically, so that restoration activities can be taken up quickly.

- d. Financial Arrangements: Revisit and approve special financial limits for field functionaries for local material procurement at approved rate contracts. Special wages may also be approved for emergency works. Arrange funds in cash and allocate to Divisions.
- e. Safety and quality checks: Team will arrange PPEs like Safety Helmets, Safety Shoes, Safety Gloves, Safety Belt, Ladders, Gum Boots, Safety Equipment like Discharge Rod, Neon Testers, Meggers etc.
  - The team will educate staff & workers on safe working conditions during restoration, e.g. preventing current back feeding, handling of broken conductors, using discharge rods properly etc.
  - The team will ensure quality of materials during procurement/dispatch and also restoration works prior to charging, so that quality of restoration and reconstruction works is not compromised.
- f. Arrangement of lodging, boarding & food for workmen.
- g. Information collection & MIS reporting

#### **B) Post-Cyclone Response and Restoration**

- (i) Mobilize patrolling parties to clear debris, assess & report damage. Coordinate with NDRF/SDRF team to clear roads & obstruction for restoration work.
- (ii) Carry out localized restoration work by pre-placed gangs.
- (iii) As soon as preliminary damage reports are available, scale up material, manpower & logistic support to higher affected areas. This needs to be updated after detail feeder wise damage assessment.
- (iv) Issue mobilization advances to contractors/agencies to meet petty expenses and worker payments. Arrangement for advance payment/daily fooding charge reimbursement.
- (v) Coordination with local administration for avoiding any law and order situation during restoration & reconstruction activities



- (vi) Depending on extent of damage, power supply to be restored only after proper patrolling and rectification of the defects.
- (vii) Feeder serving critical consumers and maximum consumers such as urban feeders need to be restored on priority.
- (viii) Use RS joist pole instead of PSC poles for faster progress of restoration works. RS joist can be manufactured quickly in large nos. Purchase Orders may be placed with different suppliers for continuous flow of material.
- (ix) Form separate gang/groups for HT and LT restoration work. Carry out parallel works to minimize reconstruction time.
- (x) Issue partial turnkey contracts for LT restoration, where Discom to provide major materials (OSM) and contractor to arrange minor materials (CSM).
- (xi) Late evening coordination meetings need to be held everyday to take stock of the situation and plan for the next day. Frequent Field/ HO level meetings may be avoided to do away with redundant reviews and have more time for field level execution.
- (xii) Replace the workforce with new groups after 15-20 days to avoid workmen fatigue, which can affect restoration work.
- (xiii) Rectify temporary restoration works, i.e. concreting, coupling, grouting, interposing poles, painting etc. as soon as possible.
- (xiv) Preparation of consolidated progress report twice a day for appraisal of management/Govt.
- (xv) Medical treatment of the injured workmen/ compensations to the deceased should be ensured on highest priority which also boost the morale of team.
- (xvi) Closure of supply orders/work contracts, joint measurements, bill payments, etc. within 15 days of completion of restoration work.
- (xvii) Proper documentation of pre-cyclone preparedness and post-cyclone restoration work be made.

C) Challenges normally faced:

- (i) Difficult working conditions i.e. water logging, inaccessible terrain, hot & humid weather etc.
- (ii) Restriction of movement of material and manpower due to blocked roads
- (iii) Non-functioning telecommunication network
- (iv) Procurement of large quantity of materials in shortest possible time.
- (v) Non availability of skilled manpower.
- (vi) Availability of adequate pole erection equipment like Pole Master etc.
- (vii) Difficulties in Fund flow due to non-functioning of banks
- (viii) Arrangement of logistics, lodging, fooding and drinking water facilities for huge no. of workers working in multiple locations.
- (ix) Public demand for quicker power restoration and ROW issues.
- (x) Pandemic situation (COVID-19)

 2/12/2021

(Nikunja B. Dhal)  
Principal Secretary to Govt.

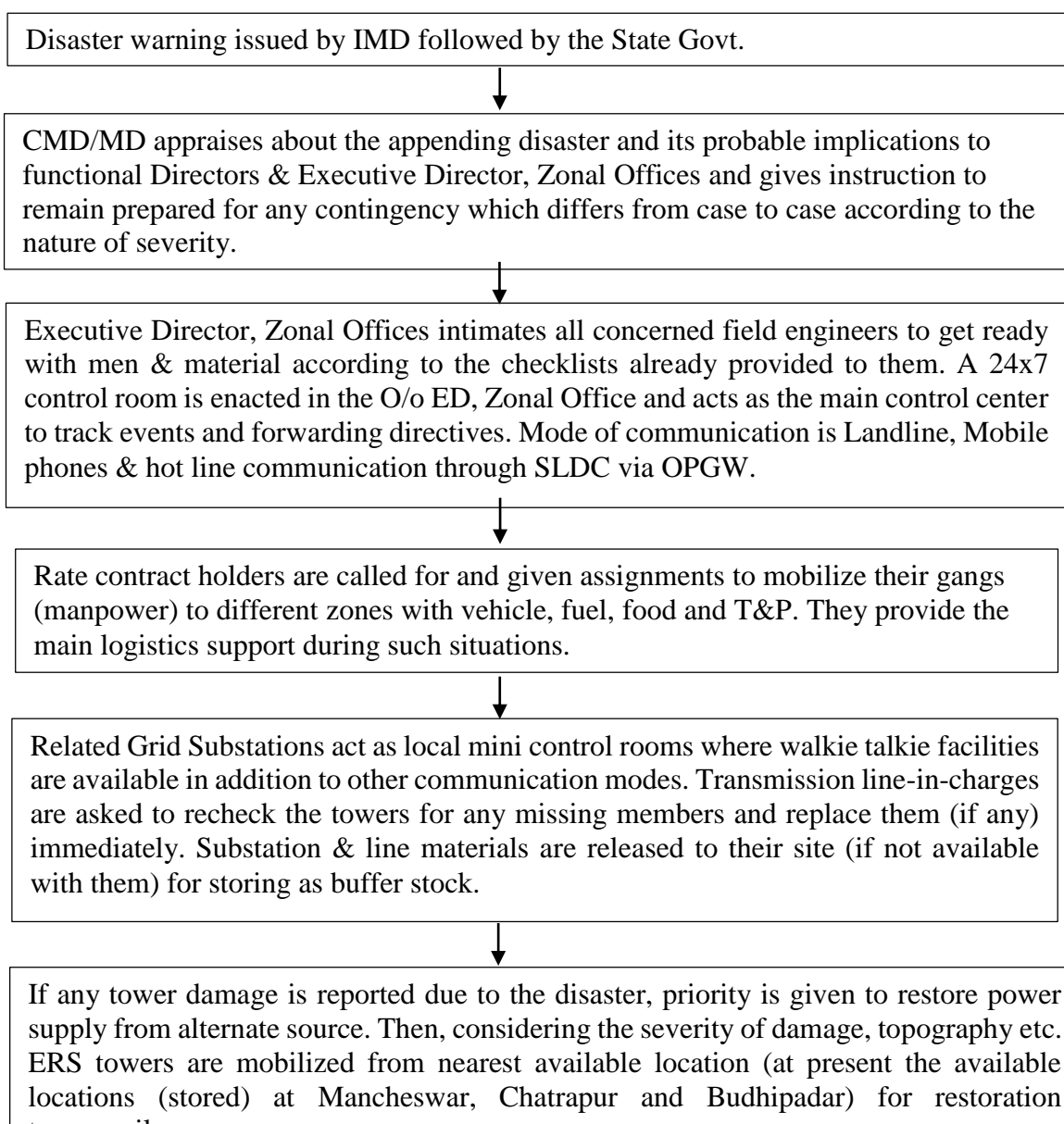




## **Disaster Management Plan of OPTCL – 2022-23**

### **1. Institutional arrangement for Disaster Management**

The flow of events that occur prior to, during & after a predictive disaster is given below.



## **2. Risk Analysis – calculating risk which various hazards/disaster can cause to department keeping in view its vulnerability and capacity.**

The risks involved may be classified as under;

- i) Tower collapse due to cyclones, whirl winds, sabotage etc.
- ii) Conductor snapping due to mechanical failure, wind pressure, insulator failure.
- iii) Insulator failure due to lightning strike, mechanical damage, sabotage, surge voltages.
- iv) Road blockage on account of conductor snapping or tower collapse near road crossings or road proximity.
- v) Failure of transformers, equipment
- vi) Fire hazards due to transformer oil burning, short circuit in S/Y, control room, battery room, A/C D/C room etc.
- vii) Electrical accidents
- viii) Flooding of cable trench due to heavy rain fall.
- ix) Be-sieging of EHT control room by terrorists.
- x) Bomb threat.

But these obstacles have not deterred OPTCL in providing quality and un-interrupted power supply during these calamities due to proper planning, quick response and timely management of material and manpower. Of course, a comfortable ratio of Hydro generation to Thermal generation due to abundance of natural resources like rain fed rivers and coal has helped a lot to the state power sector for its stability and help return back to normalcy quickly.

## **3. Public Warning**

The crisis levels are intended to ensure that there is a consistent approach to the assessment of an emergency situation and to ensure that an appropriate level of response is implemented across the country.

**Various crisis levels are evaluated as under:**

**Early warning:** On receipt of reliable information regarding an event which is likely to have significant impact on the system and is likely to lead to an ALERT or EMERGENCY level.

**Alert:** In the event of disturbance in the system which results in deterioration in the network but some-how the situation is manageable without resorting to imposition of any restriction in demand.

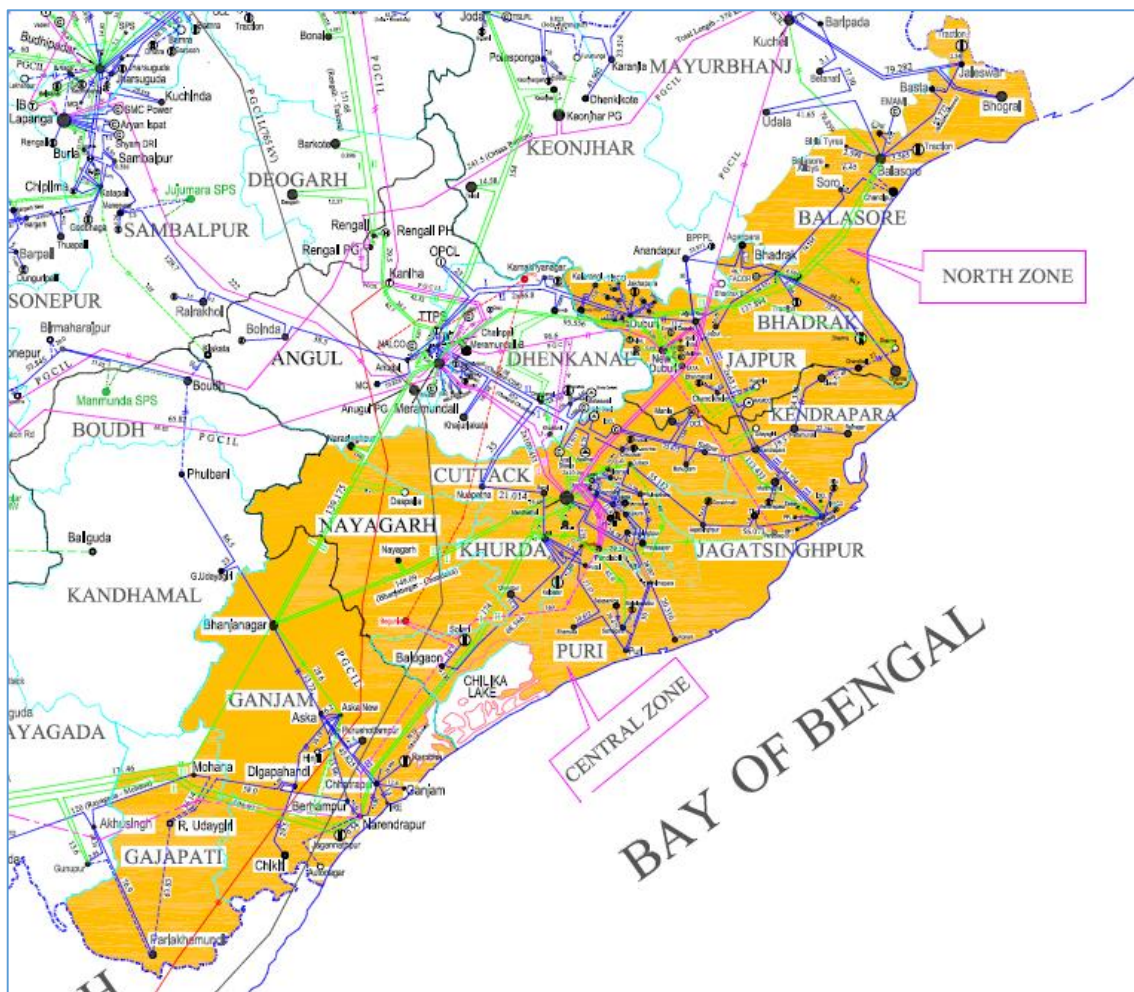
**Emergency:** In the event of major disturbance in the system leading to significant deterioration in the network causing imposition of restriction in demand. Following activation of an emergency response, all levels of Disaster Management Cell will be responding and operating according to their defined role and responsibility.

Control rooms of CDMC at NTAMC, Manesar & RDMC at respective RTAMC shall function round the clock to organize and oversee the day to day operation of the restoration process.

Exchange of information on continuous basis amongst Corporate, Regional and site level disaster management cells regarding following:

- a. Likely impact of disaster on POWERGRID transmission system.
- b. Outage status and estimated service restoration time.
- c. Situational awareness amongst all levels of Disaster Management cell for effective management and response to the emergency.
- d. Information related to Damage Assessment & Daily status report shall be provided to Regional and Corporate Disaster Management cells.
- e. The information from all providers to be readily assimilated for onward communication in the organization.
- f. The broad overview of Disaster Management process.

• **Identification of most Vulnerable Elements:**

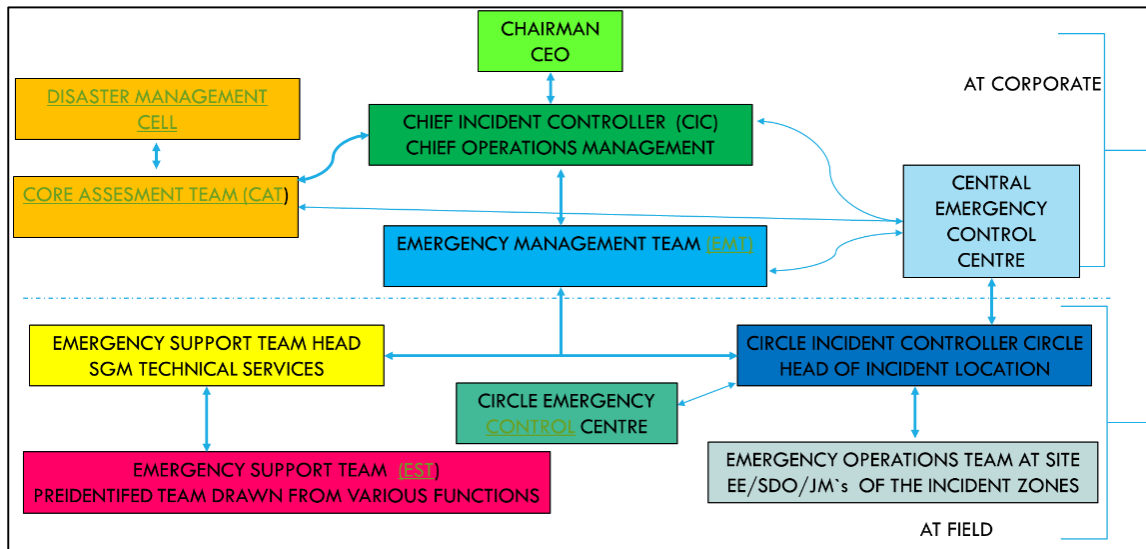


---XXX---

# TPCODL

## Disaster Management Plan

### Organization and Structure



### Functions of Disaster Management Team

1	CHIEF INCIDENT CONTROLLER (CIC)	OVERALL INCHARGE OF THE DISASTER MANAGEMENT PROCESS
2	CORE ASSESMENT TEAM (CAT)	RESPONSIBLE FOR ASSESING THE EMERGENCY AND GIVING FEEDBACK TO THE CIC FOR INVOKING THE DMP AS PER THE DISASTER .
3	EMERGENCY MANAGEMENT TEAM	RESPONSIBLE FOR EXTENDING ALL SUPPORT TO THE CIRCLE TEAMS.
4	CIRCLE INCIDENT CONTROLLER	CIRCLE HEAD OF THE RESPECTIVE INCIDENT LOCATION WILL BE INCHARGE AND WILL BE THE LOCAL INCHARGE OF DMP
5	EMERGENCY OPERATIONS TEAM AT SITE	THIS IS THE CORE OPERATIONS TEAM IN THE FIELD.
6	EMERGENCY SUPPORT TEAM HEAD	WILL BE DIRECTING ALL THE ADDITIONAL OPERATIONAL SUPPORT TO THE FIELD TEAMS.
7	EMERGENCY SUPPORT TEAM	PREIDENTIFIED TEAM FOR ADDITIONAL OPERATIONAL SUPPORT TO THE FIELD TEAMS
8	DISASTER MANAGEMENT CELL	CONTINUOUS MONITORING FOR DISASTER ALERTS & TRIGGER FOR INVOCATION OF DISASTER MANAGEMENT PLAN

### Business Continuity Management Team

Location Name: TPCODL, Odisha.

Sr. No.	Position	Name of the Officer	Designation
1	Overall Team Leader	Rajkumar Rastogi	Chief Operations Services
2	BC Coordinator	Dipankar Behera	CGM Electrical

3	BC Administrator	Parveen Verma	Chief Commercial
4	BC Team Leader (Finance)	Hemant Goyal	Chief Financial Officer
5	BC Team Leader (Regulatory & Govt. Affairs)	Puneet Munjal	Chief Regulatory & Govt.Affairs
6	BC Team Leader (Safety)	P K Sahoo	Chief Safety Officer
7	BC Team Leader (Projects)	Biman Ghosh	Chief Projects
8	BC Team Leader (Commercial)	Manoj Kumar Singh	CGM Commercial
9	BC Team Leader (Procurement & Stores)	Pravin Jain	Chief (Procurement & Stores)
10	BC Team Leader (IT)	Dharmendra Kumar	Chief IT
11	BC Team Leader (E& MR)	Srimanta Kumar Sahu	Chief General Manager (Ele)
12	BC Team Leader (Medical)	Dr. Shakti Swaroop Mishra	Medical Officer
13	BC Team Leader (OS)	N K Kapoor	Head Operation Services
14	BC Team Leader (Engg.& Quality)	Pourush Garg	Head Engg & Quality
15	BC Team Leader (Automation)	Amok Agarwala	Head Automation & Technology
16	BC Team Leader (Customer. Services)	Chandan Singh	HOD Customer Services
17	BC Team Leader (PSCC)	Chintamani Chitnis	Head Power System Control Centre
18	BC Team Leader (Safety)	A K Bisoi	G.M Safety
19	BC Team Leader (Admin.)	Parveen Sehgal	Head Admin
20	BC Team Leader (Stores)	Rahul Kumar	Head Stores
21	BC Team Leader (BBSR 1)	Jitendra Mishra	S E BBSR 1
22	BC Team Leader (BBSR 2)	Praveen Kumar Sharma	S E BBSR 2
23	BC Team Leader (Cuttack)	Debasis Pattanaik	S E Cuttack
24	BC Team Leader (Dhenkanal)	Swapna Sarit Mishra	S E Dhenkanal
25	BC Team Leader (Paradeep)	Amarjit Patnaik	S E Paradeep
26	BC Team Member	Samiron Roy	HOG Protection
27	BC Team Member	Santosh Dange	HOG Safety
28	BC Team Member	Dibyaranjan Sahoo	Team Lead Automation
29	BC Team Member	Rabindranath Tripathy	Team Lead PSCC
30	BC Team Member	Simit Das	Executive Engineer BCDD 1 Division
31	BC Team Member	Gyana Ranjan Behera	Executive Engineer BCDD 2 Division
32	BC Team Member	Biraja Prasad Padhi	Executive Engineer BED
33	BC Team Member	Durga Prasad Das	Executive Engineer Nimpada ED
34	BC Team Member	M K Das	Executive Engineer Khorda ED
35	BC Team Member	S P Swain	Executive Engineer Puri ED
36	BC Team Member	Santosh Mohapatra	Executive Engineer Nayagarh ED

37	BC Team Member	Shiba Prasad Baliarsingh	Executive Engineer Balugaon ED
38	BC Team Member	Deepak Kumar Rout	Executive Engineer CDD 1
39	BC Team Member	Chandrabhanu Mohanty	Executive Engineer CDD 2
40	BC Team Member	Naresh Sahoo	Executive Engineer CED
41	BC Team Member	Pabitra Moha Sahu	Executive Engineer Atagarh ED
42	BC Team Member	Pabitra Kumar Jenna	Executive Engineer Salipur ED
43	BC Team Member	Bismaya Ranjan Dash	Executive Engineer Dhenkanal ED
44	BC Team Member	Jitendra Ku Patra	Executive Engineer Chainpal ED
45	BC Team Member	Subrat Sahoo	Executive Engineer Angul ED
46	BC Team Member	Pradeepta Ku Dash	Executive Engineer Kendrapada ED
47	BC Team Member	Pratap Ku Swain	Executive Engineer Marshaghai ED
48	BC Team Member	Ashok Kumar Jena	Executive Engineer Jagatsinghpur ED
49	BC Team Member	Prabhat Ranjan Parida	Executive Engineer Paradeep ED

## **Dos and Don'ts during the Site Restoration and Post Restoration Activities**

### **Dos to Ensure Safety:**

- a) Tool Box Talk with all the workmen and Communication the safety precautions
- b) Authorized Personnel shall ensure the Line Clearance by isolating Power Supply
- c) The number of personnel engaged need to be communicated location wise
- d) Ensure the 11/04kV Distribution Substations are isolated before undertaking any supply restoration work
- e) Usage of safety tools like Neon Tester, Ladder, Shoes, Helmets, Gum Boots, reflective jackets, body safety harness, insulated gloves etc., as per the activities engaged
- f) Poles and Structural strengths to be evaluated before deployed for any cracks or such which shall led to unsafe situations
- g) Creating Safe Zones before engagement for restoration activities, to avoid back feeding like DG sets used by consumers etc.
- h) Physical inspections of Pole masters/cranes and lifting tackles for healthiness
- i) Ensure availability of First Aid Box, Drinking water, ORS pouch for personnel safety in the vehicles used for restoration activities
- j) Reporting of any incidents to the supervisors for record
- k) Precautions and being cautions against poisonous snakes, scorpions, etc., in the restoration area and resting zones created for the deployed personnel
- l) Communication and recording of the areas of restoration with the supervisor and the section officers
- m) Detailed information of nearest hospital/ambulance/TPCODL authorities for emergency situations

**Don'ts to Ensure Safety:**

- a) No personnel deployed shall be under influence of alcohol, drugs., that shall impede in the restoration work or led to unsafe situations
- b) Umbrella shall not be used while near the substation equipment
- c) No unauthorized personnel or common people shall be allowed in the restoration area
- d) Business Associates shall not be allowed to work on their own or take any shutdown
- e) Worn out Personal Protective Equipment's to be avoided during the restoration activities
- f) Shall not work under dark or low visibility areas
- g) No personnel shall involve in work areas where they are not deployed
- h) Joints for temporary restoration of cables and conductors to be avoided
- i) No work shall be carried out on road sides without barricades and reflective jackets
- j) No power supply to be charged without the confirmation from the authorized personnel

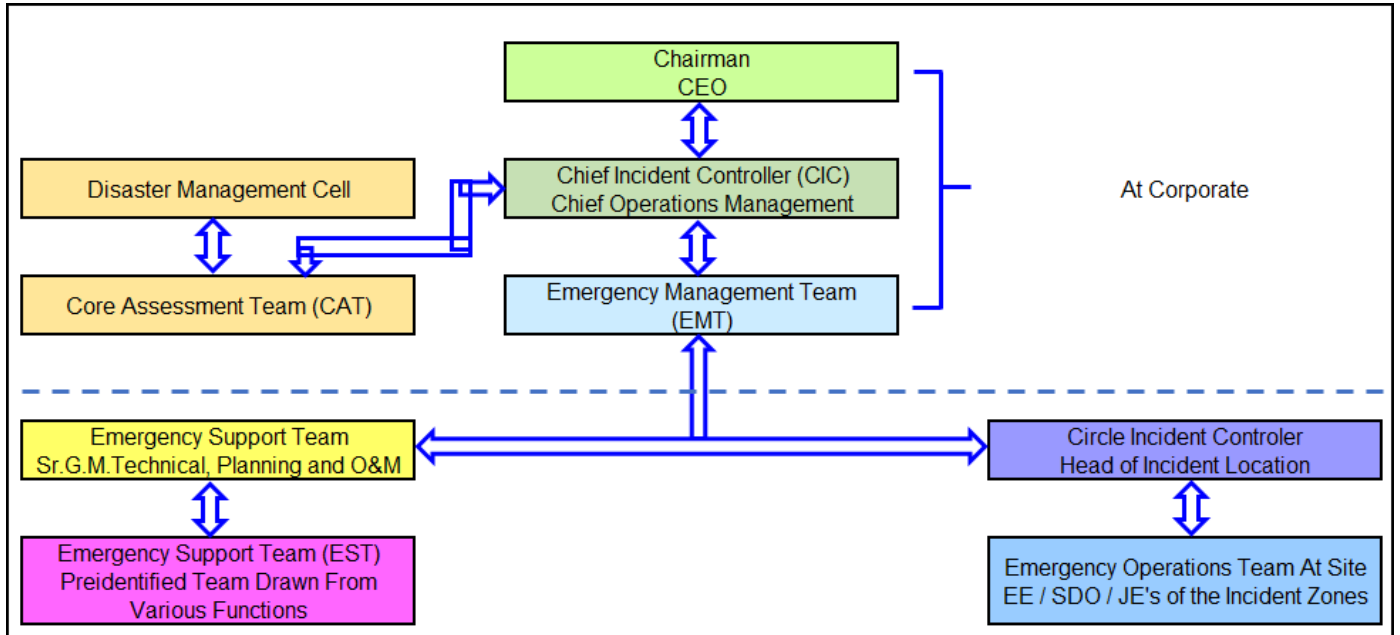
---XXX---



## Disaster Management Plan

### Disaster Management Structure at TPSODL

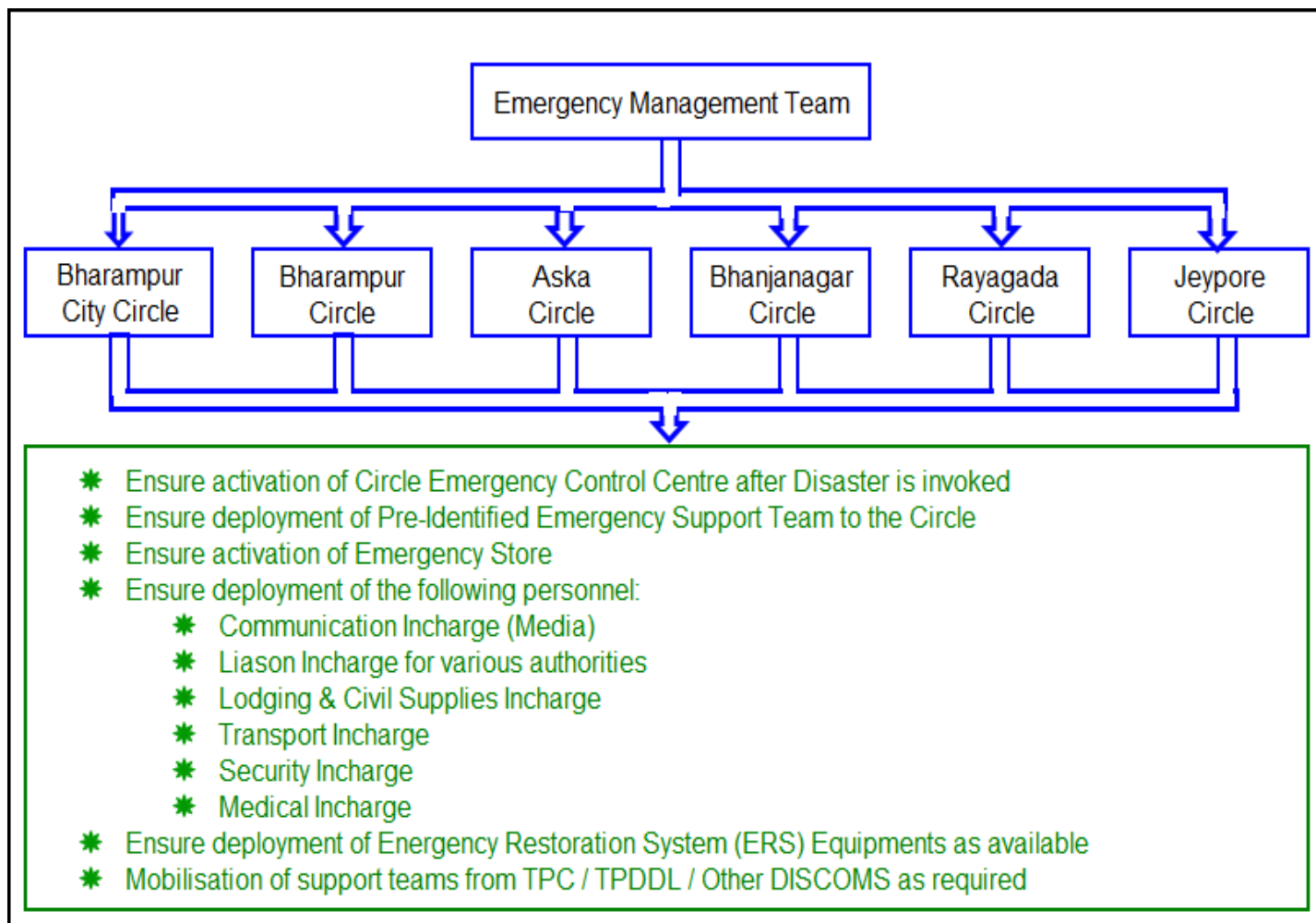
The Disaster Management Plan along with the Disaster Management Structure for TPSODL has been finalized after due deliberations with all stakeholders as under:



### Functions:

1	Chief Incident Controller (CIC)	Overall in-charge of the DisasterManagement process
2	Core Assessment Team	Responsible for assessing the emergency and giving feedback to CIC for invokingthe BCDMP as per the disaster
3	Emergency ManagementTeam	Responsible for extending all support tothe circle teams
4	Circle IncidentController	Circle Head of the respective incident location will be in-charge and will be the local in-charge of BCDMP
5	Emergency OperationsTeam at Site	This is the core operations team in the field
6	Emergency SupportTeam Head	Will be directing all the additional operational support to the field teams
7	Emergency SupportTeam	Pre identified team for additional operational support to the field teams
8	Disaster ManagementCell	Continuous monitoring for disaster alerts & trigger for invocation of BCDMP





#### ROLES & RESPONSIBILITIES

SI.	NAME	DESIGNATION	ROLE
1	Mr. Milind Prabhakar Kulkarni	Chief Operation Services	Chief Incident Controller

#### Core Assessment Team

2	Mr. J.C Panda	Sr. GM (Projects )	Chairman
3	Mr. P.K Choudhury	GM- O&M, Safety	Member
4	Mr. P.K Sahoo	DGM (MRT )	Member
5	Mr. Bharat Kumar Bhadawat	Chief Commercial	Member
6	Mr. Nitin Vasant Nikumbh	Chief Technology	Member
7	Mr. Subrata Dey	Chief - Contract & Store	Member
8	Mr. Kamaldeep Mahajan	Head - Dist. Operation	Member
9	Mr. D.R. Dharmadhikari	Head - Sub Trans System	Member
10	Mr. Ravikant	Head - PSCC	Member

#### Emergency Management Team

11	Mr. Mahendra Ku. Pandey	Head – Engg. & Quality	City Circle - Coordination In-charge
12	Mr. Manoj Ku. Kharbanda	HOD - Procurement, Material Planning & Stores	City Circle - Coordination Member
13	Md. Sarwar Sadique	DGM, O&M	Berhampur Circle - Coordination In-charge

14	Mr. Savyasachi Semwal	HOD - Revenue, Collection & Customer Services	Berhampur Circle - Coordination Member
15	Mr. Pushpendra Kumar	Head - Projects	Aska Circle - Coordination In-charge
16	Mr. Sagar Suresh Kher	HOD - O&M (STS)	Aska Circle - Coordination Member
17	Mr. Shelendra Singh	Head - Enforcement & Vigilance	Bhanjanagar - Coordination In-charge
18	Mr. Deepak Jain	Financial Controller	Bhanjanagar - Coordination Member
19	Mr. Saumitro Banerjee	Head - Connection Management & MMG	Rayagada - Coordination In-charge
20	Mr. Ritesh Ku. Rai	HOD - Admin	Rayagada - Coordination Member
21	Mr. Sunil Gauniyal	Head - Revenue, Billing, Collection & Costumer Services	Jeypore Circle - Coordination In-charge
22	Mr. Vijay Kumar	Head - Contracts Function	Jeypore Circle - Coordination Member

#### **Disaster Management Cell**

23	Mr. Pradip Das Adhikary	HOD- Projects	
24	Mr. Munish Narad	TBD	

#### **Circle Incident Controller**

25	Mr. Chandan Das	SE/AGM - Berhampur Circle	CIC - Berhampur Circle
26	Mr. Sanat Ku. Jena	SE/AGM - City Circle	CIC - City Circle
27	Mr. Sandeep Das	SE/AGM - Aska Circle	CIC - Aska Circle
28	Mr. N.N Panda	SE/AGM - Bhanjanagar Circle	CIC - Bhanjanagar Circle
29	Mr. Priyadarsi Behera	SE/AGM - Rayagada Circle	CIC - Rayagada Circle
30	Mr. Manmathnath Mishra	SE/AGM - Jeypore Circle	CIC - Jeypore Circle

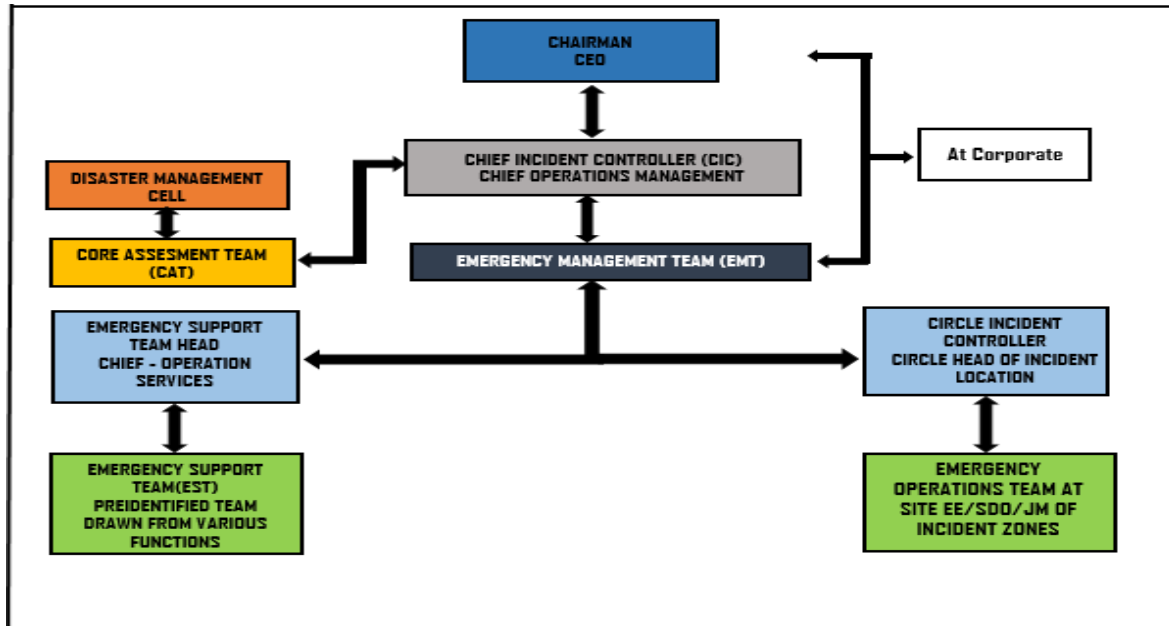
#### **Central Emergency Control Center (CECC)**

Location - Power System Control Center (PSCC), Ambagada, Berhampur- 760002

---XXX--

## Disaster Management Plan

### TPNODL Disaster Management Structure:-



### Functions & Responsibilities:-

1	<b>CHIEF INCIDENT CONTROLLER (CIC) Mr. Dushyant Tyagi, Chief Operations</b>	Overall in charge of the disaster management process. responsible for invoking and revoking DMP
2	CORE ASSESSMENT TEAM	responsible for assessing the emergency and giving feedback to the CIC for invoking the DMP as per the disasters
3	EMERGENCY MANAGEMENT TEAM	responsible for extending all support to the circle teams
4	<b>CIRCLE INCIDENTCONTROLLER (Respective Circle Heads)</b>	circle head of the respective incident location will be in charge and will be the local in charge of DMP
5	EMERGENCY OPERATIONS TEAM AT SITE	this is the core operations team in the field
6	EMERGENCY SUPPORT TEAM HEAD	will be directing all the additional operational support to the field teams
7	EMERGENCY SUPPORT TEAM	Pre identified team for additional operational support to the field teams
8	<b>DISASTER MANAGEMENTCELL Head PSCC – Karunakar Jha</b>	continuous monitoring for disaster alerts and trigger for invocation of business continuity and disaster management plan

## TPNODL Preparedness Action Plan for Disaster Management:-

- ❖ In case of Invocation of DMP, PSC will operate as Central Control Room of TPNODL on 24x7 basis. Mr. Karunakar Jha, HOD, PSC (**09818106804**) will be in charge of the control room. He will be single point of contact for all offices of District & State Administration.

PSC Mobile No. **09438906079**, PSC Email id: [psc.tpnodl@tpnodl.com](mailto:psc.tpnodl@tpnodl.com).

- ❖ The following senior level officials are assigned as mentors / nodal officers to the Circle locations in order to look after in case of invocation of DMP.
  - Bhadrak Circle : Mr. Manas Das (7606000337)
  - Baripada Circle : Mr. Sharat Chandra Mahalik (9438906016)
  - Balasore Circle : Mr. Anant Narayan Senapati (9438906213)
  - Jajpur Road Circle : Mr. Debadatta Panda (9438906106)
  - Keonjhar Circle : Mr. Tapan Kr. Behera (9437933321)

## Categorization of Disruptive Incidents:-

Categorization	Type of Emergency	Resources
Level 1	Minor Emergency	Fire Fighting, First Aid & Communication, Equipment & Manpower available in Unit
Level 2	Major Emergency	Fire Fighting, First Aid & Communication Equipment & Manpower available in Unit as well as mobilization of Mutual Aid Group. Invoke DMP
Level 3	Disaster	Fire Fighting, First Aid & Communication Equipment & Manpower available in Unit as well as mobilization of Mutual Aid Group and Government Agencies Invoke DMP

Weather Data	L1	L2	L3
Alert for Kalbaisakhi	Low	Moderate	Heavy
Alert for Cyclone *	62.87 km/hr	88 – 117 km/hr	118 – 165 km/hr (Very Severe), 166-220 km/hr (Extremely Severe), >220 km/hr (Super Cyclone)
Temperature trend forecast*	>40°C for at least 5 hrs.	>45°C for at least 6 hrs. (Heat wave)	>47°C (Severe Heatwave)
Network / Gen. Data	L1	L2	L3

Transmission Network Non availability	Interruption in TPNODL / OPTCL system leading to load shedding of 100MW for 1 hr	Interruption in TPNODL / OPTCL system leading to loadshedding of 200MW for 1 hr	Interruption in TPNODL / OPTCL system leading to load shedding of 300MW for 1 hr
Flood Information	L1	L2	L3
Flood Alerts	Affecting 2-3 Divisions	Affecting 4-8 Divisions	Affecting more than 8 Divisions
Consumer Affected	L1	L2	L3
Nos. of Consumers Affected	<50,000	<1,00,000	>1,00,000
Threshold have a reference from IMD Website *			
Kalbaisakhi are localized thunderstorms associate with violent winds, torrential downpours often accompanied by hail storm			
Detailed action plan for each of the Disasters have been prepared for invocation during the Disaster			

---XXX--

# TPWODL

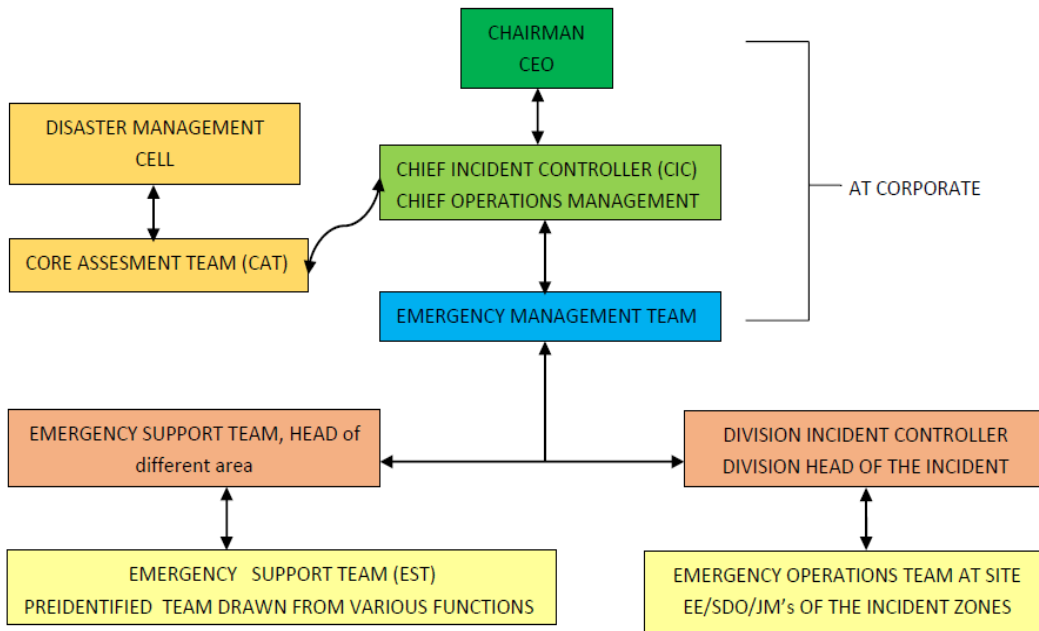
## Disaster Management Plan

### Hazard & Vulnerability Mapping:

The term 'disaster' may be categorized as below from the point of vulnerability scale to the power distribution infrastructure under TPWODL.

Category 1 Water and Climate Disasters	Category 2 Geological Disasters	Category 3 Man-made Disasters
Cyclones & Storms	Earthquakes	Fire
Flood	Tsunami	Terrorist Attack

### INFORMATION FLOW DURING DISASTER



The broad functions under this structure are elaborated in the table below:

1	CHIEF INCIDENT CONTROLLER (CIC)	OVERALL INCHARGE OF THE DISASTER MANAGEMENT PROCESS
2	CORE ASSESMENT TEAM (CAT)	RESPONSIBLE FOR ASSESING THE EMERGENCY AND GIVING FEEDBACK TO THE CIC FOR INVOKINGTHE DMP AS PER THE DISASTER.
3	EMERGENCY MANAGEMENT TEAM	RESPONSIBLE FOR EXTENDING ALL SUPPORT TO THE DIVISION TEAMS UNDER CIRCLE.
4	DIVISION INCIDENT CONTROLLER	DIVISION HEAD OF THE RESPECTIVE INCIDENT LOCATIONS WILL BE INCHARGE AND WILL BE THE LOCAL INCHARGE OF DMP

5	EMERGENCY OPERATIONS TEAM AT SITE	THIS IS THE CORE OPERATIONS TEAM IN THE FIELD.
6	EMERGENCY SUPPORT TEAM HEAD	WILL BE DIRECTING ALL THE ADDITIONAL OPERATIONAL SUPPORT TO THE FIELD TEAMS.
7	EMERGENCY SUPPORT TEAM	PREIDENTIFIED TEAM FOR ADDITIONAL OPERATIONAL SUPPORTS TO THE FIELD TEAMS.
8	DISASTER MANAGEMENT CELL	CONTINUOUS MONITORING FOR DISASTER ALERTS & TRIGGER FOR INVOCATION OF DISASTER MANAGEMENT PLAN

## Business Continuity Management Team

Location Name: TPWODL, Odisha.

Sr.	Name	Designation	Role
1	Mr. Sumit Ghosh	Chief Operation Services	Chief Incident Controller
<b>Core Assessment Team</b>			
2		Chief Technical services	Chairman
3	Mr. Gopabandhu Satpathy	Head Safety	Member
4	Mr. Harish Sharma	Chief Procurement & Stores	Member
5	Mr. S K Thakur	GM O&M (Tech.)	Member
6	Mr. Md. Arif	Head -Distr. Services	Member
7	Mr. S.M Jawed	Head Ops-STS	Member
8	Mr. K B Sahoo	SE, MRT	Member
9	Mr. Anil Ojha	Head Technical services	Business Continuity Coordinator
10	Mr. Shishir Dudeja	Company Secretary	Member
Emergency Control Centre (ECC) /Power System Control Centre (PSCC)			
Location: Burla Central Block, Burla, Dist.- Sambalpur			
Alternate Location - Sambalpur Circle Office			
Location: Ainthapalli, Dist. Sambalpur, Odisha.			

---XXX--

# OCPL

## Disaster Management Plan

### Probable Disasters of Manoharpur Coal Mine Project:

Manoharpur Coal Mine Project is a highly mechanized, deep opencast mine with drilling and blasting by using high explosives with annual capacity of 8.0 MT of coal production and average stripping ratio of 1:2.84. The annual average rainfall in the area is about 1237.5mm. Considering the above conditions Disaster Management Plan is required to tackle following types of disasters:

- a. Fire in Machines, Coal face, Electric Panels, Oil room, Diesel storage tank, nearby forests and near magazine.
- b. Inundation in rainy season due to breaching of in-situ barrier and overflow by seasonal Gariah Nallah at northern boundary and south-east boundary.
- c. c. Failure of slope of benches giving rise to slide of material on bench in external dump yard, in-pit dumps and working benches.

### ON SITE EMERGENCY PLANNING:

#### STANDING CONSULTATIVE COMMITTEE:

This committee formed with the members detailed in below table.

This committee meet in the case of disaster only, advice, and help the Mines Agent to deal with the situation.

<u>Sl</u>	DESIGNATION
1	HOM (HEAD OF MINES)
2	MINE AGENT
3	HEAD OF INFRA
4	HEAD OF HR/ IR
5	PROJECT MANAGER (MO)
6	SECURITY IN CHARGE

#### ACTION COMMITTEE:

This committee consists of the officers of the MCMP as detailed in below table.

This committee working under the guidance and control of Mine Manager the share the work of emergency/disaster response.

<u>Sl</u>	DESIGNATION
1	MINE MANAGER (OCPL)
2	SAFETY OFFICER(OCPL)
3	ASST. MANAGER — GEN. SHIFT
4	COLLIERY ENGINEER
5	MINE SURVEYOR(OCPL)



6	WELFARE OFFICER(OCPL)
7	SAFETY OFFICER,(MO)

### **EMERGENCY/DISASTER RESPONSE SUPERVISORS (ERS):**

The persons named in below table are engaged as the emergency response supervisors (ERS) and responsible for notification of the emergency and for taking immediate steps to control the situation till the Action Committee or other senior officials take over. While on duty, the ERS should wear an armband or other visible marker for easy identification.

SI	Name	Designation	Shift	Contact No:
1	Sri Animesh Mohaptara / Sri Babulal Mohanta	Overman/ Mining Sirdar	Relay A	7735327537 8763024792
2	Sri S A Ali/ Sri Naresh Bhoi	Overman/Mining Sirdar	Relay B	9658570094 7008871526
3	Sri S Srinivas/	Overman/Mining	Relay C	8074750485
4	Sri Debashish Parida	Sirdar		8018367914
5	Sri Sangram Pratihary	Mechanical Foreman	General	965811464.9
6	Sri Kishore Mohanty	Electrical Foreman	General	9691190468

### **DIASATER MANAGEMENT CONTROL ROOM:**

The conference room already established in site office premises of OCPL, is hereby declared as Disaster Management Control Room.

### **THE LIST OF ITEMS TO BE PROVIDED IN DMCR:**

1. Contact Numbers of District Administration/NDRF/OSDRF/State Govt. Officials
2. Contact Numbers of Officials of Director General of Mines Safety
3. Contact Numbers of Senior Officials of Nearby Mines
4. Contact Number of Mines Rescue Station
5. Contact Numbers of Fire Station and Fire Tender
6. Contact Numbers of Hospitals Nearby
7. Contact Numbers of Ambulances
8. Video Conferencing Facility
9. Internet Facility
10. Walkie-Talkies
11. Canteen Facility
12. First Aid Box
13. Surface Master Plan
14. Emergency Response and Evacuation Plan

---XXX--

# OPGC

## Disaster Management Plan

### 1. Probable Potential Emergencies/ Risks

- a. Chlorine Gas Leak
- b. Major Fire Incident
- c. Fire & Explosion Hazard of Hydrogen
- d. Boiler & Generator Explosion
- e. Breach of Ash Pond Dyke resulting Ash Slurry Spill over

#### Other Probable Emergencies

- f. Major work place Injury
- g. Exposure to Toxic Gas
- h. Chemical Burn, Electrical Flash Burn, Steam Burn
- i. Electrical Shock
- j. Poly trauma
- k. Terrorist attack & Bomb Threat
- l. Natural Disasters (earthquake, flood, cyclone)
- m. Major Oil/Chemical Spill

### 2. Classification of Emergencies

Emergencies can be categorized into three broad levels based on seriousness and response requirements, namely: -

A. Level 1: This is an emergency or an incident which;

- can be effectively and safely managed, and contained within the site, location or installation by the available resources;
- has no impact outside the site, location or installation?

B. Level 2: This is an emergency or an incident which;

- cannot be effectively and safely managed or contained at the location or installation by available resource and additional support is alerted or required;?
- is having or has the potential to have an effect beyond the site, location or installation and where external support of mutual aid partner may be involved;?
- is likely to be danger to life, the environment or to industrial assets or reputation.?

C. Level 3: This is an emergency or an incident with off-site impact which could be catastrophic and is likely to affect the population, property and environment inside and outside the installation, and management and control is done by district administration. Although the Level-III emergency falls under the purview of District Authority but till they step in, it should be responsibility of the unit to manage the emergency.

### 3. MITIGATION/ RECOVERY MEASURES

#### i) CHLORINE GAS LEAK:

- Evacuate the area towards cross wind direction/ safe locations
- If the tonner is leaking on the side of liquid chlorine, turn it, if possible, so that the gas instead of the liquid escapes. The quantity of gaseous chlorine is about one fifteenth of the amount of liquid chlorine leak through the same size hole.
- Reduce pressure in the chlorine tonner by removing the chlorine as gas (not as liquid) to process (i.e. directly to the bleach tanks) or a suitable disposal system.
- Apply emergency kit device to contain leaks. The kits are used to cap off leaking valves or seal off a leak in the sidewall. Capping devices are also provided for fusible plugs in the tonner container.
- If the leak is in a connecting pipe, at least two persons should wear SCBA/ Supplied Air Respirator, find the leak by means of ammonia fumes or otherwise and secure the valves at the containers. When the system is brought down to atmospheric pressure, only then step should be taken to make necessary repairs.
- Chlorine should be passed into the alkali absorption system through a suitable connection properly
- submerged and weighted to hold it under the surface.
- During the whole process, operate automatic chlorine absorption system
- Never spray water on chlorine leakage.
- Never immerse or throw a leaking chlorine tonner into a body of water.
- Never immerse the chlorine tonner in the alkali absorption system.
- Never attempt to neutralize chlorine with chemicals by direct application on the leak.
- While providing First- Aid, never give anything by mouth to an unconscious person.

#### ii) HYDROGEN EXPLOSION/FIRE/LEAK:

Prohibit use of mobile phone, smoking, hot work, switching in & around the leak area

**From a cylinder valve:** Tighten the cylinder spindle using non-sparking tool. If still the leak persists, carefully transfer the cylinder to an open space & evacuate the area.

**From process excess than normal consumption:** Normal consumption per unit is 03 cylinders for 24 hours. If the leakage/consumption remains within 07 cylinders in 24-hour period, locate the leak area first. If the leak location is open, ventilated and safe, take step to arrest the leak using non-sparking tool. Monitor closely by explosive meter, the hydrogen concentration at no time reaches its explosive range (4-74%). Observe the condition closely, if leak increases, shutdown the machine & purge with CO<sub>2</sub>. In case of Hydrogen fire:

- Evacuate to radius of at least 1500 feet (457m) for uncontrolled fires.
- Evacuate downwind area if material is leaking and stop flow of gas.
- Engage only trained and equipped emergency team member to respond.
- Hydrogen fire is not visible. Use long stick broom to detect hydrogen fire line.
- Move containers from the area, if possible and stay away from cylinder ends.

- Cool fire exposed containers with water from side.
- For massive fire in the storage area, use unmanned hose holder or let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.
- Avoid breathing vapor, keep upwind.
- Extinguish/ isolate tanks from other flammable materials.
- Evacuate to radius of at least 1500 feet (457m) for uncontrolled fires.
- Evacuate downwind area if material is leaking and stop flow of gas.

**iii) LDO FIRE:**

- Evacuate people from the area
- Medium Velocity Water Spray along with foam application.
- Shut down all loading and unloading operation
- Put off fire by pouring foam on the burning oil surface
- Start cooling the tank on fire as well as adjoining tanks
- Keep constant vigil on coal pile area
- Supplement tank cell cooling by means of fire engines or fire hydrants
- Use Mobile Foam Monitor

**iv) BOILER EXPLOSION**

- All fuels to be tripped immediately and instantaneously.
- If coal is being fired, the mills in service will be tripped. If not, it should be hand tripped.
- Tripping of mills will trip the coal feeders. If not, then it is to be hand tripped.
- Ensure hot air damper (HAD), mill outlet gates and P.A. general shut off gates shall be closed.
- Ensure if oil guns are in service, HOTV, LOTV and individual nozzle valves shall be closed.
- Air Pre-heaters shall be running. If tripped, it shall be started immediately or the air motor of APH shall be started if compressed air is available.
- Scanner air fan shall be running. If AC scanner air fan trips, then DC scanner air fan shall be taken into service.
- In case of both FD fan tripped, scanner fan suction air damper to atmosphere shall be kept open.
- Evacuate personnel from the area and access the damage.
- Refer the relevant SOP/SMP for detail mitigation measures.

**v) GENERATOR EXPLOSION**

- De-excite the Generator and trip the Turbine.
- Trip the boiler.
- Keep the turbine on barring gear and monitor the bearing temperature of turbine.
- Evacuate people from the vicinity of Generator. Call fire-fighting people from fire station.
- Operate the turbine bearing fire-fighting system.

- Operate the hydrant system for fire fighting.
- After extinguishing fire, access the damage to take corrective measures

**vi) BREACH OF ASH POND DYKE**

- Restrict discharge and control breach by providing sand bags.
- Store enough sand bags to meet emergency
- Attend defects in time.
- Remediation measure to be adopted
- Ensure proper function of emergency outlet

#### **4. KEY PERSONS AND THEIR DUTIES:**

Good response mechanism and system have been developed for disaster management by doing the following functions.

Safe plant shutdown as per need.

Search and rescue.

Fire fighting/Arrest toxic gas leakage promptly

First aid/ Medical aid.

Command, control, co-ordination.

The following persons have been designated as Key persons to disburse their additional duties in addition to their normal duties as such in their post.

1	Director (Operation)/ Plant Manager	Works Main Controller (WMC)
2	Factory Manager	Acts as WMC in absence of Director Operation
3	Shift In-Charge (MCR)	Acts as WMC in silent hour (10 P.M to 8 A.M), Immediately takes over WMC charge in absence of Director (Operation)/Factory (Manager) and hand over the charge after their arrival at spot.
4	Incident Controller (IC)	Controls Incident location guide response teams
5	Auxiliary Team Leader (ATL)	Acts as Communication leader, Roll Call Leader & Logistic support to Combat & Rescue team
6	Rescue Team Leader (RTL)	Conducts rescue operation
7	I/C Security	Acts as Emergency Security Controller and supports emergency rescue exercise
8	Chief Medical Officer (CMO)	First Aid/ Medical aid. Supports rescue
9	Team Leaders	Team leader of the Incident area acts as Incident Controller for the particular area incident
101	EHS Manager, Safety Officer, Fire Officer	Aid & assist WMC & IC, take mutual aid assistance

---XXX--

# OHPC

## Disaster Preparedness & Response Plan

### 1. PREVENTION, MITIGATION & PREPAREDNESS PLAN

The Management of different Power Stations have been following the Standard Operating Procedures to safe guard the safety & security of Man & materials:

To protect the equipment from fire hazard, the following Fire Fighting equipment are available at different Power Stations

- 1) Emulsifier system in Transformer Deck for GT, UAT and cable room.
- 2) Centralized CO2 system (02 Banks) for generator barrel.
- 3) Fire hydrants with hose pipes at different locations of Power House.
- 4) Smoke detectors & heat detectors are provided in Generators.
- 5) Portable CO2 fire extinguishers / ABC powder type fire extinguishers are provided at Control room, Turbine Floor and DC room of Power House, Switch Yard, different stores & Offices, Garage, Workshop, equipment stores etc.
- 6) Fire buckets provided in Switch Yard premises and store.
- 7) Fire triangles are shown at different locations
- 8) Water Hydrant System: Water hydrant system are provided both inside the power house, Generating Transformers, Station Transformers in 132 /220 /400 KV Switch Yard . With water gravity from fore bay of power house through pipes and valves, water can be sprayed with the help of hydraulic hoses fitted in the respective valves for extinguishing fire.
- 9) Besides the above, fire brigades are being called from nearest fire stations as and when required.
  - (a) Flood Control : Dewatering pump motor sets of different capacities are installed for dewatering inside power house. Dewatering pumps at Turbine Top Cover for generating Units, Sump Pits, Foundation gallery for dewatering of leakage water are run automatically. Spare pumps are also available for emergencies.
  - (b) Black Out:
    - I. One DG set each has been installed at each power station to facilitate the 'Black Start' facility as well as emergency power supply. Further trail run is being held in every six month to authenticate our preparedness to face black outs.

- II. D.O illumination System is available in case of power failure.
- (c) Emergency Treatment in case of injury arising out of Fire/Accident/Electrocution etc. First Aid boxes are provided in each shop floor i.e.
- i. Control Room
  - ii. Near Turbine Floor operator table
  - iii. Switch Yard workshop
  - iv. Utility Division Electrical Maintenance Section.
  - v. Emergency Medicine are provided in the Dispensary / Hospital.
  - vi. Ambulance facilities is provided to shift the injured person to near by Hospital .
  - vii. An emergency vehicle is also provided in Power House in shift round the clock to meet any emergency.
- (d) Land slide :- Stone Packing has been made in both sides of penstock pipe lines of high head power station to avoid damage to the penstock pipelines in case of land sliding .

## 2. RESPONSE PLAN:

Mechanism for early warning & dissemination of there of:

### (a) Fire Alarm (Siren)

- A siren of adequate capacity has been installed at the entrance gate of each Power Station. In case of emergency, the Shift-in-Charge shall take action to put "ON" the siren to inform all concerned.
- Power House colony comes within the siren range.
- The siren under such situation will be continuous type which will be distinguishable from normal shift change siren used during starting of Generating units.

### (b) Power Line Carrier Communication system:-

- PLCC System installed and managed by M/s. OPTCL is provided
- Independent communication with :-
  - (i) State Load Dispatch Centre (SLDC), Bhubaneswar
  - (ii) Nearest 132 / 220 / 400 KV Grid Sub-Station of OPTCL.

### 3. CAPACITY OF THE POWER PLANT TO DEAL WITH IDENTIFIED DISASTERS:-

Three Tier Communication System available in the main control center:-

- Intercom telephone facilities is provided at all essential / important points of different Power Houses.
- In addition to it, some Key Executives such as Unit Head, Technical Wing Head, Finance Wing Head, HR Wing Head, Field Managers (Divisional Heads) are provided with direct BSNL Telephones. Close User Group (CUG) facility has been provided to all the executives of the organization for better communication and co-ordination.
- Communication through video conferencing is available at different Power Houses with other Units and Corporate Office, Bhubaneswar.

Following facilities are also available in the Main Control Centre:

- (a) Disaster /on site Emergency Management Plan.
- (b) The location chart of Emulsifier System, fire hydrant, first Aid box, exit places, etc at different floors.
- (c) The list of safety Applications available with different Power Stations.
- (d) The list of personnel to be engaged for different type of disaster with their address & phone numbers.
- (e) Emergency vehicle is stationed at Power station on regular basis.

---XXX--