ANNEXURE-8

33kV NETWORK INFRASTRUCTURE

ANNEXURE-8

33kV NETWORK INFRASTRUCTURE

Sl. No.	*Proposal*	*Costing (in cr.)*	*Annexure Nos.*
1	Proposal for mitigation of Overloading issue	₹ 32.62	Annexure-8.1 to 8.9
2	Proposal for Power Evacuation	₹ 13.03	Annexure-8.10
3	Proposal for Feeder Refurbishment	₹ 10	Annexure-8.11 to 8.14
TOTAL		**₹ 55.62**	

Summary of proposal details for mitigation of Overloading issue:

Sl. No.	*Circle*	*Division*	*Name of 33kV Feeder*	*Proposal Details*	*Costing in Cr*	*Annexure No.*
1	BBSR-I	BCDD-II	Vipul	Mitigation of 33kV Feeder Overloading: Proposal for new 33kV interlinking line from Gothapatna PSS to Kalinganagar PSS to mitigate overloading of 33kV Vipul feeder.	₹ 6	Annexure-8.1
2	BBSR-I	BCDD-II	Infocity	Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from Chandaka-A GSS to DP near K-Fin Tech to mitigate overloading issue & providing reliable power supply.	₹ 1	Annexure-8.2
3	BBSR-I	BED	Naharkanta	Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from Mancheswar-A GSS to Naharkanta PSS to mitigate overloading issue & providing reliable power supply.	₹ 2	Annexure-8.3
4	BBSR-II	PED	Puri-II	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate overloading issue & providing reliable power supply.	₹ 5	Annexure-8.4
5	BBSR-II	PED	Sakhigopal	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate	₹ 2	Annexure-8.5

Sl. No.	*Circle*	*Division*	*Name of 33kV Feeder*	*Proposal Details*	*Costing in Cr*	*Annexure No.*
				overloading issue & providing reliable power supply.		
6	Cuttack	CED	Balikuda	Mitigation of 33kV Overloading: Proposal of new interlinking line from OGP PSS to Balikuda PSS to mitigate overloading issue & providing reliable power supply.	₹ 5	Annexure-8.6
7	Cuttack	CDD-II	Jagatpur	Mitigation of 33kV Overloading: Proposal for New 33kV feeder from Bahugram GSS to Jagatpur IPICOL PSS to mitigate overloading issue & providing reliable power supply.	₹ 8	Annexure-8.7
8	Dhenkanal	DED	Dhenkanal	Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from 4-P near Mahispat to College PSS to mitigate overloading issue & providing reliable power supply.	₹ 2	Annexure-8.8
9	Dhenkanal	TED	Meramundali	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate overloading issue & providing reliable power supply.	₹ 2	Annexure-8.9
TOTAL					**₹ 33**	

Summary of proposal details for Power Evacuation:

Sl. No.	*Circle*	*Division*	*Name of 33kV Feeder*	*Proposal Details*	*Costing in Cr*	*Annexure No.*
1	BBSR-I	BED	Phulnakhra	Power Evacuation: Proposal for construction of 10Ckm new U/G line from Balianta GSS to Phulnakhra 33/11kV PSS and 1 no of 33kV RMU at Phulnakhra PSS for load splitting.	₹ 13	Annexure-8.10
TOTAL					**₹ 13**	

Summary of proposal details for Feeder Refurbishment:

Sl. No.	***Circle***	***Division***	***Name of 33kV Feeder***	***Proposal Details***	***Costing in Cr***	***Annexure No.***
1	BBSR-I	NED	Chhaitana	33kV Feeder Refurbishment: Proposal for Refurbishment of existing 33 kV Chhaitana Feeder from Gop PSS to Nagapur PSS to providing reliable power supply.	₹ 2	Annexure-8.11
2	BBSR-II	NYED	Daspalla	33kV Feeder Refurbishment: Proposal for Refurbishment of existing 33 kV Daspalla Feeder from Nuagaon PSS to Daspalla PSS to providing reliable power supply.	₹ 1	Annexure-8.12
3	Paradeep	KED-I	Danpur	33kV Feeder Refurbishment: Proposal for Refurbishment of existing 33 kV Danpur Feeder from Danpur PSS to Koru PSS to providing reliable power supply.	₹ 2	Annexure-8.13
4	Paradeep	KED-I	Indupur	33kV Feeder Refurbishment: Proposal for Refurbishment of existing 33 kV Indupur Feeder from Kendrapada GSS to Indupur and Chhata PSS to providing reliable power supply.	₹ 5	Annexure-8.14
TOTAL					**₹ 10**	

Mitigation of 33kV Feeder Overloading Issue

1.0 Proposal for overloading mitigation of 33kV Vipul Feeder:

Proposal: New 33kV interlinking line from Gothapatna PSS to Kalinganagar PSS to mitigate overloading of 33kV Vipul feeder.

Objective: To ensure reliable power supply by mitigating overloading and strengthening of the existing network.

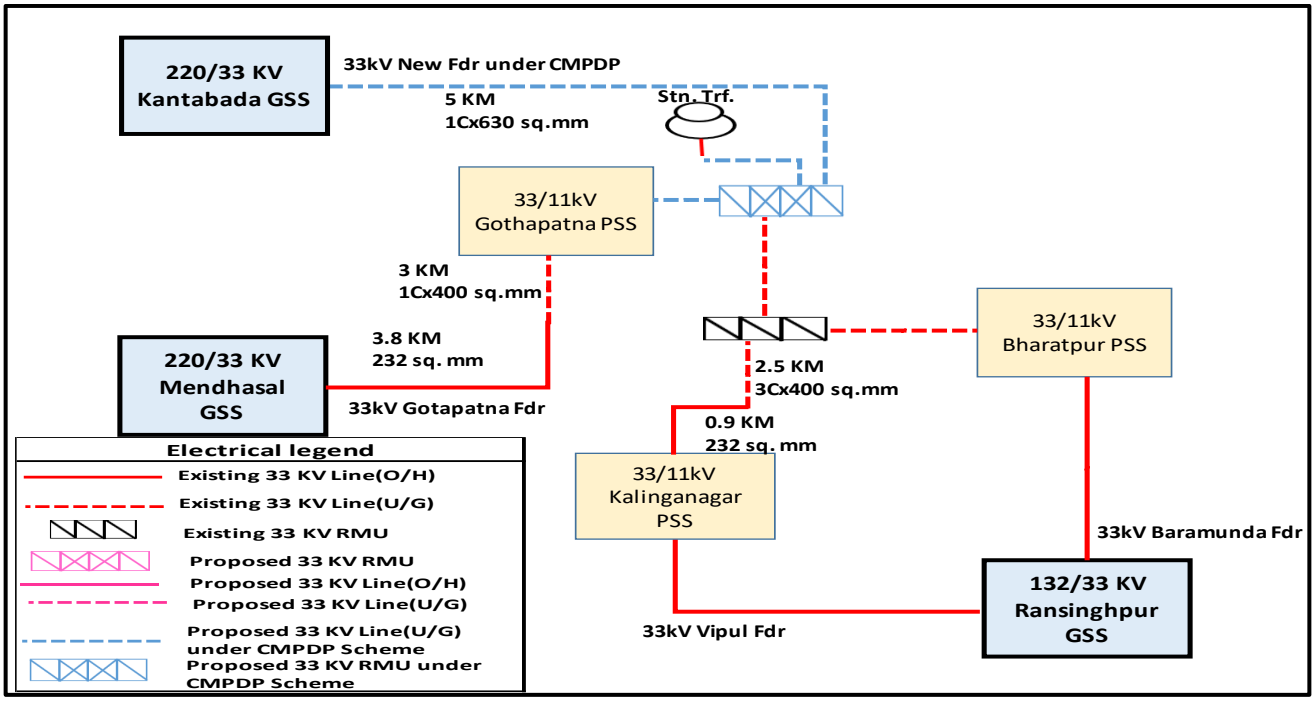
Existing Scenario:

- At present, 33kV Vipul feeder is emanating from 132/33kV Ranasinghpur GSS and feeding power supply to 6nos. high value consumer along with 33/11kV Kalinga Nagar PSS. Total length of the 33kV feeder is 9km and the peak loading at Summer'23 is 26MVA.
- Considering present scenario and load growth for 2years (20% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

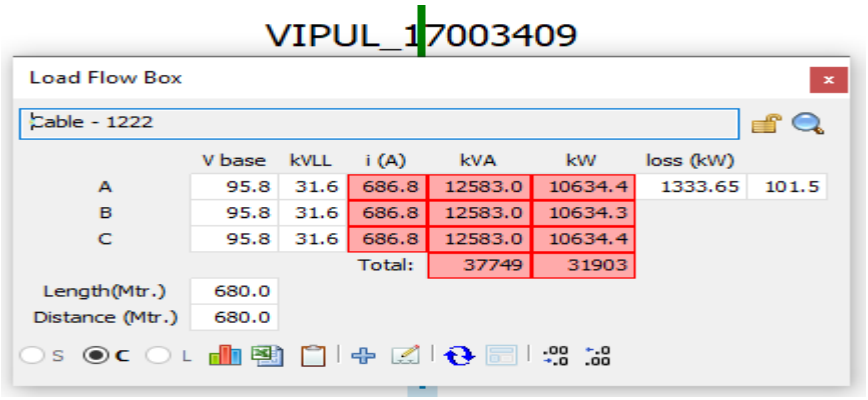
Existing Summer'23 Loading and projected load at 33kV Vipul Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Vipul	17.49	26	148.66%	Overload	37.44	214.07%	Overload

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:

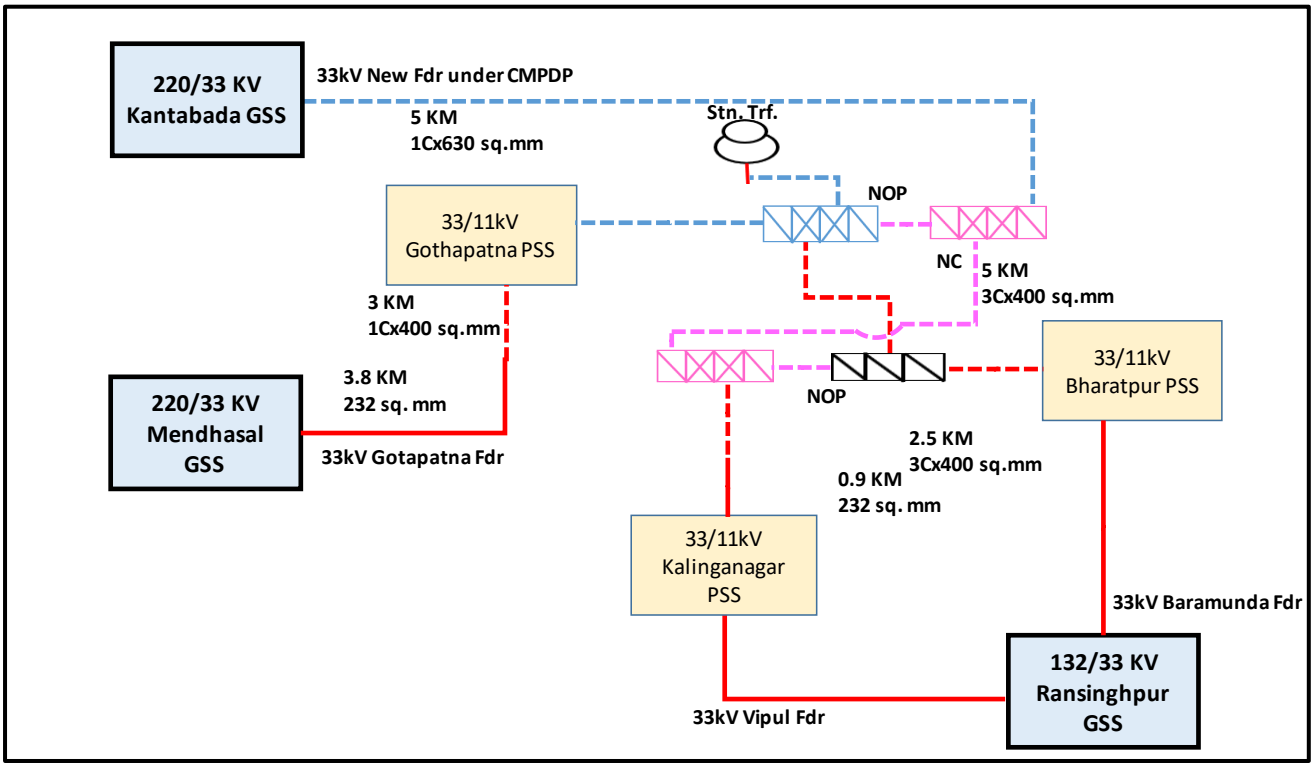


Proposed Scenario:

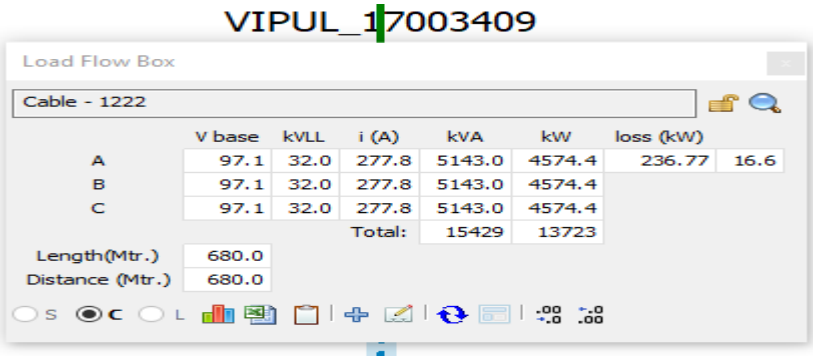
- Installation of 2nos. of 33kV RMUs and laying of 5Ckm 33kV line to bifurcate load of 33kV Vipul fdr.
- Overloading mitigation of 33kV Vipul feeder by bifurcating the load as shown in the below table.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Vipul	17.49	15.62	89.32%	OK
New Fdr Under CMPDP from Kantabada GSS	26.51	21.82	82.30%	OK

Proposed SLD:



Load Flow Study of proposed scenario in Cyme Software:



Detailed Scope of Work:

- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable from Gothapatna PSS to Reliance Circle - 5 Ckm.

BoQ:

ANNEXURE-8.1			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-		**BCDD-II**	
Name of the Sub-Division : -		KHANDAGIRI	
Name of the Work :-		Mitigation of 33kV Feeder Overloading: Proposal for new 33kV interlinking line from Gothapatna PSS to Kalinganagar PSS to mitigate overloading of 33kV Vipul feeder.	
Scope:-		Part A:- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable from Gothapatna PSS to Reliance Circle - 5 Ckm.	
Names of Schemes: -		TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable from Gothapatna PSS to Reliance Circle - 5 Ckm.	6,32,10,768.21
		Total Amount	**6,32,10,768.21**
		Total Amount (In Cr)	**6.32**
Total estimated cost is Rs. 6.32 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 6.32Cr. (For detailed BoQ refer Annexure-8.1).

Benefit:

- Mitigating overloading issues of 33kV Vipul Feeder.
- Ensuring reliability of power supply for consumers & connected PSS.

2.0 Proposal for overloading mitigation of 33kV Infocity Feeder:

Proposal: Augmentation of existing Infocity feeder for 2Ckm from 148sq.mm, AAAC to 232sq.mm from Chandaka-A 132/33kV GSS to DP near K-Fin Tech.

Objective: To ensure reliable power supply by mitigating overloading and strengthening of the existing network.

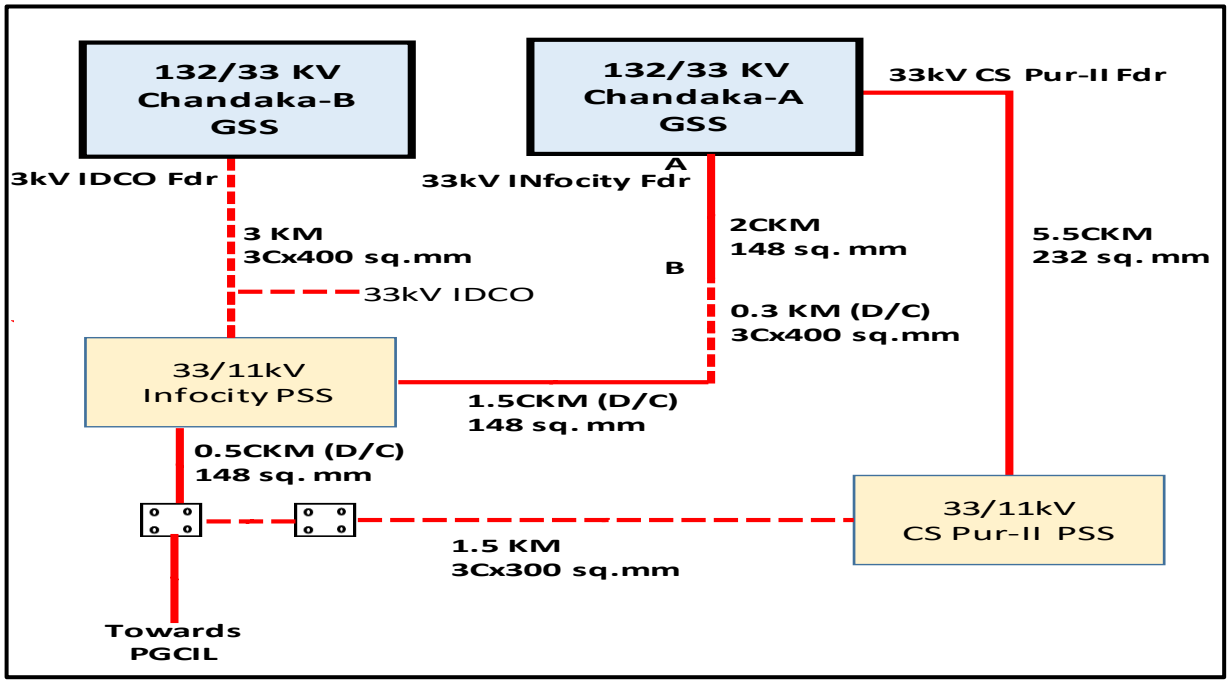
Existing Scenario:

- At present, 33kV Infocity feeder is emanating from Chandaka-A Grid, having conductor size of 148sq.mm, AAAC for a length of 2 Ckm (single Ckt.) and rest 1.5Ckm 148 and 3CX400sqmm (Double Ckt).
- Present peak load of Infocity 33kV feeder is 20 MVA, w.r.t., the current carrying capacity of conductor 17.5MVA.
- Considering present scenario and load growth for 2years (20% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

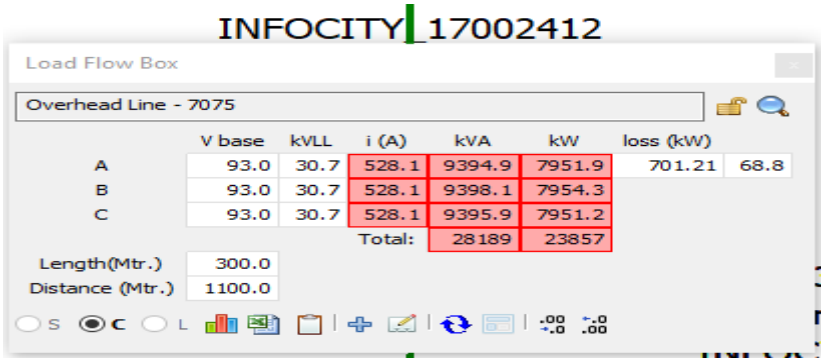
Existing Summer'23 Loading and projected load at 33kV Infocity Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Infocity	17.49	18	102.92%	Overload	25.92	148.20%	Overload
IDCO	17.49	7	40.02%	OK	10.08	57.63%	OK

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:

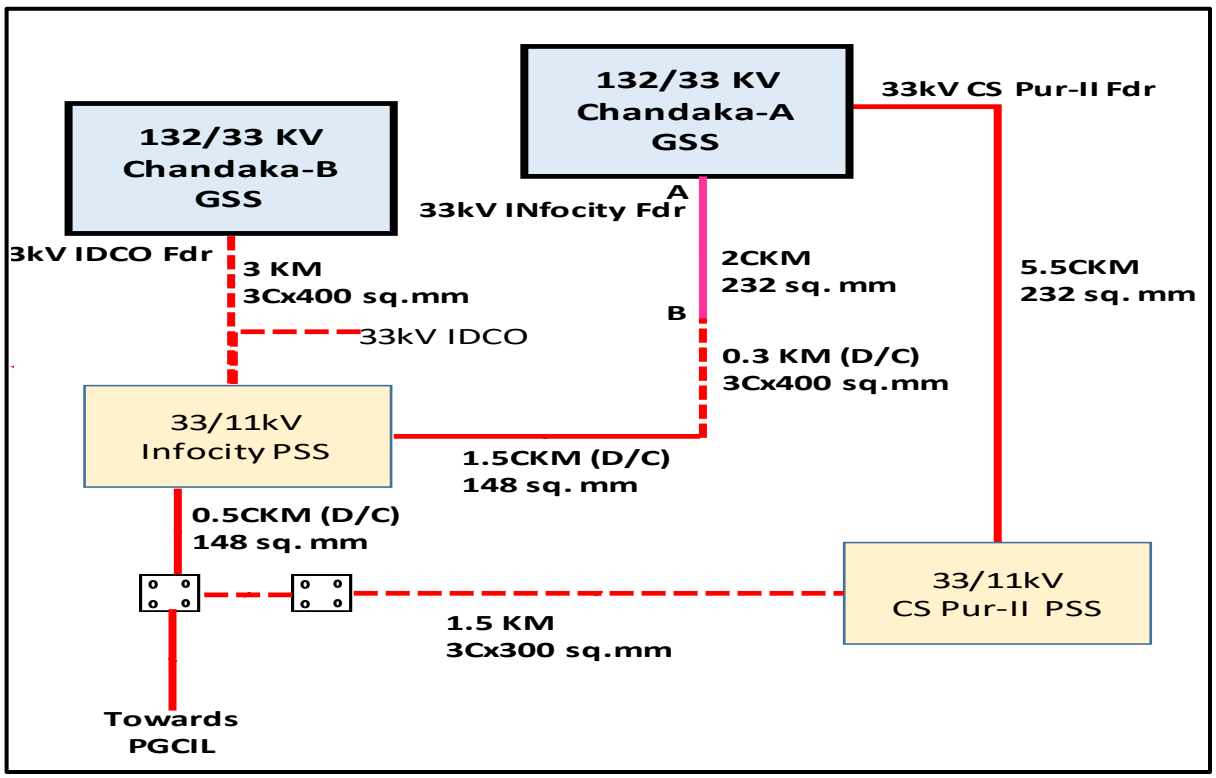


Proposed Scenario:

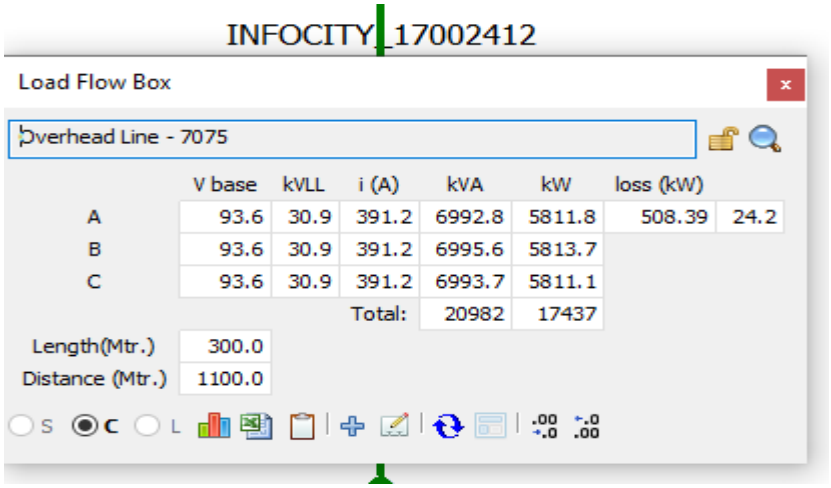
- 33kV Infocity feeder augmentation is proposed from Chandaka-A Grid to DP near K-Fin Tech. for a length of 2Ckm and Installation of 2nos. of 33kV RMUs at Infocity PSS to bifurcate load, rest D.C portion will be used for parallel operation.
- Overloading issue mitigation of 33kV Infocity feeder by conductor augmentation and bifurcating the load as shown in below table.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Infocity	26	22.00	84.62%	OK
IDCO	17.49	14.00	80.05%	OK

Proposed SLD:



Load Flow Study of proposed scenario in Cyme Software:



Detailed Scope of Work:

- Augmentation of existing 33kV Line from 148 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Infocity Fdr - 2 CKM (Chandaka-A GSS to DP near K-Fin Tech) and Installation of 2No's 33 kV RMU at Infocity PSS to split Infocity PSS load at multiple feeders for providing reliable power supply by mitigating overloading issue.

BoQ:

ANNEXURE-8.2			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**BCDD-II**		
Name of the Sub-Division : -	PERIPHERI		
Name of the Work :-	Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from Chandaka-A GSS to DP near K-Fin Tech to mitigate overloading issue & providing reliable power supply.		
Scope:-	Part A:- Augmentation of existing 33kV Line from 148 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Infocity Fdr - 2 CKM (Chandaka-A GSS to DP near K-Fin Tech) Part B:- Installation of 2No's 33 kV RMU with cable at Infocity PSS to split PSS load at multiple feeders for mitigate overload issue and improve reliability.		
Names of Schemes: -	TPCODL CAPEX (FY 24-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**

1	A	Part A:- Augmentation of existing 33kV Line from 148 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Infocity Fdr - 2 CKM (Chandaka-A GSS to DP near K-Fin Tech)	20,41,356.54
2	B	Part B:- Installation of 2No's 33 kV RMU with cable at Infocity PSS to split PSS load at multiple feeders for mitigate overload issue and improve reliability.	79,20,816.18
		Total Amount	**99,62,172.72**
		Total Amount (In Cr)	**1.00**
Total estimated cost is Rs. 1.00 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 1.00 Cr. (For detailed BoQ refer Annexure-8.2).

Benefit:

- Mitigating overloading issue of 33kV Infocity feeder.
- Ensuring reliability of power supply.

3.0 Proposal for overloading mitigation of 33kV Naharkanta Feeder:

Proposal: Augmentation of existing Naharkanta Feeder for 9Ckm from 100 sq.mm, AAAC to 232 sq.mm from 132/33kV, Manhewar-A GSS to 33/11kV, Naharkanta PSS.

Objective: To ensure reliable power supply by mitigating overloading issue and strengthening of the existing network.

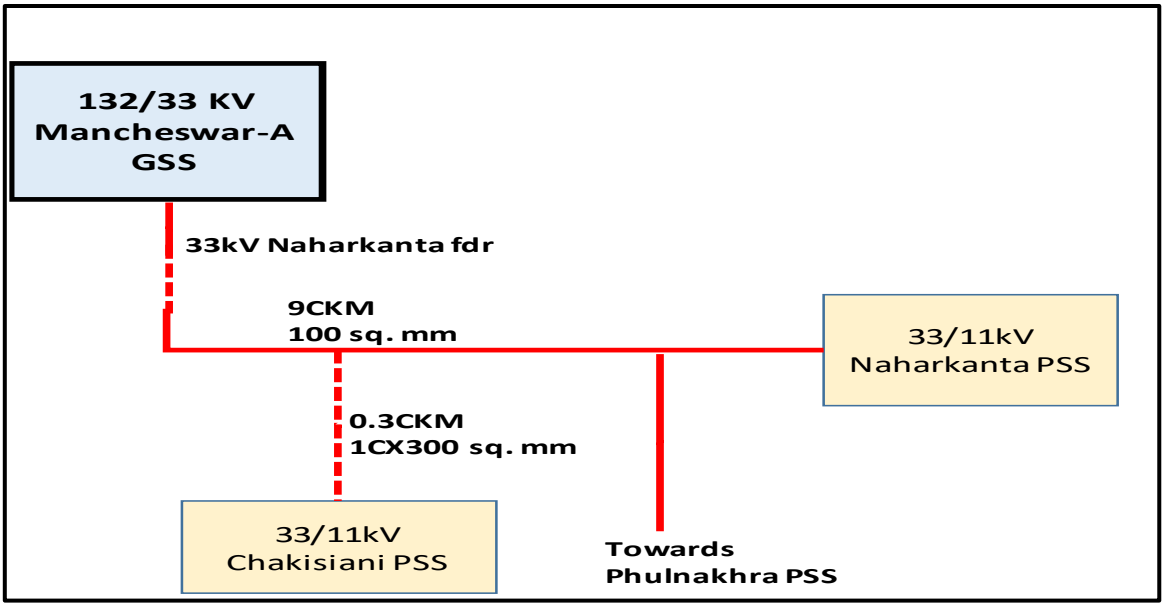
Existing Scenario:

- At present, length of feeder from Mancheswar-A Grid to Naharkanta PSS, having conductor of 100 sq.mm, AAAC for a total length of 9Ckm.
- Present peak load of 33kV Naharkanta feeder is 13.2MVA, w.r.t., the current carrying capacity of conductor 15.5MVA.
- Considering load growth for 2years (20% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

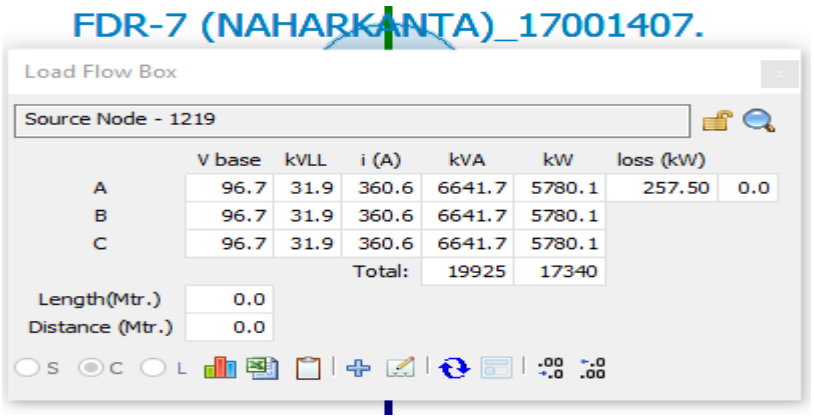
Existing Summer'23 Loading and projected load at 33kV Naharkanta Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Naharkanta	15.5	13.2	85.16%	OK	19.01	122.63%	Overload

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:



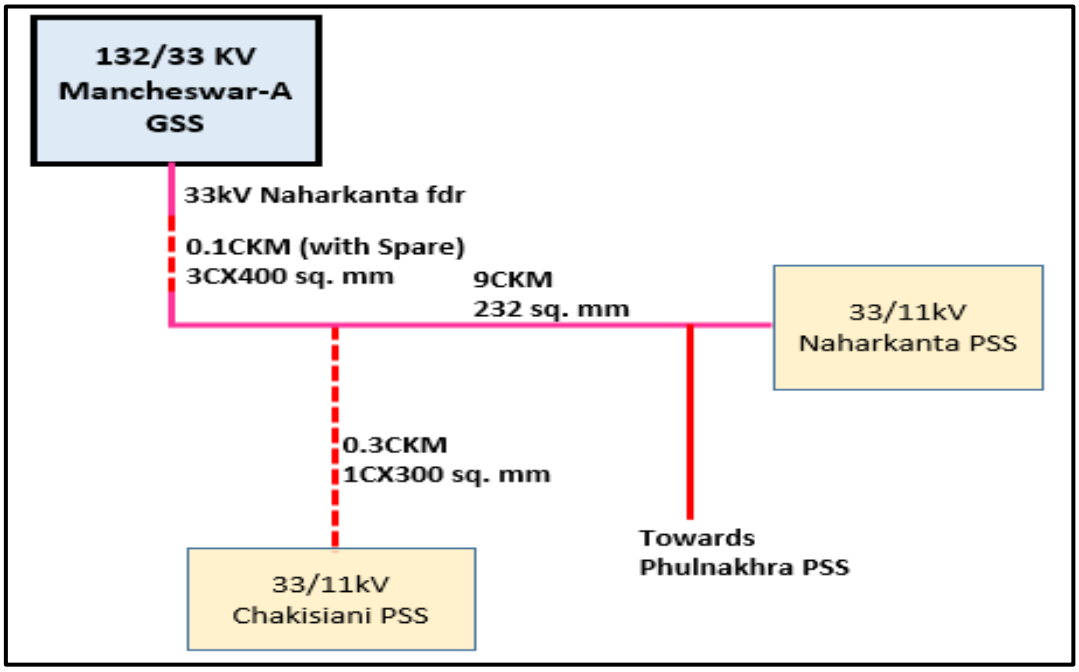
	V base	kVLL	i (A)	kVA	kW	loss (kW)	
A	96.7	31.9	360.6	6641.7	5780.1	257.50	0.0
B	96.7	31.9	360.6	6641.7	5780.1		
C	96.7	31.9	360.6	6641.7	5780.1		
			Total:	19925	17340		
Length(Mtr.)	0.0						
Distance (Mtr.)	0.0						

Proposed Scenario:

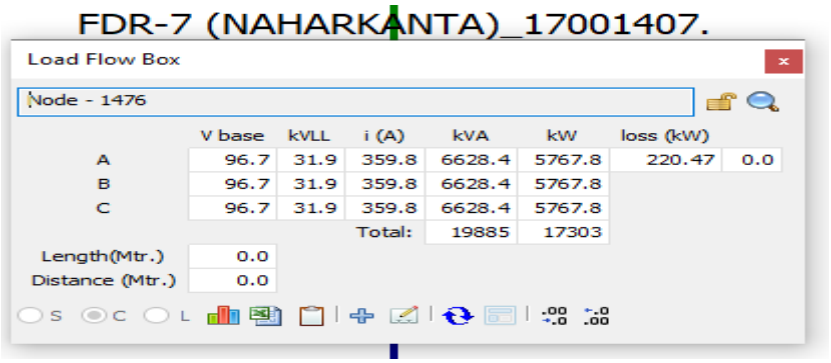
- 33kV Naharkanta feeder augmentation is proposed from 132/33kV, Mancheswar-A GSS to 33/11kV, Naharkanta PSS for a length of 9Ckm.
- Both the 3CX400sq.mm U/G cable including spare to be charged for parallel operation.
- Overloading issue mitigation of 33kV Naharkanta feeder by conductor augmentation as shown in below table.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Naharkanta	26	19.01	73.11%	OK

Proposed SLD:



Load Flow Study of proposed scenario in Cyme Software:



Detailed Scope of Work:

- Augmentation of existing 33KV Line from 100 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Naharkanta Fdr - 9 CKM (Mancheswar-A GSS to Naharkanta PSS).

BoQ:

ANNEXURE-8.3			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**BED**	
	Name of the Sub-Division : -	RASULGARH	
	Name of the Work :-	Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from Mancheswar-A GSS to Naharkanta PSS to mitigate overloading issue & providing reliable power supply.	
	Scope of work:-	Part A:- Augmentation of existing 33KV Line from 100 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Naharkanta Fdr - 9 CKM (Mancheswar-A GSS to Naharkanta PSS)	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33KV Line from 100 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Naharkanta Fdr - 9 CKM (Mancheswar-A GSS to Naharkanta PSS)	₹ 2,42,65,842.71
		Total Amount	**₹ 2,42,65,842.71**
		Total Amount (In Cr)	**2.43**
Total estimated cost is Rs. 2.43 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 2.34 Cr. (For detailed BoQ refer Annexure-8.3).

Benefit:

- Mitigating overloading issue of 33kV Naharkanta feeder.
- Ensuring reliability of power supply.

4.0 Proposal for overloading mitigation of 33kV Puri-II Feeder:

Proposal: New 33kV feeder from 132/33kV, Puri GSS to 33/11kV, Talabania PSS along with installation 1nos. RMUs at Talabania PSS.

Objective: To ensure reliable power supply by mitigating overloading issue and strengthening of the existing network.

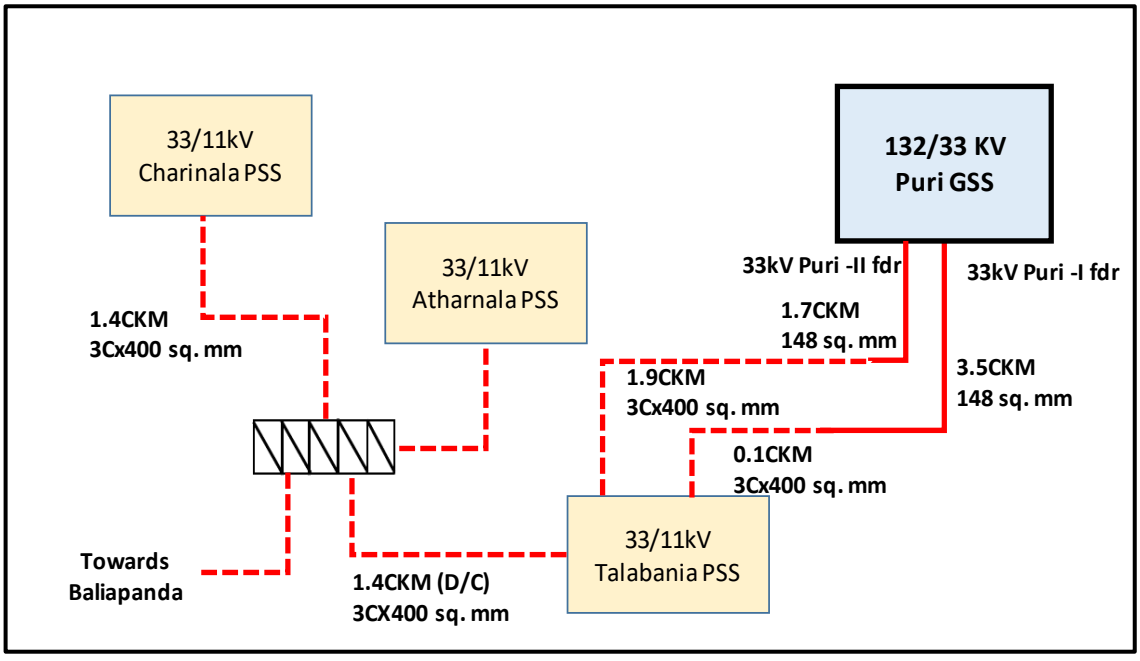
Existing Scenario:

- At present, 33kV Puri-II feeder is emanating from Puri Grid, having conductor of 3CX400 sq.mm and 148sq.mm, AAAC a length 4Ckm.
- Present peak load of 33kV Puri-II feeder is 22MVA, w.r.t., the current carrying capacity of conductor 17.5MVA.
- Considering present scenario and load growth for 2years (13% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

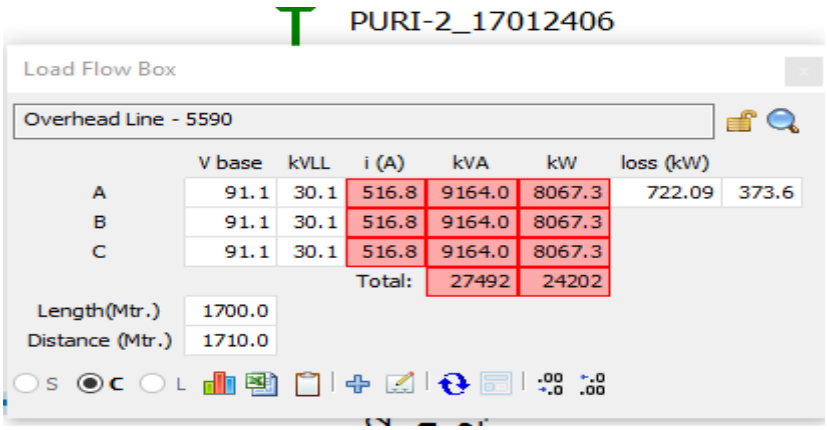
Existing Summer'23 Loading and projected load at 33kV Puri-II Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Puri-II	17.49	22	125.79%	Overload	28.09	160.62%	Overload

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:

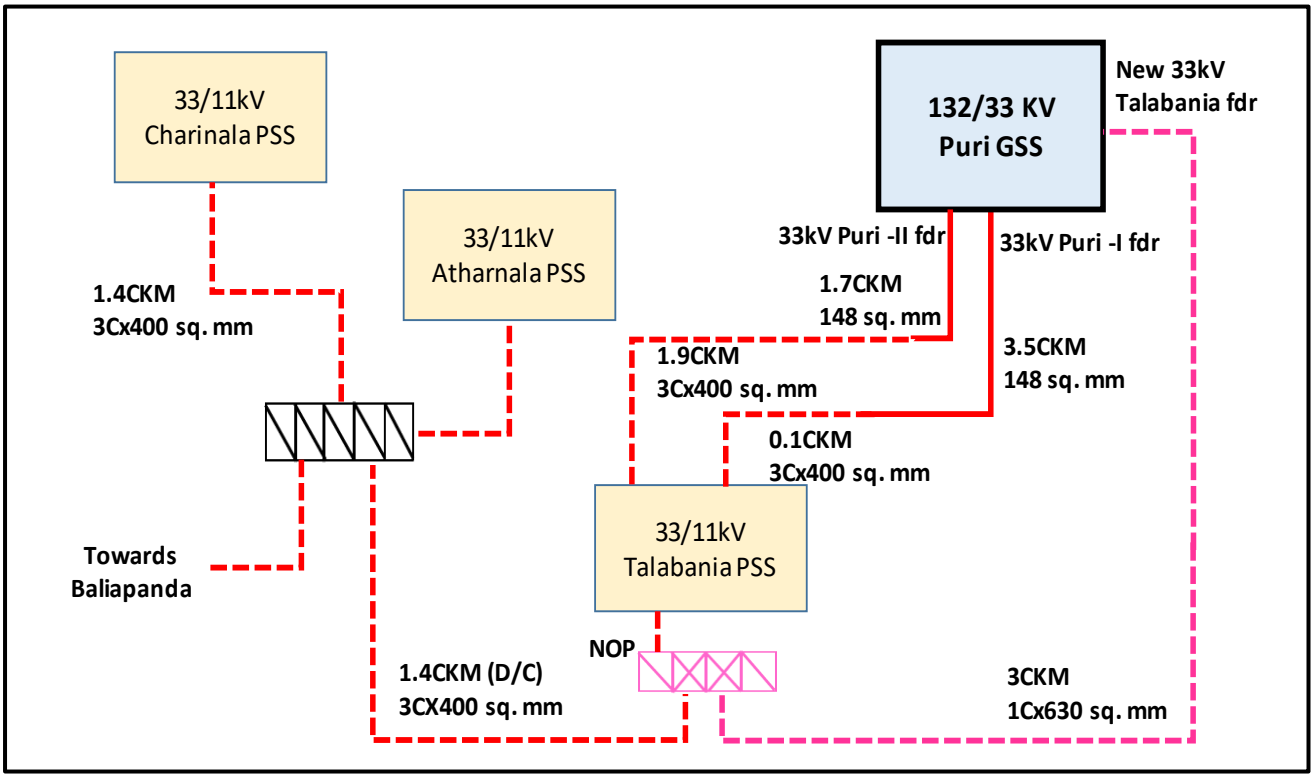


Proposed Scenario:

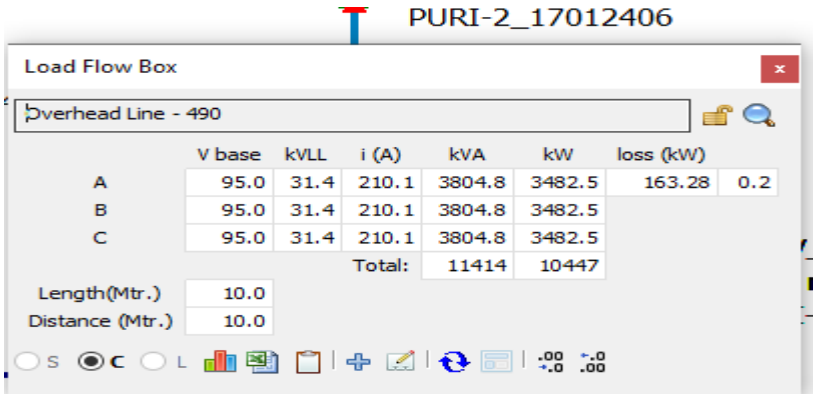
- New 33kV feeder from Puri GSS to Talabania PSS is proposed to mitigate overloading issue & providing reliable power supply for a length of 3Ckm.
- Overloading issue mitigation of 33kV Puri feeder by bifurcating the load as shown in below table.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Puri-II	17.49	11.00	62.89%	OK
New Fdr	26	17.09	65.74%	OK

Proposed SLD:



Load Flow Study of existing scenario in Cyme Software:



Detailed Scope of Work:

- Installation of 1No's 33 kV RMU at Talabania PSS and Laying of 33kV UG Cable from Pure GSS to Talabania PSS - 3 Ckm.

BoQ:

ANNEXURE-8.4			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**PED**	
	Name of the Sub-Division : -	PURI-III	
	Name of the Work :-	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate overloading issue & providing reliable power supply.	
	Scope of work:-	Part A:- Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Pure GSS to Talabania PSS - 3 Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Pure GSS to Talabania PSS - 3 Ckm.	₹ 4,62,84,633.83
		Total Amount	**₹ 4,62,84,633.83**
		Total Amount (In Cr)	**4.63**
Total estimated cost is Rs. 4.63 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 4.63cr. (For detailed BoQ refer Annexure-8.4).

Benefit:

- Mitigating overloading issue of 33kV Puri-II feeder.
- Ensuring reliability of power supply.

5.0 Proposal for overloading mitigation of 33kV Sakhigopal Feeder:

Proposal: Augmentation of existing Sakhigopal Feeder for 6Ckm from 55 sq.mm, AAAC to 232 sq.mm from Satsankha PSS to Sakhigopal PSS.

Objective: To ensure reliable power supply by mitigating overloading issue and strengthening of the existing network.

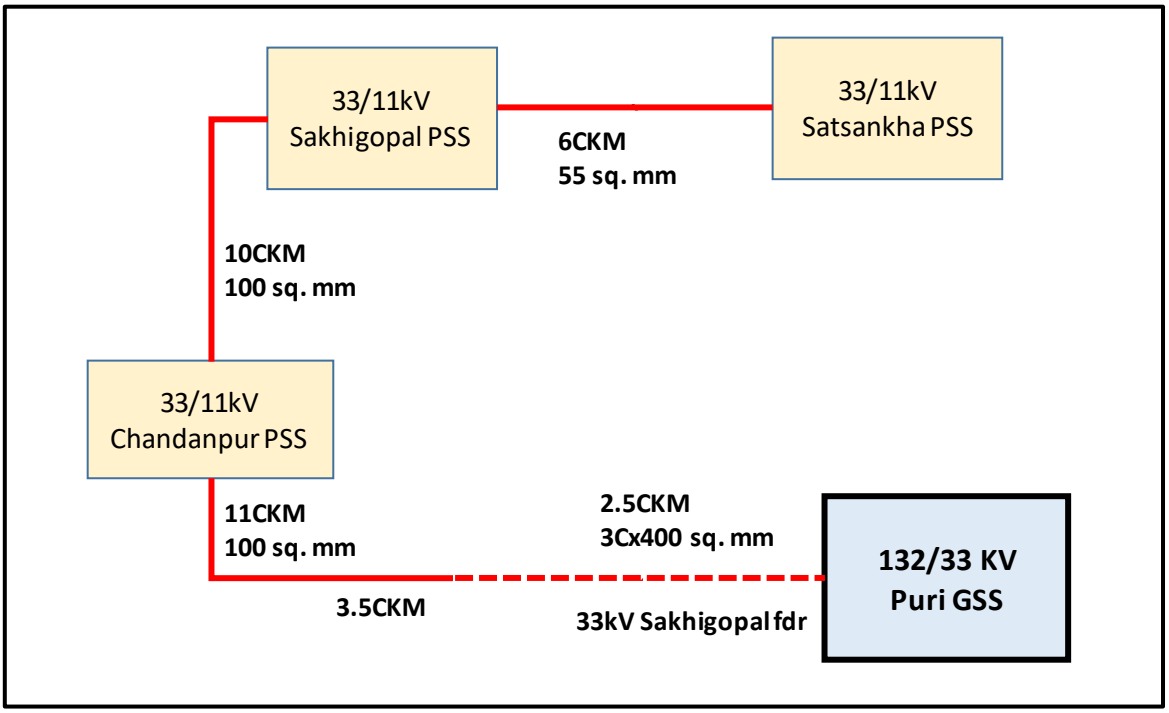
Existing Scenario:

- At present, 6Ckm length between Satsankha PSS to Sakhigopal PSS, having conductor of 55 sq.mm, AAAC.
- Present peak load of 33kV Sakhigopal feeder is 18MVA, w.r.t., the current carrying capacity of conductor 15.5MVA.
- Considering load growth for 2years (13% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

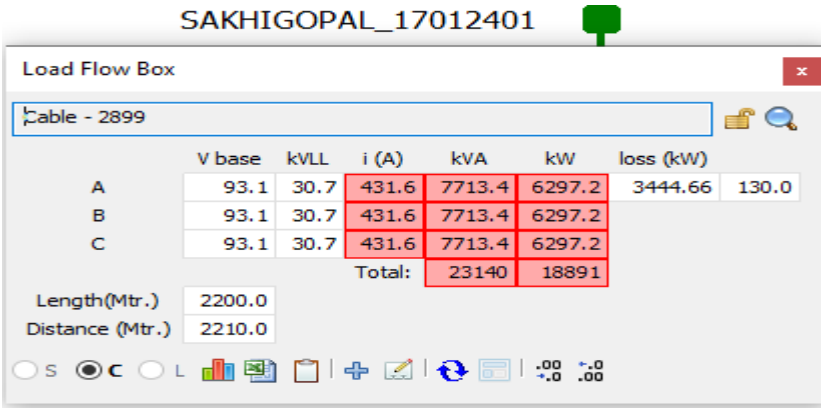
Existing Summer'23 Loading and projected load at 33kV Sakhigopal Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Sakhigopal	15.5	18	116.13%	Overload	22.98	148.29%	Overload

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:

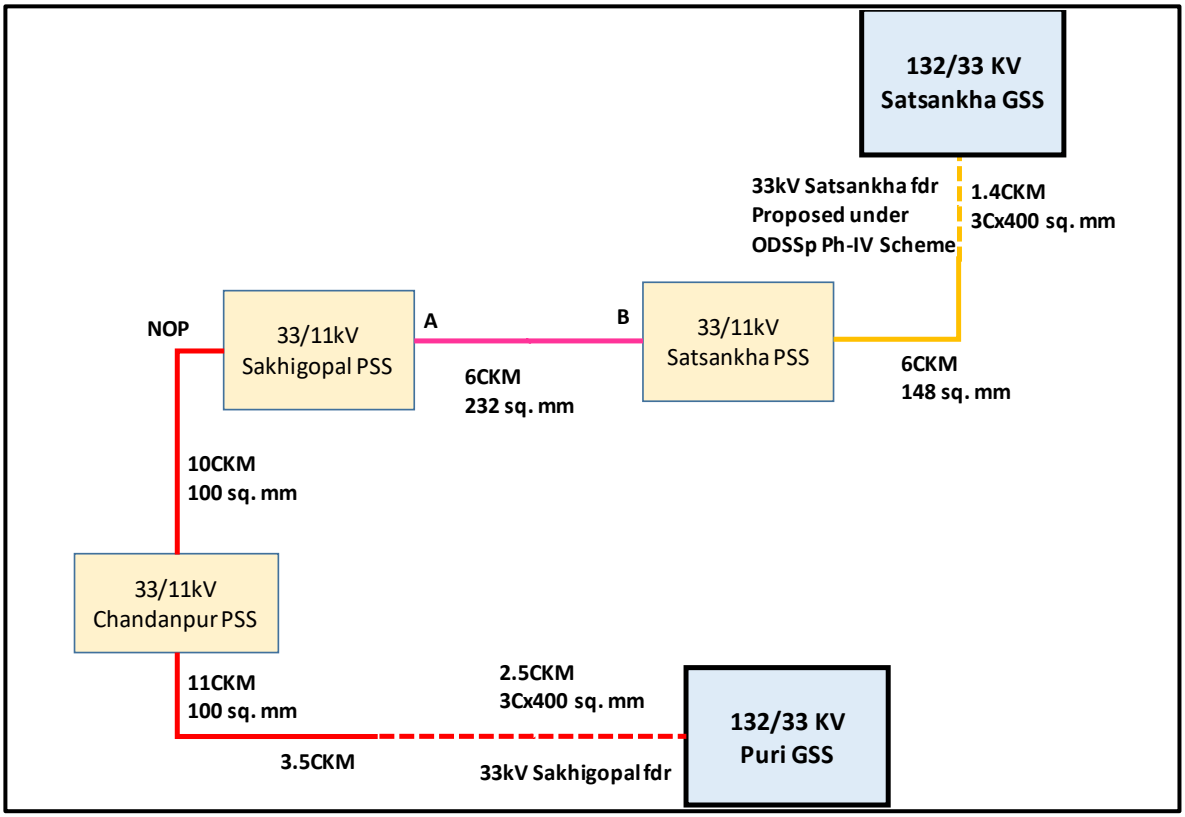


Proposed Scenario:

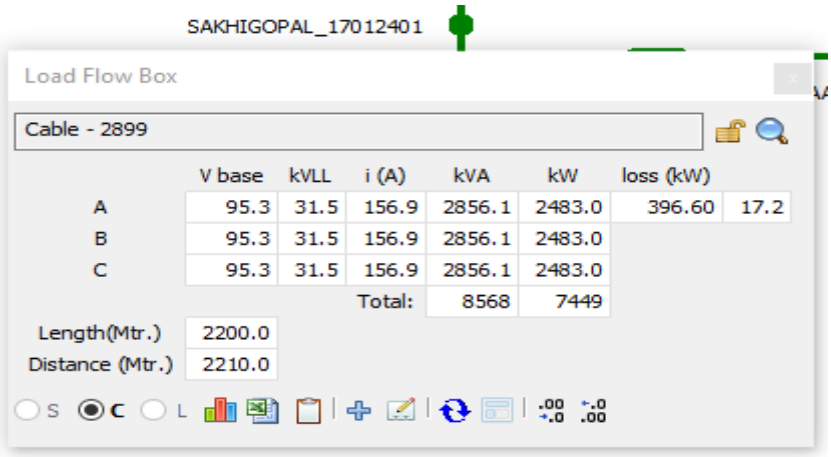
- 33kV Sakhigopal feeder augmentation is proposed from Satsankha PSS to Sakhigopal PSS, for a length of 6Ckm.
- Overloading issue mitigation of 33kV Sakhigopal feeder by conductor augmentation and load bifurcation as shown in below table.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Sakhigopal	15.5	7.00	45.16%	OK
Satsankha	20	15.98	79.92%	OK

Proposed SLD:



Load Flow Study of proposed scenario in Cyme Software:



Detailed Scope of Work:

- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM from Satsankha PSS to Sakhigopal PSS.

BoQ:

ANNEXURE-8.5			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**PED**	
	Name of the Sub-Division : -	PURI-IV	
	Name of the Work :-	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate overloading issue & providing reliable power supply.	
	Scope of work:-	Part A:- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS)	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS)	₹ 1,57,97,760.89
		Total Amount	**₹ 1,57,97,760.89**
		Total Amount (In Cr)	**1.58**
Total estimated cost is Rs. 1.58 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 1.58 Cr. (For detailed BoQ refer Annexure-8.5).

Benefit:

- Mitigating overloading issue of 33kV Sakhigopal feeder.
- Ensuring reliability of power supply.

6.0 Proposal for overloading mitigation of 33kV Balikuda Feeder:

Proposal: Laying of 3Ckm 33kV 1CX630sq.mm. XLPE U/G cable along with 2no. 33kV RMU, to mitigate overloading of 33kV Balikuda feeder and ensure reliability.

Objective: To maintain reliable power supply along with overloading mitigation of 33 KV Balikuda feeder and strengthening of existing network.

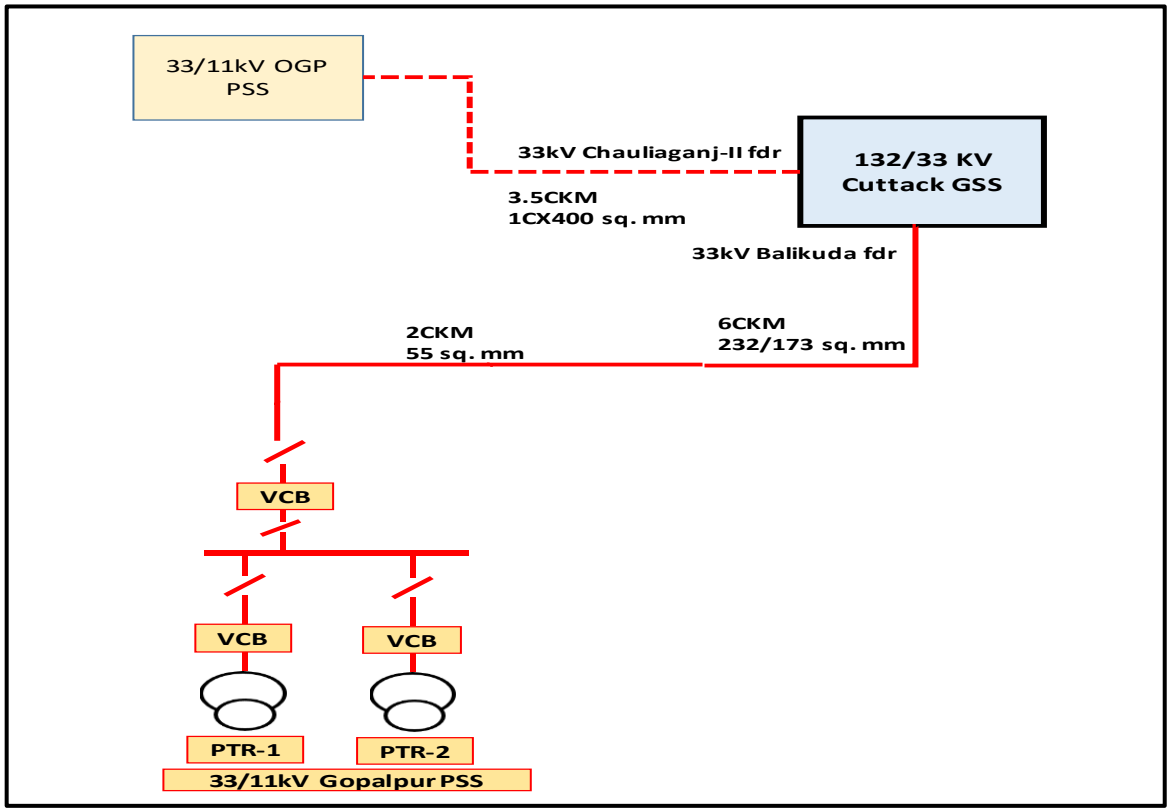
Existing Scenario:

- At present, 33 kV Balikuda feeder is emanating from 132/33kV Cuttack Grid providing supply to 33/11kV Gopalpur PSS.
- Peak load of 33kV Balikuda feeder is 13 MVA, w.r.t., the conductor current carrying capacity of 10.6MVA.
- Considering present load and load growth for 2years (8% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

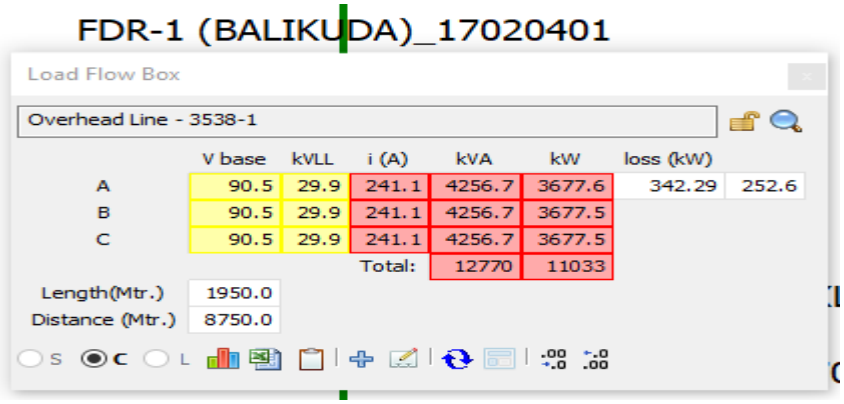
Existing Summer'23 Loading and projected load at 33kV Balikuda Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Balikuda	10.6	13	122.64%	Overload	15.16	143.05%	Overload
Chauliaganj-II	18	8	44.44%	OK	9.33	51.84%	OK

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:

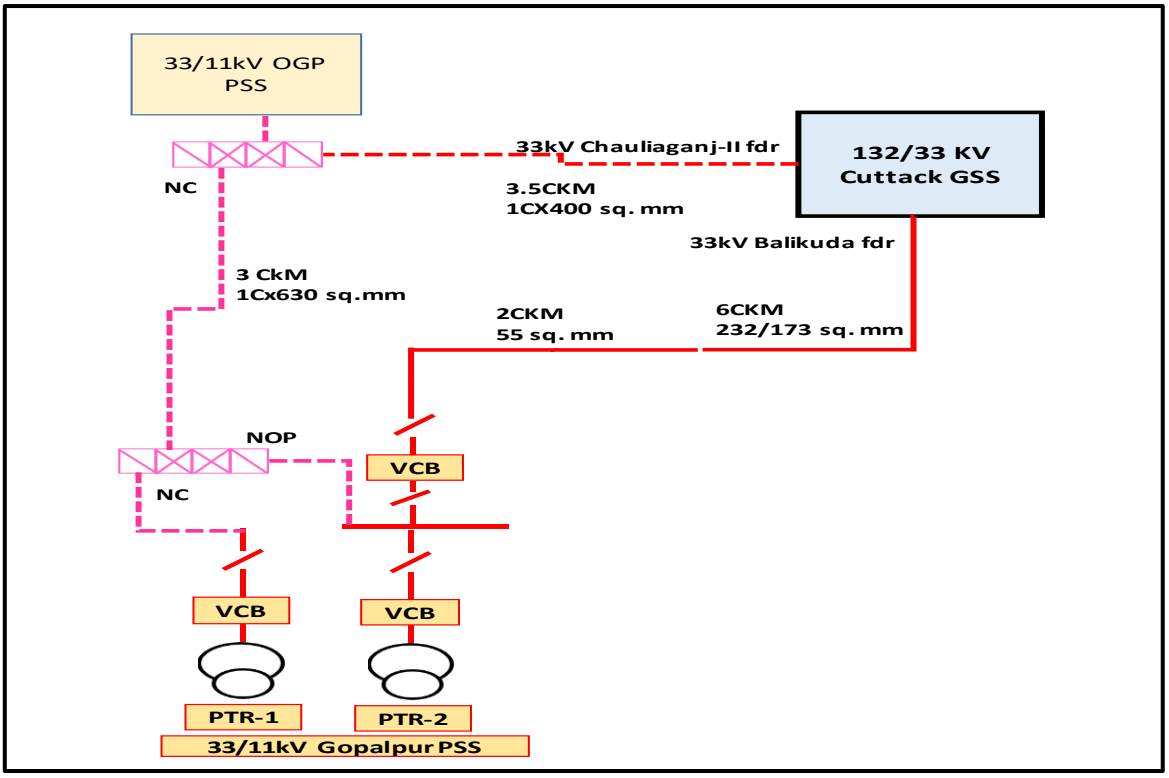


Proposed Scenario:

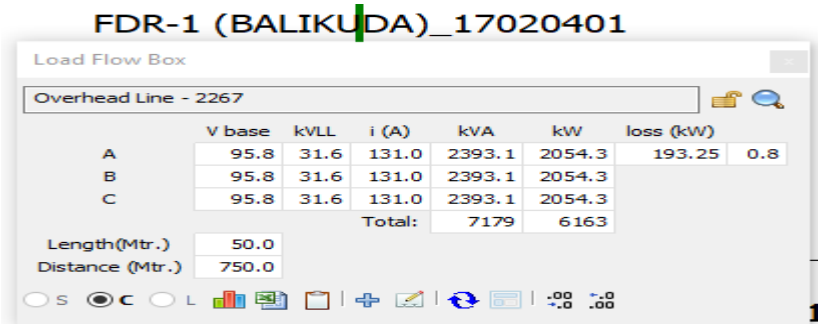
- Laying of 3Ckm 33kV 1CX630 Sq.mm. XLPE U/G cable line from Gop PSS to Gopalpur PSS along with 2no. 33kV RMU for interlinkimg and load bifercation.
- Overloading issue mitigation of 33kV Balikuda feeder by conductor augmentation and load bifurcation as shown in below table.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Balikuda	10.6	8.49	80.14%	OK
Chauliaganj-II	18	16.00	88.89%	OK

Proposed SLD:



Load Flow Study of proposed scenario in Cyme Software:



Detailed Scope of Work:

- Laying of 3Ckm 33kV interlinking line of 1CX630 Sq.mm. XLPE U/G Cable.
- Installation of 2no. 33kV RMU.
- Installation of 33kV line DP with Isolator - 2No's.

BOQ:

ANNEXURE-8.6			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**CED**		
Name of the Sub-Division : -	GOPALPUR		
Name of the Work :-	Mitigation of 33kV Overloading: Proposal of new interlinking line from OGP PSS to Balikuda PSS to mitigate overloading issue & providing reliable power supply.		
Scope:-	Part A:- Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm. Part B:- Installation of 33kV line DP with Isolator - 2No's		
Names of Schemes: -	TPCODL CAPEX(FY 24-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm.	4,48,10,757.28
2	B	Part B:- Installation of 33kV line DP with Isolator - 2No's	7,83,766.99
		Total Amount	**4,55,94,524.28**
		Total Amount (In Cr)	**4.56**
Total estimated cost is Rs. 4.56 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 4.56cr. (For detailed BoQ refer Annexure-8.6).

Benefit:

- Mitigating overloading issue of 33kV Balikuda feeder.
- Ensuring reliability of power supply.

7.0 Proposal for overloading mitigation of 33kV Jagatpur Feeder:

Proposal: New 33kV feeder from Bahugram GSS to Jagatpur IPICOL PSS, to mitigate overloading of 33kV Jagatpur feeder and ensure reliability.

Objective: To maintain reliable power supply by mitigating overloading and strengthening the existing network.

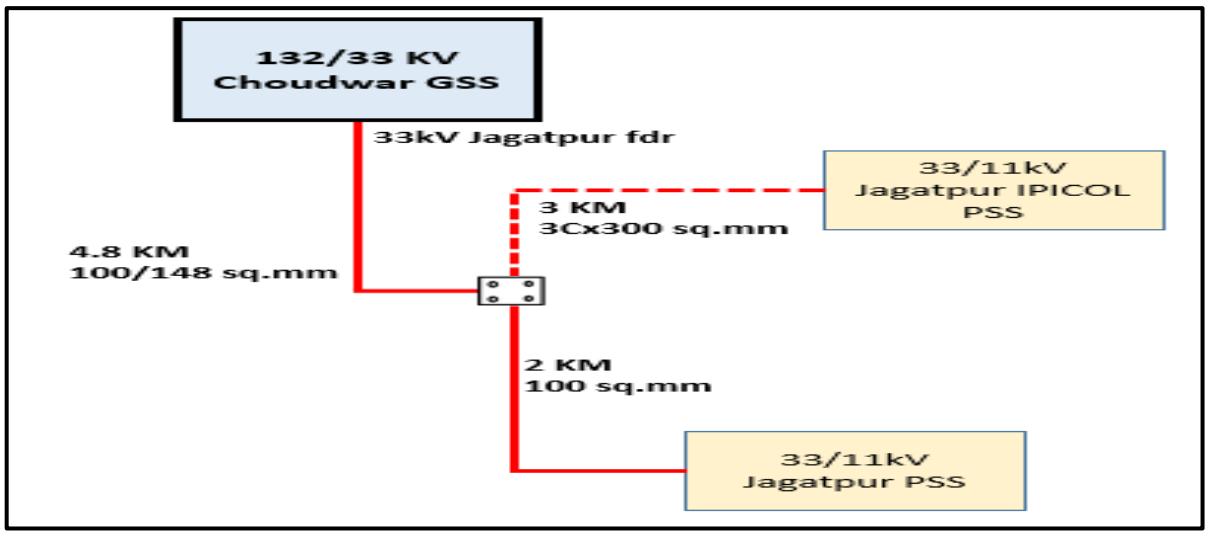
Existing Scenario:

- At present, Jagatpur 33kV feeder is emanating from Chaodwar Grid, having mixed type conductor 100/148 sq.mm with a total length of 10Ckm.
- Peak load of 33kV Jagatpur feeder is 22 MVA, w.r.t., the conductor current carrying capacity of 20MVA.
- In the present scenario, and considering load growth for 2years (13% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

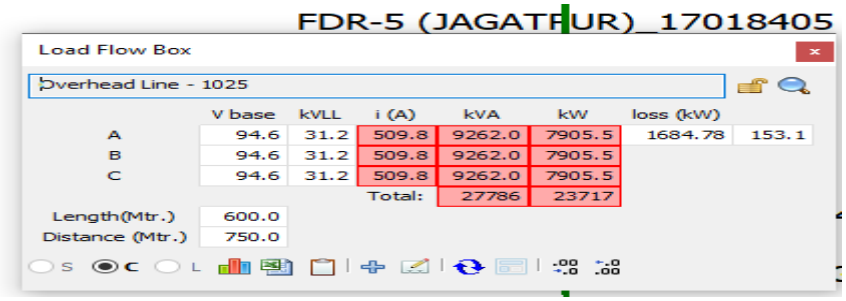
Existing Summer'23 Loading and projected load at 33kV Jagatpur Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Jagatpur	20	22	110.00%	Overload	28.09	140.46%	Overload

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:

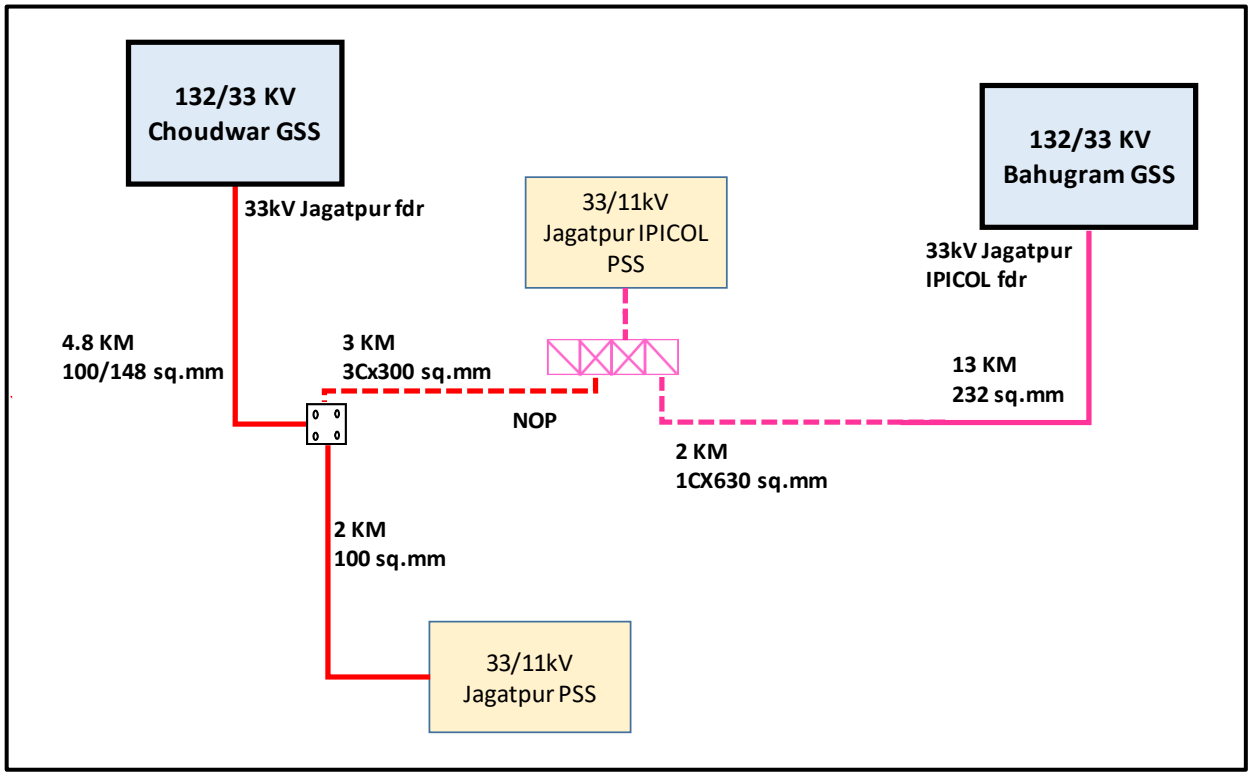


Proposed Scenario:

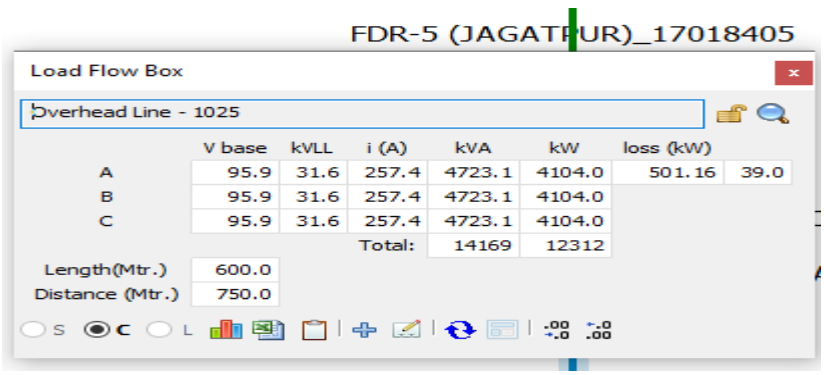
- New 33kV line from Bahugram GSS to 33kV Jagatpur IPICOL PSS, of a length of 15 Ckm.
- Overloading mitigation of 33kV Jagatpur feeder by diversion of load on proposed 33kV feeder as shown in below table.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Jagatpur	20	12.09	60.46%	OK
Jagatpur IPICOL	26	16.00	61.54%	OK

Proposed SLD:



Load Flow Study of proposed scenario in Cyme Software:



Detailed Scope of Work:

- New 33KV Line from Bahugram GSS to Jagatpur IPICOL PSS of 232 sq.mm. AAAC - 13 Ckm.
- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable - 2 Ckm.

BOQ:

ANNEXURE-8.7			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**CDD-II**		
Name of the Sub-Division : -	JOBRA		
Name of the Work :-	Mitigation of 33kV Overloading: Proposal for New 33kV feeder from Bahugram GSS to Jagatpur IPICOL PSS to mitigate overloading issue & providing reliable power supply.		
Scope:-	Part A:- New 33KV Line from Bahugram GSS to Jagatpur IPICOL PSS of 232 sq.mm. AAAC - 13 Ckm.Part B:- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable - 2 Ckm.		
Names of Schemes: -	TPCODL CAPEX(FY 24-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- New 33KV Line from Bahugram GSS to Jagatpur IPICOL PSS of 232 sq.mm. AAAC - 13 Ckm.	4,78,67,270.24
2	B	Part B:- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable - 2 Ckm.	3,30,24,305.74
		Total Amount	**8,08,91,575.99**
		Total Amount (In Cr)	**8.09**
Total estimated cost is Rs. 8.09 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 8.09cr. (For detailed BoQ refer Annexure-8.7).

Benefit:

- Ensuring reliable power supply by mitigating overloading issue.

8.0 Proposal for overloading mitigation of 33kV Dhenkanal Feeder:

Proposal: Augmentation of 8Ckm existing 33kV Line from 80 sq.mm. AAAC to 241 sq.mm. AAAC from 4P near Mahispat to College PSS.

Objective: To ensure reliable power supply by mitigating overloading issue.

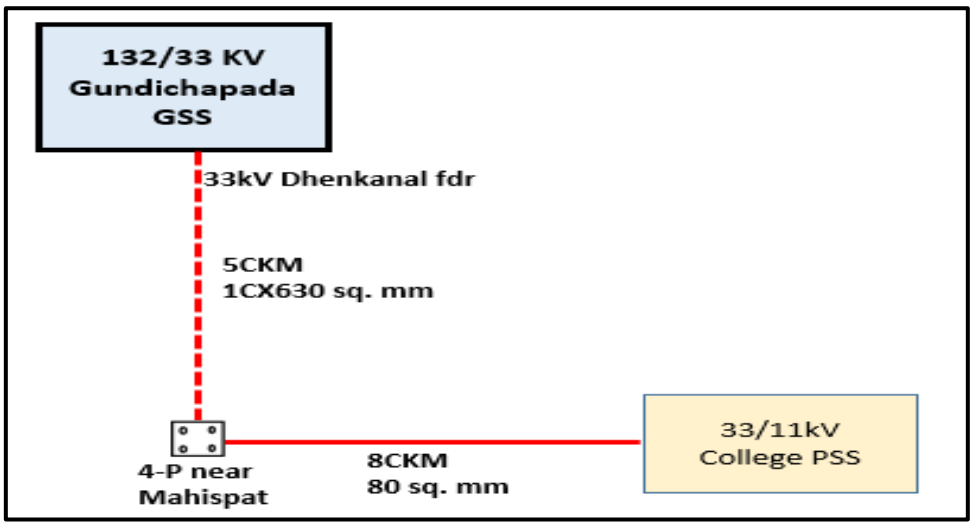
Existing Scenario:

- At present, 33kV Dhenkanal feeder is emanating from 132/33kV Gundichapada Grid and feeding supply to 33/11kV College PSS.
- The peak load of 33kV Dhenkanal feeder is 15MVA, which is overloaded, w.r.t conductor current carrying capacity of 13.5MVA.
- In the present scenario, and considering load growth for 2years (13% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

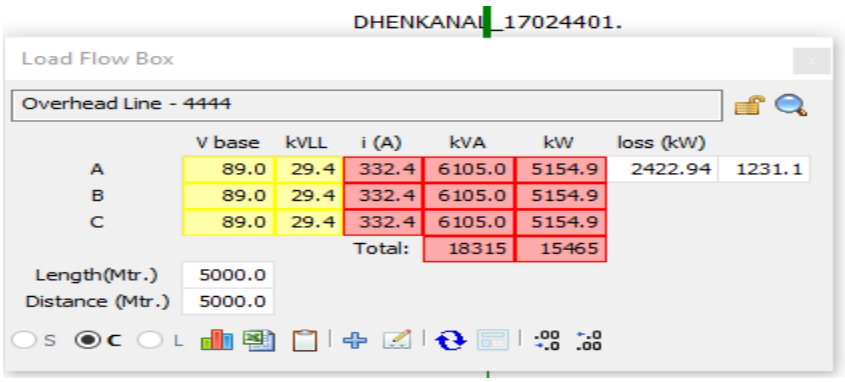
Existing Summer'23 Loading and projected load at 33kV Dhenkanal Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Dhenkanal	13.5	15	111.11%	Overload	19.15	141.88%	Overload

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:

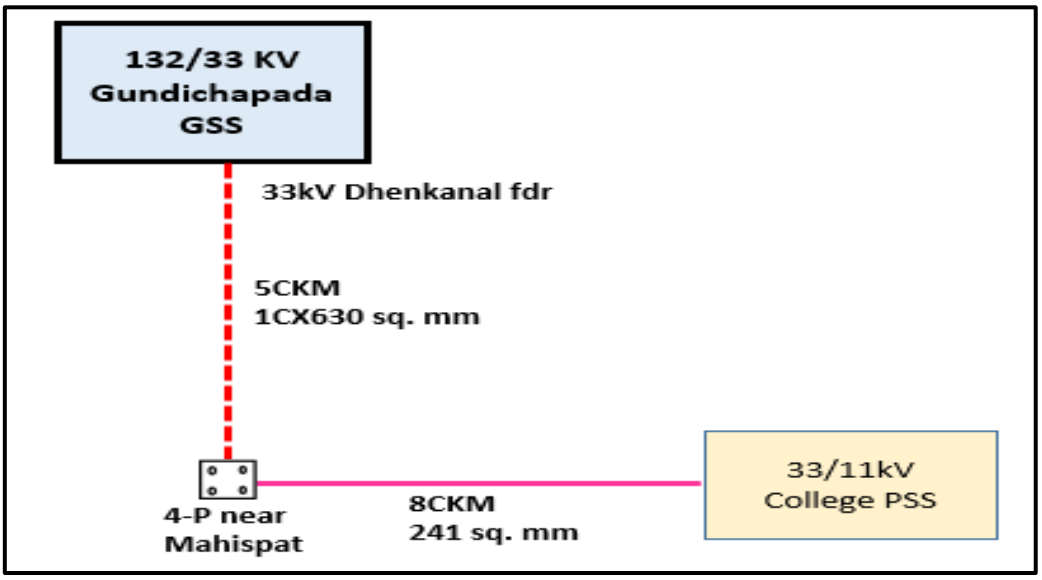


Proposed Scenario:

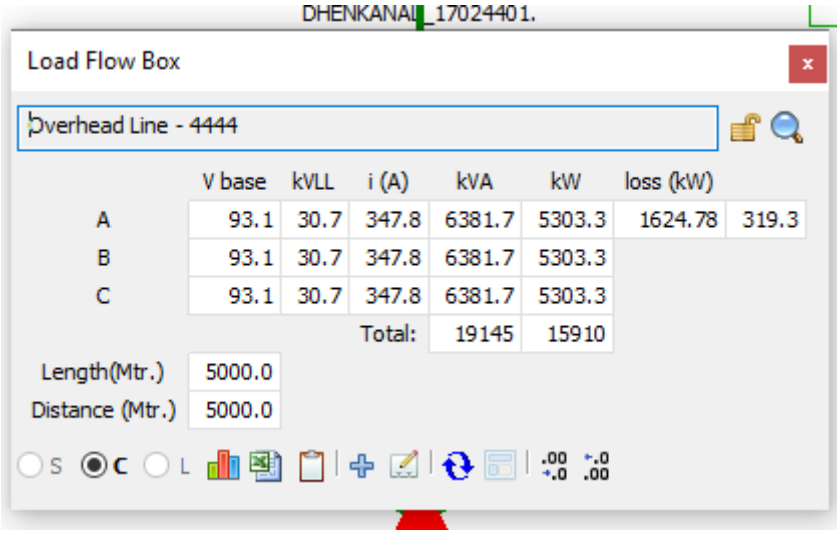
- 33kV Dhenkanal feeder augmentation from 80 sq.mm to 241 sq.mm for a length of 8Ckm.
- Overloading mitigation of 33kV Dhenkanal feeder by conductor augmentation as shown below.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Dhenkanal	26	19.15	73.67%	OK

Proposed SLD:



Load Flow Study of proposed scenario in Cyme Software:



Detailed Scope of Work:

Augmentation of 8Ckm length along existing 33kV Dhenkanal feeder from 80 sq.mm. AAAC to 241 sq.mm. AAAC.

BoQ:

ANNEXURE-8.8			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-		**DED**	
Name of the Sub-Division : -		DHENKANAL	
Name of the Work :-		Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from 4-P near Mahispat to College PSS to mitigate overloading issue & providing reliable power supply.	
Scope:-		Part A:- Augmentation of existing 33KV Line from 80 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Dhenkanal Fdr - 8 CKM (4-P near Mahispat to College PSS)	
Names of Schemes: -		TPCODL CAPEX(FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33KV Line from 80 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Dhenkanal Fdr - 8 CKM (4-P near Mahispat to College PSS)	2,43,90,750.69
		Total Amount	**2,43,90,750.69**
		Total Amount (In Cr)	**2.44**
Total estimated cost is Rs. 2.44 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 2.44cr. (For detailed BoQ refer Annexure-8.8).

Benefit:

- Ensuring reliable power supply by mitigating overloading issue.

9.0 Proposal for overloading mitigation of 33kV Meramundali Feeder:

Proposal: Augmentation of 0.5Ckm 1CX185 sq.mm Cable and 3Ckm 148sq.mm AAA Conductor from Kharagprasad GSS to Meramundali PSS to mitigate overloading issue.

Objective: To ensure reliable power supply by mitigating overloading and strengthening of the existing network.

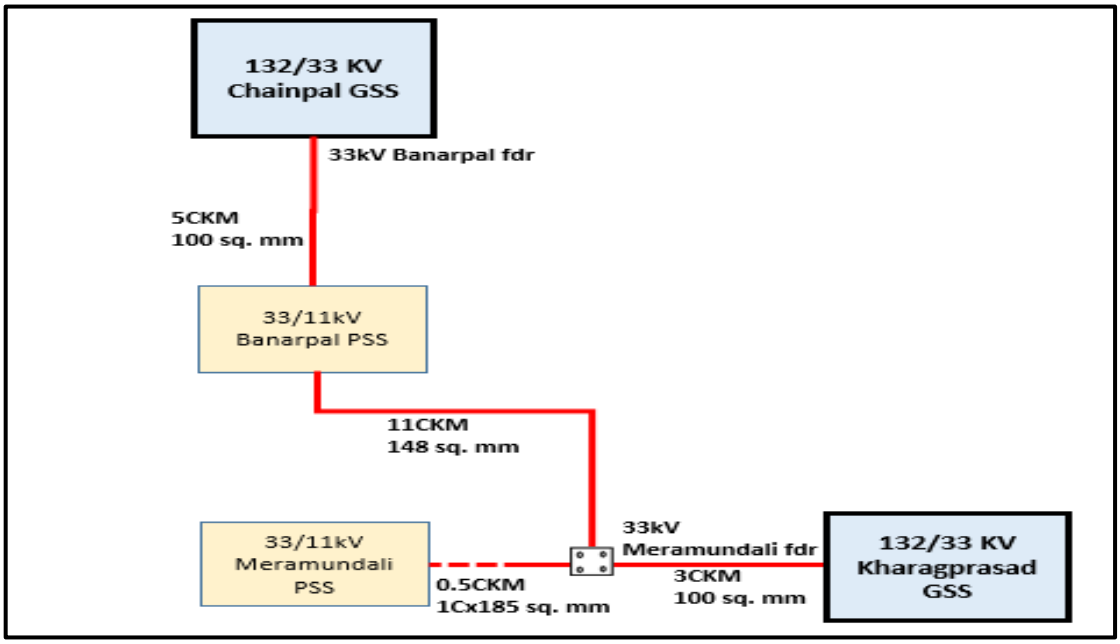
Existing Scenario:

- At present, 33kV Meramundali feeder is emanating from 132/33kV Kharagprasad Grid providing supply to 33/11kV Meramundali PSS and 2nd connectivity to Banarpal PSS.
- Peak load of 33kV Meramundali feeder is 17 MVA against conductor current carrying capacity of 15.54 MVA.
- In the present scenario, and considering load growth for 2years (8% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

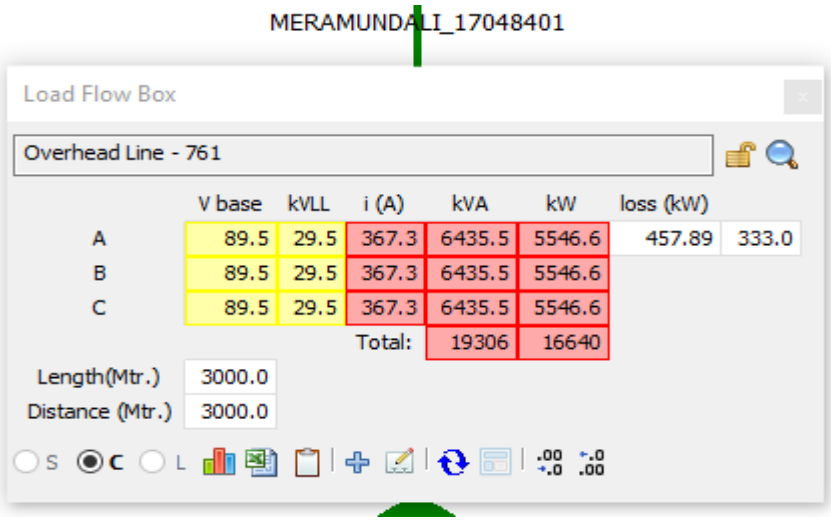
Existing Summer'23 Loading and projected load at 33kV Meramundali Feeder:

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Meramundali	15.5	17	109.68%	Overload	19.83	127.93%	Overload

Existing SLD:



Load Flow Study of existing scenario in Cyme Software:

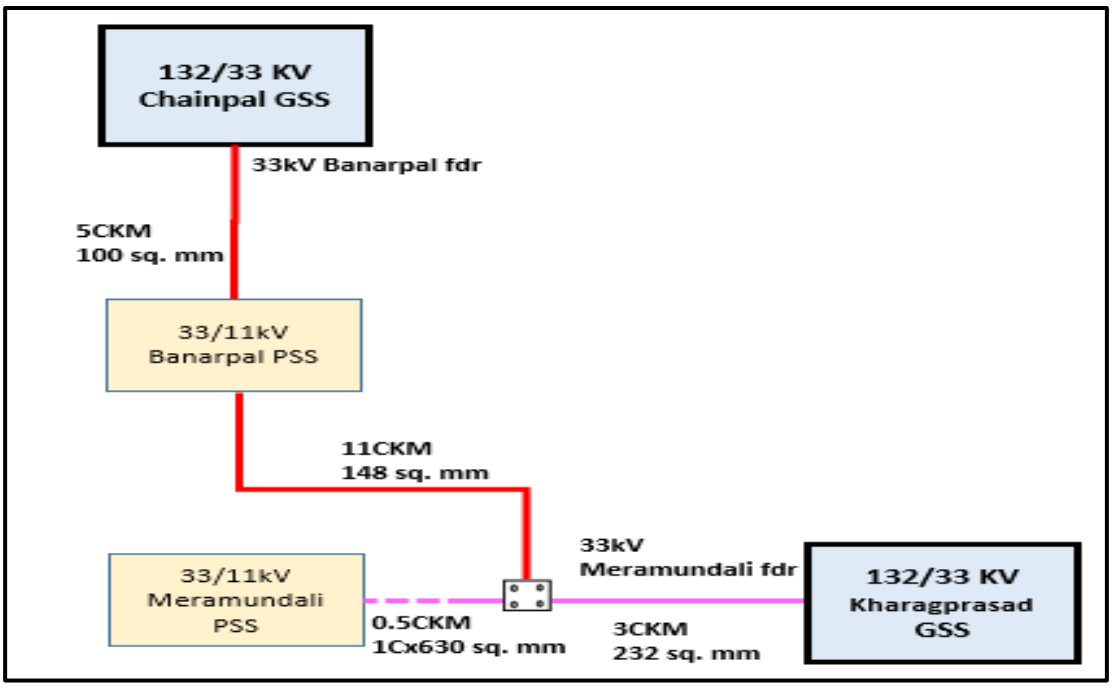


Proposed Scenario:

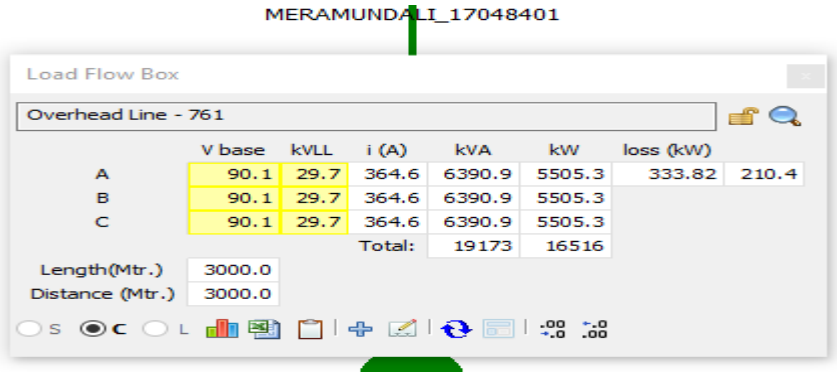
- Augmentation of 0.5Ckm 1CX185 sq.mm Cable and 3Ckm 148sq.mm AAA Conductor from Kharagprasad GSS to Meramundali PSS of 33kV Meramundali feeder.
- Overloading mitigation of 33kV Meramundali New feeder as shown in below table.

33kV Feeder Name	Feeder Capacity (MVA)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Meramundali	26	19.83	76.26%	OK

Proposed SLD:



Load Flow Study of proposed scenario in Cyme Software:



Detailed Scope of Work:

- Augmentation of 0.5Ckm 1CX185 sq.mm Cable and 3Ckm 148sq.mm AAA Conductor from Kharagprasad GSS to Meramundali PSS of 33kV Meramundali feeder.

BoQ:

ANNEXURE-8.9			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**TED**	
	Name of the Sub-Division : -	CHAINPAL	
	Name of the Work :-	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate overloading issue & providing reliable power supply.	
	Scope of work:-	Part A:- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS) Part A:- Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS)	₹ 98,86,583.95
2	B	Part A:- Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm.	₹ 59,51,395.66
		Total Amount	**₹ 1,58,37,979.61**
		Total Amount (In Cr)	**1.58**
Total estimated cost is Rs. 1.58 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 1.58cr. (For detailed BoQ refer Annexure-8.10).

Benefit:

- Ensuring reliable power supply by mitigating overloading issue.

Power Evacuation from New GSS

1.0 Proposal for power evacuation from Balianta Grid

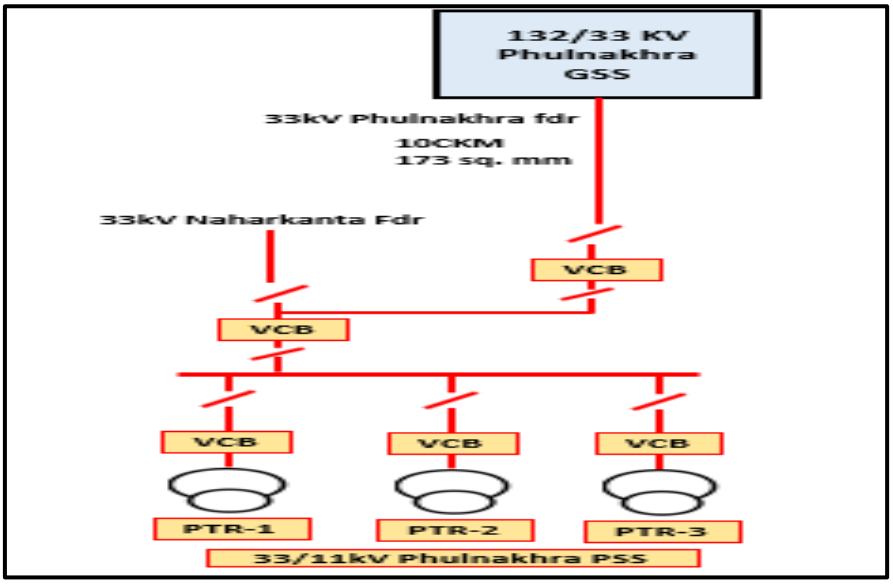
Proposal: Proposal for construction of 10Ckm new line from Balianta GSS to Phulnakhra 33/11kV PSS on 1CX630sq.mm UG Cable in order to provide reliable power supply to the consumers by providing additional 33kV source for the existing and upcoming load demand.

Objective: To enable power evacuation from upcoming Balianta Grid and ensure reliable power supply by providing additional 33kV source and spliting load at multiple sources.

Existing Scenario:

- At present, 33kV Phulnakhra feeder is emanating from Phulnakhra Grid, having 173sq.mm sqmm, total length of this 33kV feeder is 10Ckm.
- Present peak load of 33kV Phulnakhra feeder is 13MVA.
- Considering present scenario, N-1 contingency condition is not available for Phulnakhra PSS. In addition, there is huge upcoming load demand in this area.
- Considering load growth for 2years (20% load growth per year for 2years) 33kV feeder loading of Phulnakhra feeder in summer'25 be 23MVA.

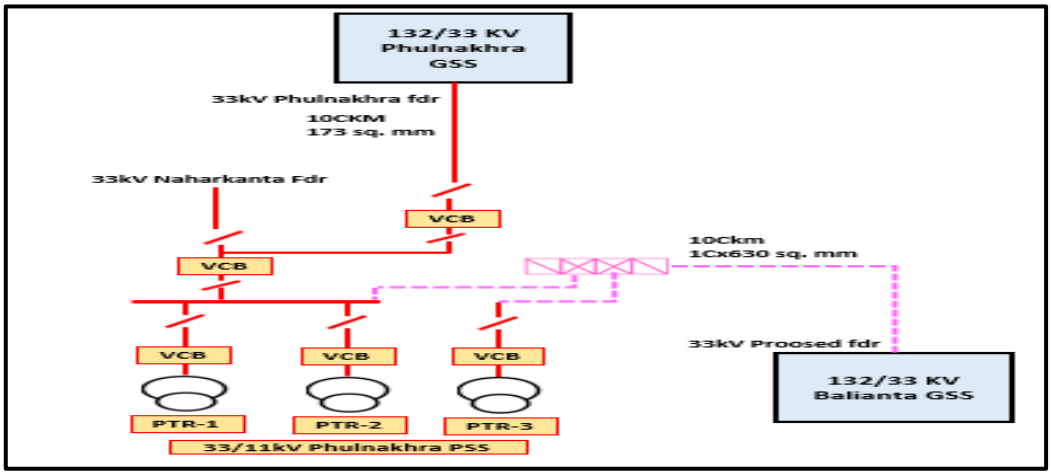
Existing SLD:



Proposed Scenario:

- Construction of 10Ckm U/G line from Balianta GSS to Phulnakhra 33/11kV PSS.
- Installation of 1nos. of 33kV RMU proposed at 33/11kV Phulnakhra PSS with 33kV UG cable for split PSS load on other 33kV multiple sources.

Proposed SLD:



Detailed Scope of Work:

- Installation of 1nos. 33kV RMU.
- Laying of 33kV 10Ckm UG cable from Balianta GSS to Phulnakhra 33/11kV PSS.

BoQ:

ANNEXURE-8.10			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**BED**	
	Name of the Sub-Division : -	RASULGARH	
	Name of the Work :-	Power Evacuation: Proposal for construction of 10Ckm new U/G line from Balianta GSS to Phulnakhra 33/11kV PSS and 1 no of 33kV RMU at Phulnakhra PSS for load spliting.	
	Scope of work:-	Part A:- Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Balianta GSS to Phulnakhra PSS -10 Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Balianta GSS to Phulnakhra PSS -10 Ckm.	₹ 13,02,54,896.50
		Total Amount	**₹ 13,02,54,896.50**
		Total Amount (In Cr)	**13.03**
Total estimated cost is Rs. 13.03 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 13.03 Cr. (For detailed BoQ refer Annexure -8.10)

Benefit:

- Ensuring reliable power supply to the consumers by enabling power evacuation from Balianta GSS and utilising multiple sources.

Proposal for 33kV Feeder Refurbishment

1.0 Proposal for 33kV Chhaitana Feeder Refurbishment

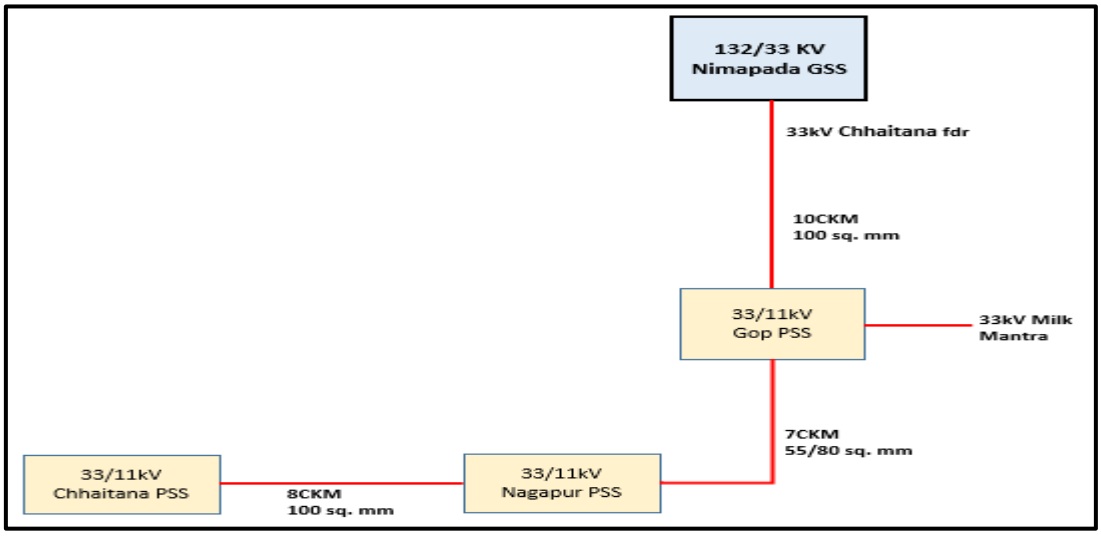
Proposal: Strengthening of existing 33kV Chhaitana feeder emanating from 132/33kV Nimapada GSS by augmentation of 55/80 sqmm conductor with 232sqmm conductor for a length of 7Ckm from Gop PSS to Nagapur PSS.

Objective: To maintain reliability of power supply, reduction in frequent interruptions in the feeder, reduction of conductor snapping and strengthening the existing network by augmenting weak section and lower conductor size.

Existing Scenario:

- Existing Chhaitana feeder from Gop PSS to Nagapur PSS with existing line is in unsafe condition. Conductor are very old and become weak. Due to aging effect and brittleness, these conductors are snapping frequently. In addition, minimum ground clearance has not been maintained in several places over the feeder.

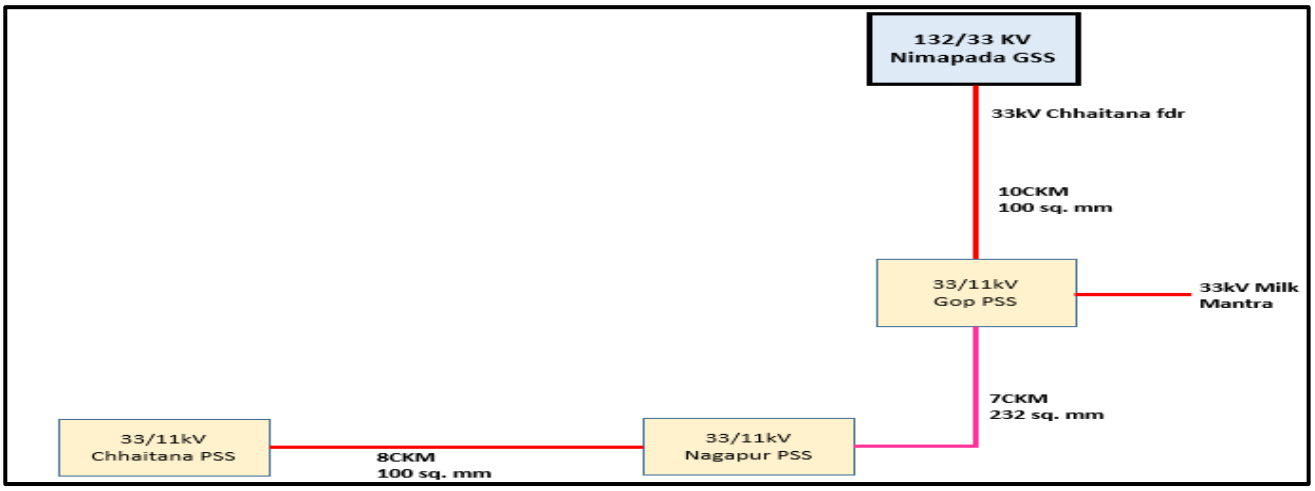
Existing SLD:



Proposed Scenario:

- Peak load for summer'25 will be 10.5 MVA on 33kV Chhaitana feeder considering load growth of 8% for 2years.
- Augmentation & refurbishment is proposed for 7Ckm from 55/80 sq.mm to 232 sq.mm from Gop GSS to Nagapur PSS.

Proposed SLD:



Detailed Scope of Work:

- Augmentation & refurbishment of line for 7Ckm from 55/80 sq.mm to 232 sq.mm along with installation interposing pole on existing line, from Gop GSS to Nagapur PSS.

BoQ:

ANNEXURE-8.11			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**NED**	
	Name of the Sub-Division : -	NIMAPADA	
	Name of the Work :-	33kV Feeder Refurbishment : Proposal for Refurbishment of existing 33 kV Chhaitana Feeder from Gop PSS to Nagapur PSS to providing reliable power supply.	
	Scope of work:-	Part A:- 33kV Chhaitana Feeder Refurbishment with Conductor Augmentation (existing 55 & 80 sqmm to 232sqmm) from Gop PSS to Nagapur PSS - 7Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- 33kV Chhaitana Feeder Refurbishment with Conductor Augmentation (existing 55 & 80 sqmm to 232sqmm) from Gop PSS to Nagapur PSS - 7Ckm.	₹ 1,81,01,637.71
		Total Amount	**₹ 1,81,01,637.71**
		Total Amount (In Cr)	**1.81**
Total estimated cost is Rs. 1.81 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 1.81 Cr. (For detailed BoQ refer Annexure -8.11)

Benefit:

- Ensuring reliability of power supply with strengthning of 33kV Chhaitana feeder.

2.0 Proposal for 33kV Daspalla Feeder Refurbishment

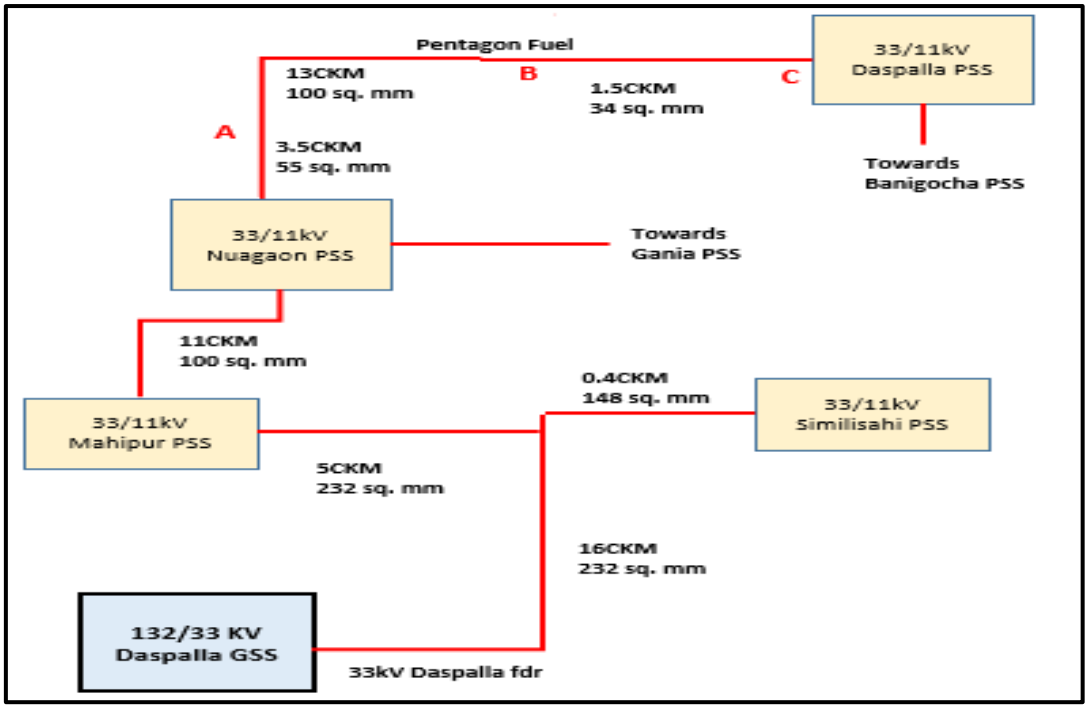
Proposal: Strengthening of existing 33kV Daspalla feeder emanating from 132/33kV Nayagaraha GSS by augmentation of 34/55 sqmm conductor with 232sqmm conductor for a length of 5Ckm between Nuagaon PSS to Daspalla PSS.

Objective: To maintain reliability of power supply, reduction in frequent interruptions in the feeder, reduction of conductor snapping and strengthening the existing network by augmenting weak section and lower conductor size.

Existing Scenario:

- Existing Daspalla feeder between Nuagaon PSS to Daspalla PSS is in unsafe condition. Conductor are very old and become weak. Due to aging effect and brittleness, these conductors are snapping frequently. In addition, minimum ground clearance has not been maintained in several places over the feeder.

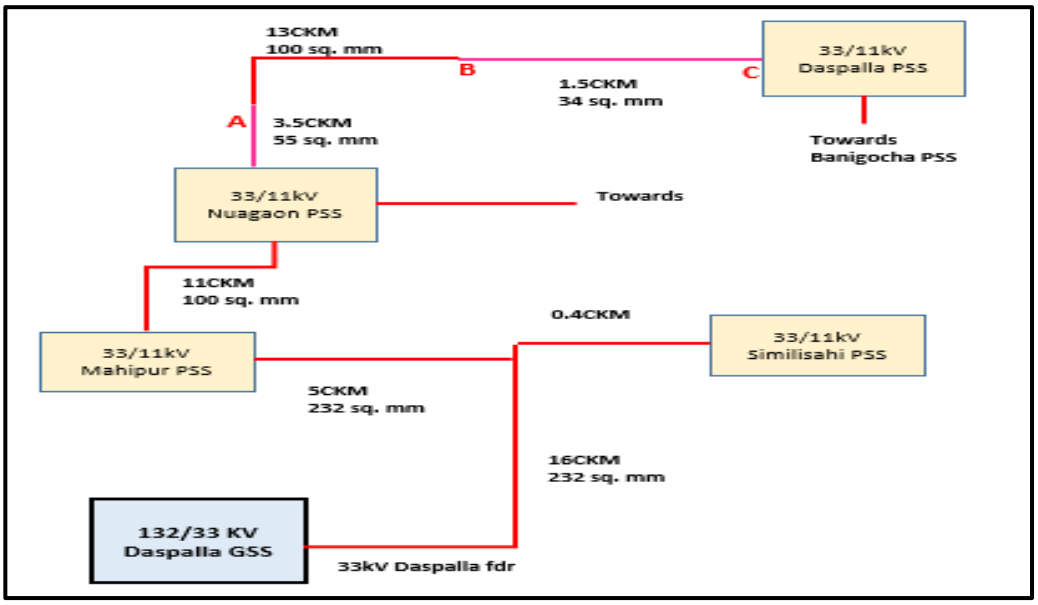
Existing SLD:



Proposed Scenario:

- Peak load for summer'25 will be 16 MVA on 33kV Daspalla feeder considering load growth of 8% for 2years.
- Augmentation & refurbishment is proposed for 5Ckm from 34/55 sq.mm to 232 sq.mm between Nuagaon PSS to Daspalla PSS.

Proposed SLD:



Detailed Scope of Work:

- Augmentation & refurbishment of line for 5Ckm from 34/55 sq.mm to 232 sq.mm along with installation interposing pole on existing line, between Nuagaon PSS to Daspalla PSS.

BoQ:

ANNEXURE-8.12			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**NYED**	
	Name of the Sub-Division : -	Dasapalla	
	Name of the Work :-	33kV Feeder Refurbishment : Proposal for Refurbishment of existing 33 kV Daspalla Feeder from Nuagaon PSS to Daspalla PSS to providing reliable power supply.	
	Scope of work:-	Part A:- 33kV Daspalla Feeder Refurbishment with Conductor Augmentation (existing 34/55 sqmm to 232sqmm) from Nuagaon PSS to Daspalla PSS - 5Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- 33kV Daspalla Feeder Refurbishment with Conductor Augmentation (existing 34/55 sqmm to 232sqmm) from Nuagaon PSS to Daspalla PSS - 5Ckm.	₹ 1,07,16,089.25
		Total Amount	**₹ 1,07,16,089.25**
		Total Amount (In Cr)	**1.07**
Total estimated cost is Rs. 1.07 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 1.07 Cr. (For detailed BoQ refer Annexure -8.12)

Benefit:

- Ensuring reliability of power supply with strengthning of 33kV Daspalla feeder.

3.0 Proposal for 33kV Danpur Feeder Refurbishment

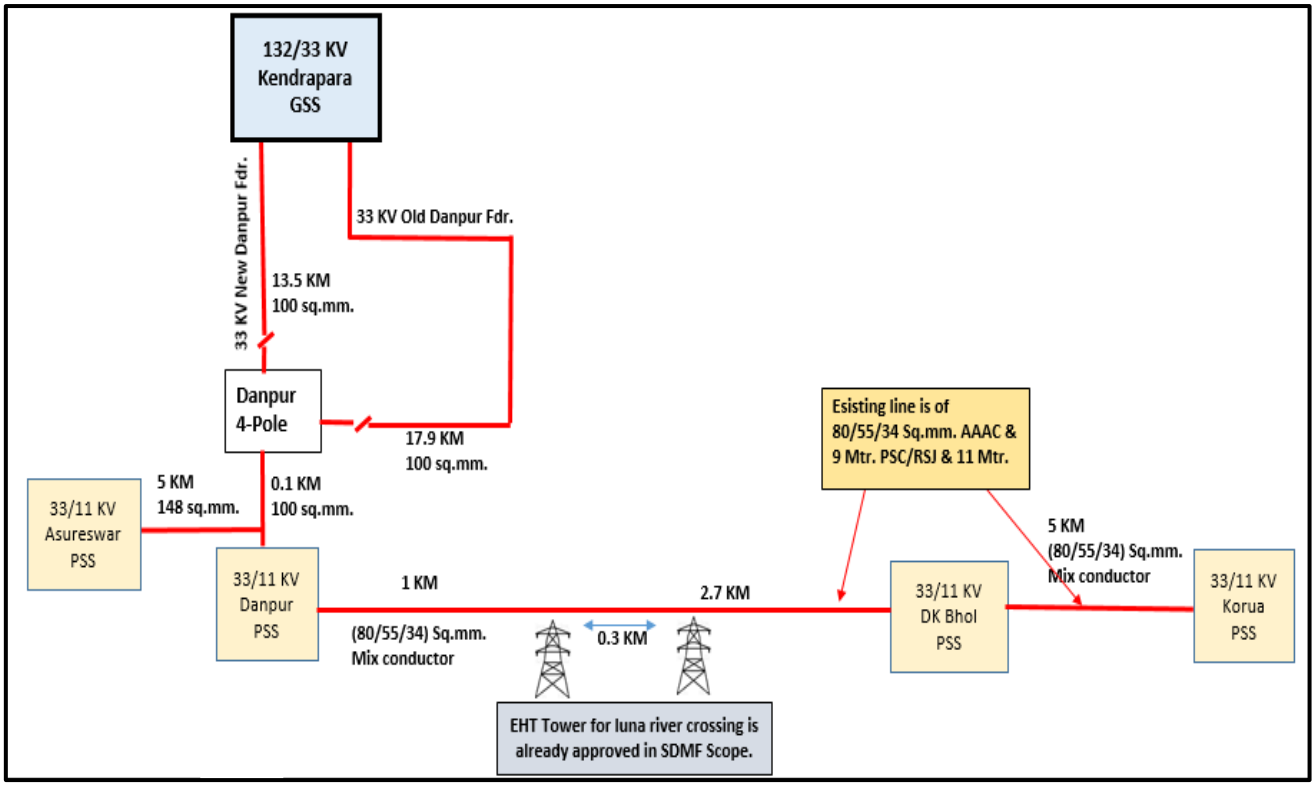
Proposal: Strengthening of existing 33kV Danpur feeder emanating from 132/33kV Kendrapada GSS by augmentation of 34/55/80 sqmm conductor with 232sqmm conductor for a length of 9Ckm from Danpur PSS to Koru PSS.

Objective: To maintain reliability of power supply, reduction in frequent interruptions in the feeder, reduction of conductor snapping and strengthening the existing network by augmenting weak section and lower conductor size.

Existing Scenario:

- Existing Danpur feeder from Danpur PSS to Koru PSS with existing line is in unsafe condition. Conductor are very old and become weak. Due to aging effect and brittleness, these conductors are snapping frequently. In addition, minimum ground clearance has not been maintained in several places over the feeder.

Existing SLD:



Proposed Scenario:

- Peak load for summer'25 will be 15 MVA on 33kV Danpur feeder considering load growth of 8% for 2years.
- Augmentation & refurbishment is proposed for 9Ckm from 34/55/80 sq.mm to 232 sq.mm from Danpur PSS to Koru PSS.

Proposed SLD:

Detailed Scope of Work:

- Augmentation & refurbishment of line for 9Ckm from 34/55/80 sq.mm to 232 sq.mm along with installation interposing pole on existing line, from Danpur PSS to Koru PSS.

BoQ:

ANNEXURE-8.13			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**KED-I**	
	Name of the Sub-Division : -	KENDRAPARA	
	Name of the Work :-	33kV Feeder Refurbishment : Proposal for Refurbishment of existing 33 kV Danpur Feeder from Danpur PSS to Koru PSS to providing reliable power supply.	
	Scope of work:-	Part A:- 33kV Danpur Feeder Refurbishment with Augmentation of existing 33KV Line from 34/55/80 sq.mm. AAAC to 232 sq.mm. AAAC - 9 CKM (Danpur PSS to Koru PSS)	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- 33kV Danpur Feeder Refurbishment with Augmentation of existing 33KV Line from 34/55/80 sq.mm. AAAC to 232 sq.mm. AAAC - 9 CKM (Danpur PSS to Koru PSS)	₹ 2,41,34,175.05
		Total Amount	**₹ 2,41,34,175.05**
		Total Amount (In Cr)	**2.41**
Total estimated cost is Rs. 2.41 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 2.41 Cr. (For detailed BoQ refer Annexure -8.13)

Benefit:

- Ensuring reliability of power supply with strengthning of 33kV Danpur feeder.

4.0 Proposal for 33kV Indupur Feeder Refurbishment

Proposal: Strengthening of existing 33kV Indupur feeder emanating from 132/33kV Kendrapada GSS by augmentation of 55/80/100 sqmm conductor with 232sqmm conductor for a length of 19Ckm from Kendrapada GSS to Indupur and Chhata PSS.

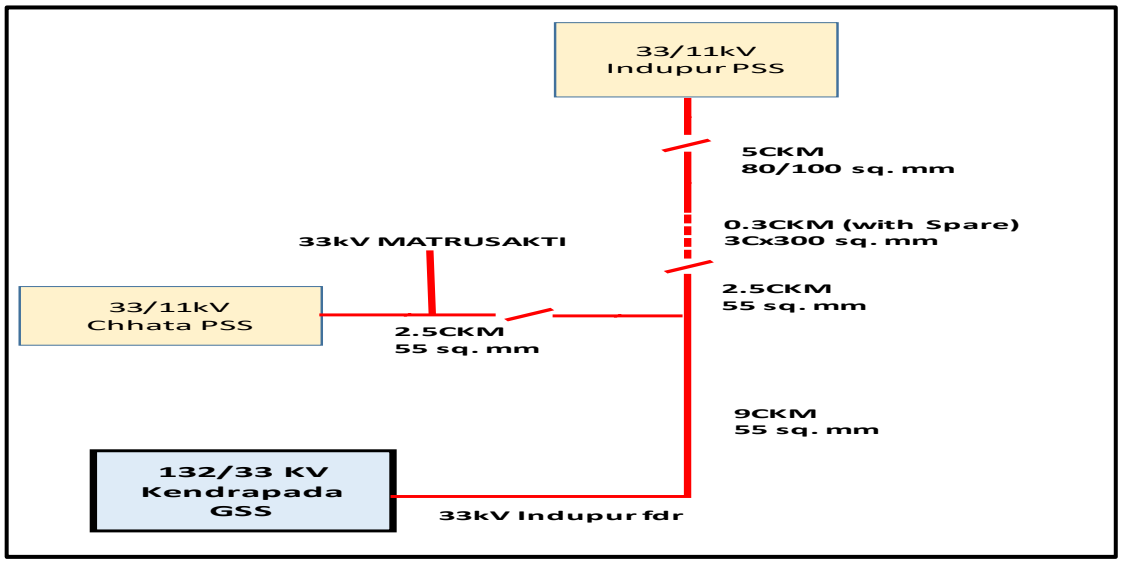
Objective: To maintain reliability of power supply, reduction in frequent interruptions in the feeder, reduction of conductor snapping, mitigate overloading and strengthening the existing network by augmenting weak section and lower conductor size.

Existing Scenario:

- Existing Chhaitana feeder from Kendrapada GSS to Indupur and Chhata PSS with existing line is in unsafe condition. Conductor are very old and become weak. Due to aging effect and brittleness, these conductors are snapping frequently. In addition, minimum ground clearance has not been maintained in several places over the feeder.
- In the present scenario, and considering load growth for 2years (8% load growth per year for 2years) 33kV feeder is overloaded as mentioned below.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading Summer'23 (MVA)	% Loading	Feeder Overloading Status (AS IS)	Projected load Summer'25 (MVA)	% Loading	Feeder Overloading Status
Indupur	10.63	9	84.67%	OK	10.50	98.75%	Overload

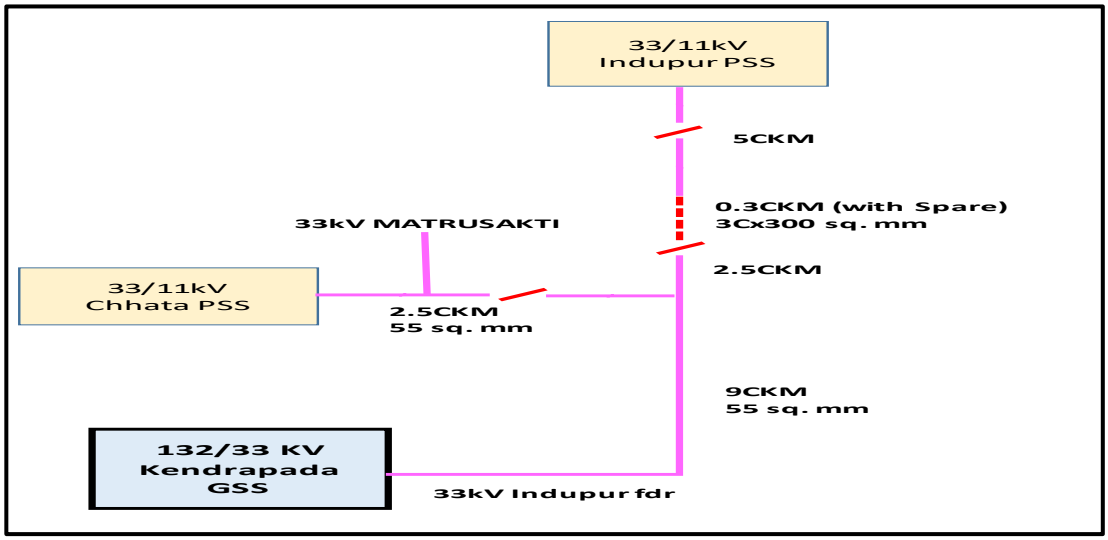
Existing SLD:



Proposed Scenario:

- Peak load for summer'25 will be 10.5 MVA on 33kV Chhaitana feeder considering load growth of 8% for 2years.
- Augmentation & refurbishment is proposed for 19Ckm from 55/80/100 sq.mm to 232 sq.mm from Kendrapada GSS to Indupur and Chhata PSS.

Proposed SLD:



Detailed Scope of Work:

- Augmentation & refurbishment of line for 19Ckm from 55/80/100 sq.mm to 232 sq.mm along with installation interposing pole on existing line, from Kendrapada GSS to Indupur and Chhata PSS.

BoQ:

ANNEXURE-8.14			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**KED-I**	
	Name of the Sub-Division : -	Kendrapada	
	Name of the Work :-	33kV Feeder Refurbishment : Proposal for Refurbishment of existing 33 kV Indupur Feeder from Kendrapada GSS to Indupur and Chhata PSS to providing reliable power supply.	
	Scope of work:-	Part A:- 33kV Indupur Feeder Refurbishment with Conductor Augmentation (from existing 55 & 80 sqmm to 232sqmm) from Kendrapada GSS to Indupur and Chhata PSS - 19Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- 33kV Indupur Feeder Refurbishment with Conductor Augmentation (from existing 55 & 80 sqmm to 232sqmm) from Kendrapada GSS to Indupur and Chhata PSS - 19Ckm.	₹ 4,67,69,865.15
		Total Amount	**₹ 4,67,69,865.15**
		Total Amount (In Cr)	**4.68**
Total estimated cost is Rs. 4.68 Crore. (On TPCODL Capex Scheme)			

Cost Estimate: ₹ 4.68 Cr. (For detailed BoQ refer Annexure -8.14)

Benefit:

- Ensuring reliability of power supply with strengthning of 33kV Indupur feeder.

ANNEXURE-8.1			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-		**BCDD-II**	
Name of the Sub-Division : -		KHANDAGIRI	
Name of the Work :-		Mitigation of 33kV Feeder Overloading: Proposal for new 33kV interlinking line from Gothapatna PSS to Kalinganagar PSS to mitigate overloading of 33kV Vipul feeder.	
Scope:-		Part A:- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable from Gothapatna PSS to Reliance Circle - 5 Ckm.	
Names of Schemes: -		TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable from Gothapatna PSS to Reliance Circle - 5 Ckm.	63,210,768.21
		Total Amount	**63,210,768.21**
		Total Amount (In Cr)	**6.32**
Total estimated cost is Rs. 6.32 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.1

Part A:-

Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable from Gothapatna PSS to Reliance Circle - 5 Ckm.

Standard BoQ and Estimate for 33kV 3C, 400sqmm UG Cable along with 33kV RMU

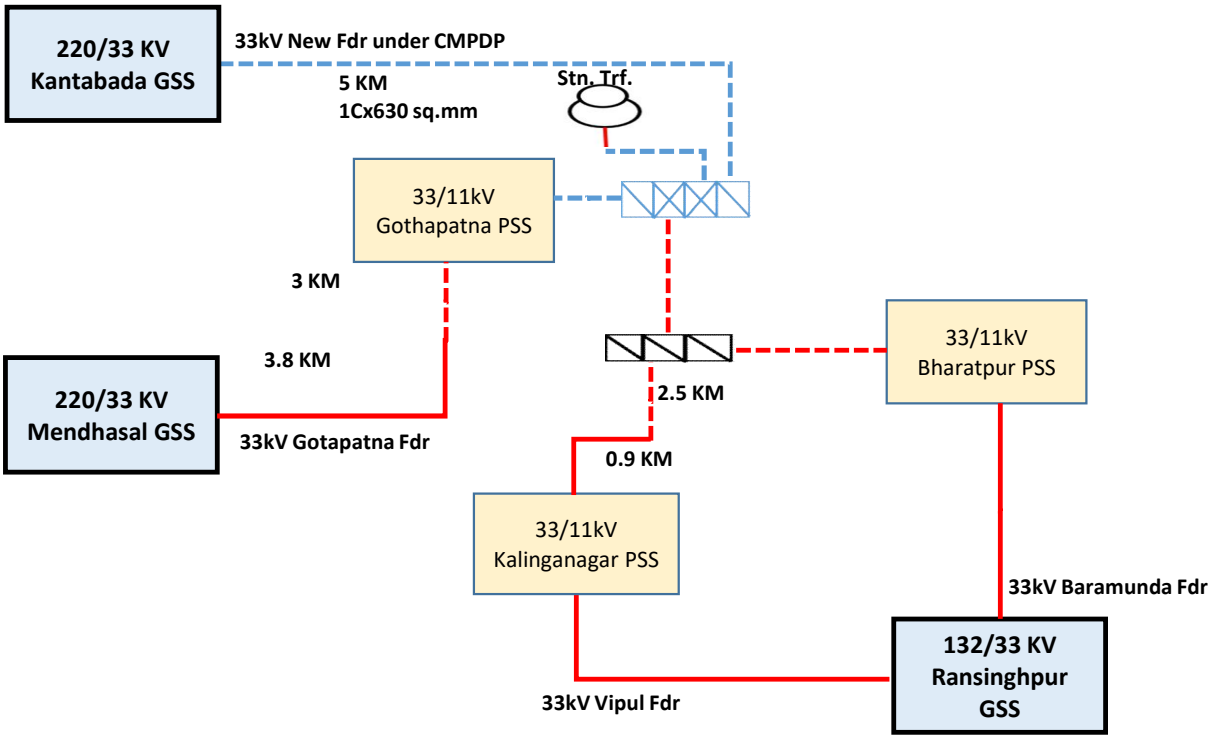
Supply Portion

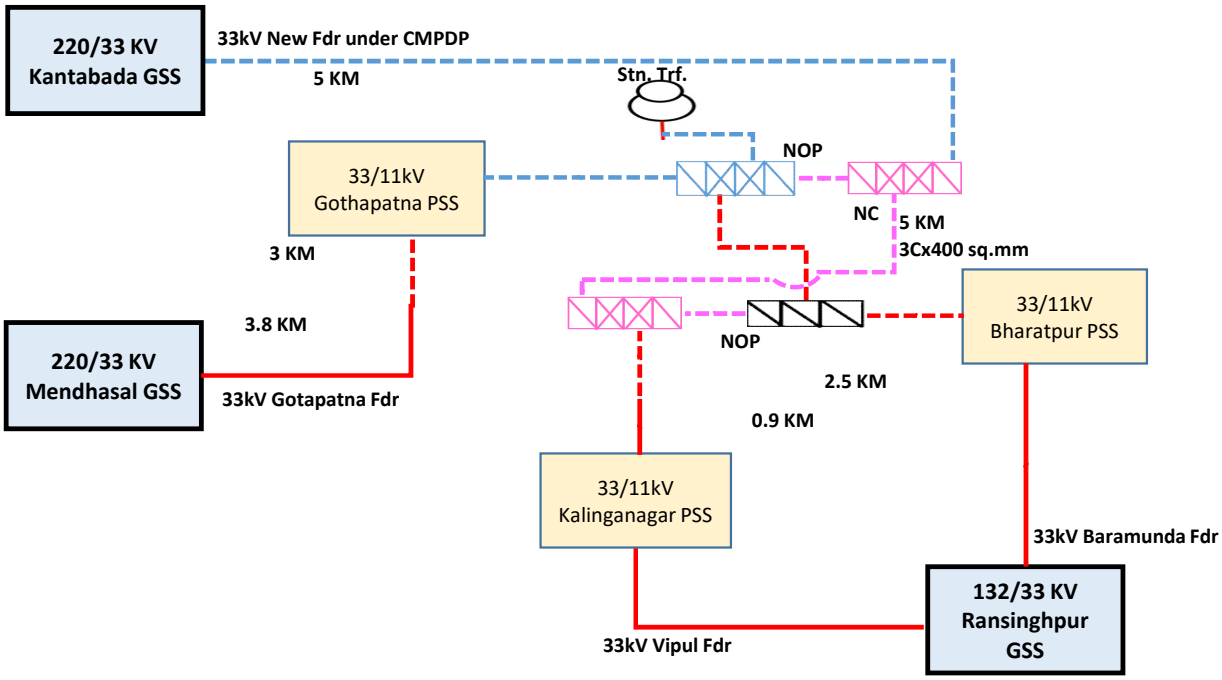
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories**				
a	***Length of 33kV 3C, 400sqmm cable (open trench)***	***Mtr.***	***4000***		
b	***Length of 33kV 3C, 400sqmm cable (HDD)***	***Mtr.***	***1000***		
1.1	Supply of 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable with spare (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA-20kA)	Mtr.	5000.00	3,519.15	17,595,750.00
1.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG Cable kits	Set	20	89,172.20	1,783,444.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	Set	4	26,653.90	106,615.60
1.5	Supply of materials for High Density Polyethelene **(HDPE) pipe 160mm** diameter, PE 80- PN8 for laying of 33kV UG cable	Mtr.	4000.00	775.40	3,101,600.00
2	**Supply of 33kV RMU**				
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***	***2***		
2.4	Supply of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	2,335,264.00	4,670,528.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	97.50	2,574.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,365.00	5,460.00
4	**FRTU for RMU SCADA Automation**				
a	***No. of FRTU***	***nos.***	***2***		
4.1	Pre-Wired FRTU Panel with FRTU	No.	2	121,744.00	243,488.00
4.2	Managed Layer2 Ethernet Switch (FRTU Panel)	No.	2	100,000.00	200,000.00
4.3	Networking Accessories	No.	2	72.00	144.00
4.4	CMR with Mounting Base for Digital Inputs	Nos.	64	650.00	41,600.00
4.5	Interposing Relay for Digital Output	Nos.	32	467.94	14,974.08
4.6	Battery Charger	Nos.	2	15,385.00	30,770.00
4.7	Battery	Nos.	2	8,333.00	16,666.00
4.8	4G Modem cum Router	Nos.	2	18,500.00	37,000.00
4.9	Instrumentation Cable 12 C X 0.5 mm2, Armored cable for Status and Indications	Mtr.	80	204.87	16,389.60
4.10	Instrumentation Cable 7 C X 1.5 mm2, Armored for Control Output	Mtr.	80	305.58	24,446.40
4.11	Twisted Pair Shielded & Over all shielded Instrumentation Cable 5 P X 1.0 mm2, Armored for Analog Input	Mtr.	80	275.23	22,018.40
4.12	4 C X 2.5 mm2 Copper cable for extension of CT & PT	Mtr.	40	165.25	6,610.00
4.13	2 C X 4 mm2 Cable for DC Power Supply	Mtr.	20	150.00	3,000.00
4.14	4P X 0.36 mm2, Armored Communication Cable for MFM	Mtr.	40.0	148.43	5,937.20
4.15	Armored CAT6 SFTP Cable	Mtr.	40	45.87	1,834.80
4.16	Un-Armored CAT6 SFTP Cable	Mtr.	40	89.45	3,578.00
4.17	Multi Function Meter	Nos.	4	18,651.00	74,604.00

	Sub Total (Supply Portion) (in Rs.)				**28,009,032.08**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Erection, Commissioning & Testing of 33kV new line by 3Core, 400sqmm, XLPE UG cable with spare**				
1.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 400sqmm, XLPE insulation (extruted type) UG cable with spare by **open trench method**.	Mtr.	4000	94.50	378,000.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG cable kits	Set	20	2,400.00	48,000.00
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG cable kits	Set	4	1,900.80	7,603.20
1.5	Installation, Laying, Commissioning & Testing of 33kV, 3Core, 2Runs, 400sqmm, XLPE U/G cable by **HDD method with** HDPE pipe (160mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr.	1000	2,800.00	2,800,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	Mtr.	4000.00	300.00	1,200,000.00
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.4	Erection of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	8,000.00	16,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Services of FRTU Panel, Communication and Other Supplied System	EA	2.0	16,000.00	32,000.00
	Sub Total (Erection Portion) (in Rs.)				**4,481,603.20**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth) Route Length	Mtr	4000		
1.1.a	Earth work excavation of **soil**	Cum	3360	700.00	2,352,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	1440	1,720.00	2,476,800.00
1.2	Back filling with excavated soil outside and above the trench	Cum	4800	202.00	969,600.00
1.3	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	Mtr	4000	2,643.67	10,574,682.52
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	144,000.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	Set	4	3,700.00	14,800.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	0	1,463.40	-
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	167	1,012.00	169,004.00
	Sub Total (Civil Portion) (in Rs.)				**16,747,177.12**
A	**Sub Total (Supply Portion)**				**28,009,032.08**
B	Stock, Storage & Insurance @ 3 % of A				840,270.96
C	**Sub Total (A+B)**				**28,849,303.04**
D	Contingency @ 3 % of C				865,479.09
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				53.02

F	Transportation @ 7.5% of C	2,163,697.73
G	Erection Charges @ 10% of earthing items	265.12
H	**Total (C+D+E+F+G)**	**31,878,798.01**
I	Sub Total (Erection Portion + Civil Portion)	21,228,780.32
J	**Total Cost (H+I)**	**53,107,578.33**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	-
L	**Total Estimated Capital Cost i.e. (J+K)**	**53,107,578.33**
M	GST @ 18% of L	9,559,364.10
M1	CESS @ 1% of L	531,075.78
N	**Grand Total (L+M+M1)**	**63,198,018.21**
O	Inspection Fee of UG Line (HT) - Rs. 3000/ km.	3,000.00
P	Inspection Fee of UG Line (HT) - Rs. 1500/ Additional Km	6,000.00
Q	Inspection Fee of RMU - Rs. 1500/ RMU	3,000.00
R	Inspection Fee of Drawing Checking and Approval	750.00
S	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R)**	**63,210,768.21**

Existing SLD of 33 kV Vipul FEEDER




220/33 KV
Kantabada GSS
33kV New Fdr under CMPDP
5 KM
Stn. Trf.
NOP
33/11kV
Gothapatna PSS
NC
5 KM
3Cx400 sq.mm
3 KM
3.8 KM
220/33 KV
Mendhasal GSS
33kV Gotapatna Fdr
NOP
33/11kV
Bharatpur PSS
2.5 KM
0.9 KM
33/11kV
Kalinganagar PSS
33kV Baramunda Fdr
132/33 KV
Ransinghpur
GSS
33kV Vipul Fdr

ANNEXURE-8.2			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**BCDD-II**		
Name of the Sub-Division : -	PERIPHERI		
Name of the Work :-	Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from Chandaka-A GSS to DP near K-Fin Tech to mitigate overloading issue & providing reliable power supply.		
Scope:-	Part A:- Augmentation of existing 33kV Line from 148 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Infocity Fdr - 2 CKM (Chandaka-A GSS to DP near K-Fin Tech) Part B:- Installation of 2No's 33 kV RMU with cable at Infocity PSS to split PSS load at multiple feeders for mitigate overload issue and improve reliability.		
Names of Schemes: -	TPCODL CAPEX (FY 24-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33kV Line from 148 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Infocity Fdr - 2 CKM (Chandaka-A	2,041,356.54
2	B	Part B:- Installation of 2No's 33 kV RMU with cable at Infocity PSS to split PSS load at multiple feeders for mitigate overload issue and	7,920,816.18
		Total Amount	**9,962,172.72**
		Total Amount (In Cr)	**1.00**
Total estimated cost is Rs. 1.00 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.2

Part A:-

Augmentation of existing 33kV Line from 148 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Infocity Fdr - 2 CKM (Chandaka-A GSS to DP near K-Fin Tech)

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor 13 Mtr. H-Pole for Pin-Points and Cut-Points & 13 Mtr WPB Pole for DP

	33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.-)			2	

MATERIALS FOR 33 KV Pin Points

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
8	33KV pin insulator polymer	No.	624.00	90	56,160.00
12	232 sq.mm AAA conductor	Mtr.	203.45	6180.00	1,257,321.00
A				**Total Cost of materials**	**1,313,481.00**
B				Stock, Storage & Insurance i.e 3% of A	39,404.43
C				**Sub Total (A+B)**	**1,352,885.43**
D				Contigency @ 3% of C	40,586.56
E				Tools & Plants @ 2% of C	27,057.71
F				Transportation @ 7.5% of C	101,466.41
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	-
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	135,288.54
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,657,284.65**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	9.00	6180.00	55,620.00
K				**Total Civil & Services**	**55,620.00**
L				**Total (J+K)**	**1,712,904.65**
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N				**Sub Total (L+M)**	**1,712,904.65**
O				Total GST @ 18% of (N)	308,322.84
P				Total CESS @ 1% of (N)	17,129.05
Q				**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**2,038,356.54**
R				Inspection Fee of Over Head Line (HT) - Rs.1500 up to 1 km.	1,500.00
S				Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**750.00**
T				Inspection Fee of Drawing Checking and Approval	750.00
U				**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**2,041,356.54**

ANNEXURE-8.2

Part B:-

Installation of 2No's 33 kV RMU with cable at Infocity PSS to split PSS load at multiple feeders for mitigate overload issue and improve reliability.

Standard BoQ and Estimate for 33kV, 1C 630sqmm U/G Cable along with 33kV RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (aloing with 1core spare cable) with accessories**				
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***Mtr.***	***20***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***Mtr.***	***0***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	Mtr.	60	1,495.47	89,728.20
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	4	6,350.00	25,400.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	4	6,100.00	24,400.00
2	**Supply of 33kV RMU**				
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***	***2***		
2.4	Supply of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	2,335,264.00	4,670,528.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	97.50	2,574.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,365.00	5,460.00
4	**FRTU for RMU SCADA Automation**				
a	***No. of FRTU***	***nos.***	***2***		
4.1	Pre-Wired FRTU Panel with FRTU	No.	2	121,744.00	243,488.00
4.2	Managed Layer2 Ethernet Switch (FRTU Panel)	No.	2	100,000.00	200,000.00
4.3	Networking Accessories	No.	2	72.00	144.00
4.4	CMR with Mounting Base for Digital Inputs	Nos.	64	650.00	41,600.00
4.5	Interposing Relay for Digital Output	Nos.	32	467.94	14,974.08
4.6	Battery Charger	Nos.	2	15,385.00	30,770.00
4.7	Battery	Nos.	2	8,333.00	16,666.00
4.8	4G Modem cum Router	Nos.	2	18,500.00	37,000.00
4.9	Instrumentation Cable 12 C X 0.5 mm2, Armored cable for Status and Indications	Mtr.	80	204.87	16,389.60
4.10	Instrumentation Cable 7 C X 1.5 mm2, Armored for Control Output	Mtr.	80	305.58	24,446.40
4.11	Twisted Pair Shielded & Over all shielded Instrumentation Cable	Mtr.	80	275.23	22,018.40
4.12	4 C X 2.5 mm2 Copper cable for extension of CT & PT	Mtr.	40	165.25	6,610.00
4.13	2 C X 4 mm2 Cable for DC Power Supply	Mtr.	20	150.00	3,000.00
4.14	4P X 0.36 mm2, Armored Communication Cable for MFM	Mtr.	40.0	148.43	5,937.20
4.15	Armored CAT6 SFTP Cable	Mtr.	40	45.87	1,834.80
4.16	Un-Armored CAT6 SFTP Cable	Mtr.	40	89.45	3,578.00

4.17	Multi Function Meter	Nos.	4	18,651.00	74,604.00
	Sub Total (Supply Portion) (in Rs.)				**5,561,150.68**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	Mtr.	60	94.50	5,670.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	4	2,081.70	8,326.80
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	4	2,081.70	8,326.80
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.4	Erection of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	8,000.00	16,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Services of FRTU Panel, Communication and Other Supplied System	EA	2.0	16,000.00	32,000.00
	Sub Total (Erection Portion) (in Rs.)				**70,323.60**

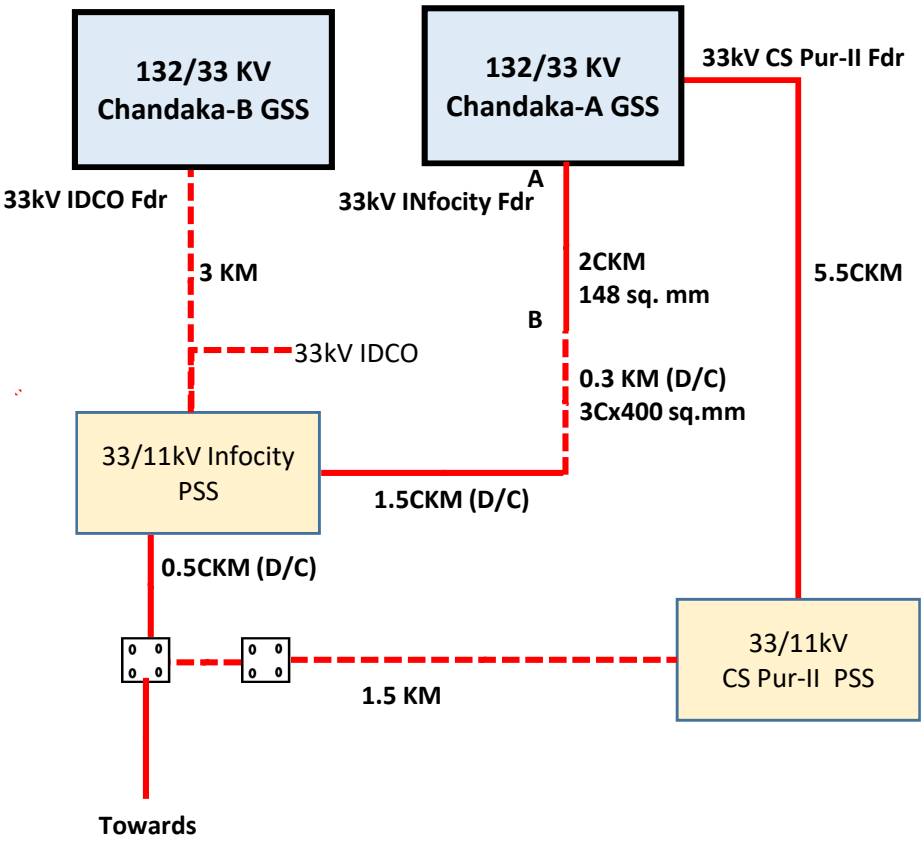
Civil Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	144,000.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	Set	4	3,700.00	14,800.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	1	1,012.00	1,012.00
	Sub Total (Civil Portion) (in Rs.)				**252,931.40**

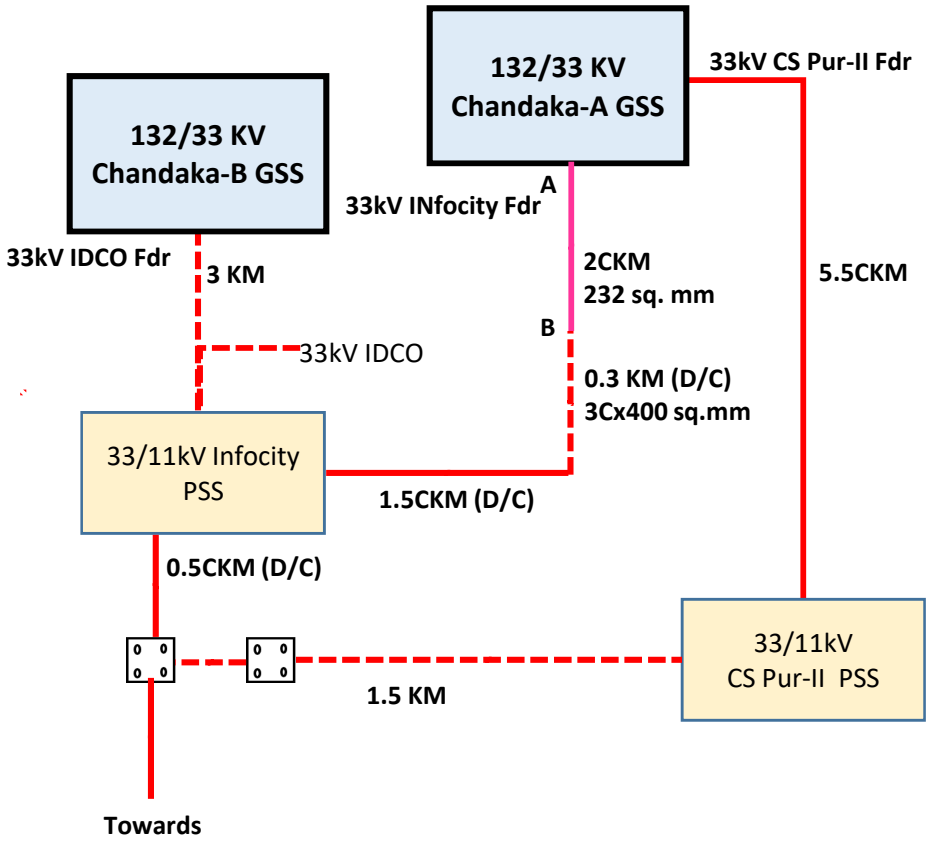
A	**Sub Total (Supply Portion)**	**5,561,150.68**
B	Stock, Storage & Insurance @ 3 % of A	166,834.52
C	**Sub Total (A+B)**	**5,727,985.20**
D	Contingency @ 3 % of C	171,839.56
E	Tools & Plants Charges @ 2% of C (considered for earthing items)	53.02
F	Transportation @ 7.5% of C	429,598.89
G	Erection Charges @ 10% of earthing items	265.12
H	**Total (C+D+E+F+G)**	**6,329,741.79**
I	Sub Total (Erection Portion + Civil Portion)	323,255.00
J	**Total Cost (H+I)**	**6,652,996.79**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	-
L	**Total Estimated Capital Cost i.e. (J+K)**	**6,652,996.79**

M	GST @ 18% of L	1,197,539.42
M1	CESS @ 1% of L	66,529.97
N	**Grand Total (L+M+M1)**	**7,917,066.18**
O	Inspection Fee of UG Line (HT) - Rs. 3000/ km.	-
P	Inspection Fee of UG Line (HT) - Rs. 1500/ Additional Km	
Q	Inspection Fee of RMU - Rs. 1500/ RMU	3,000.00
R	Inspection Fee of Drawing Checking and Approval	750.00
S	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R)**	**7,920,816.18**

Existing SLD of 33 kV Infocity and CS Pur-II FEEDER



Proposed SLD of 33 kV Infocity and CS Pur-II FEEDER



ANNEXURE-8.3			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**BED**	
	Name of the Sub-Division : -	RASULGARH	
	Name of the Work :-	Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from Mancheswar-A GSS to Naharkanta PSS to mitigate overloading issue & providing reliable power supply.	
	Scope of work:-	Part A:- Augmentation of existing 33KV Line from 100 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Naharkanta Fdr - 9 CKM (Mancheswar-A GSS to Naharkanta PSS)	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33KV Line from 100 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Naharkanta Fdr - 9 CKM (Mancheswar-A GSS to Naharkanta PSS)	₹ 24,265,842.71
		Total Amount	**₹ 24,265,842.71**
		Total Amount (In Cr)	**2.43**
Total estimated cost is Rs. 2.43 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.3

Part A:-

Augmentation of existing 33KV Line from 100 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Naharkanta Fdr - 9 CKM (Mancheswar-A GSS to Naharkanta PSS)

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	12

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	24	823,728.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	76.00	745.68	56,671.68
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	47.5776	4,638.82
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	76.00	839.664	63,814.46
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	76.00	741.312	56,339.71
6	Danger Plate, 2 no's.	No.	104.00	24	2,496.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	7.2216	704.11
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	24	3,900.00
9	H.T. Stay set (Complete)	Set	1,365.00	24	32,760.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	48	3,120.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	360	35,100.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	12	16,380.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	97.50	141.6	13,806.00
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	72	7,488.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	28.8864	2,816.42
16	33KV pin insulator polymer	No.	624.00	36	22,464.00
17	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	72	46,800.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	72	107,640.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	72	107,640.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	101.40	147.132	14,919.18
21	Black Paint	Ltr	286.00	12	3,432.00
22	Yellow Colour Paint for Background	Ltr	216.00	24	5,184.00
A				**Total Cost of materials**	**1,431,842.39**
B				Stock, Storage & Insurance i.e 3% of A	42,955.27
C				**Sub Total (A+B)**	**1,474,797.66**
D				Contigency @ 3% of C	44,243.93
E				Tools & Plants @ 2% of C	27,616.00
F				Transportation @ 7.5% of C	110,609.82
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	42,421.99
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	53,236.00
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,752,925.40**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	24	54,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	13.2	85,800.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.7	17,550.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	12	44,400.00
K				**Total Civil & Services**	**201,750.00**
L				**Total (J+K)**	1,954,675.40
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N				**Sub Total (L+M)**	**1,954,675.40**
O				Total GST @ 18% of (N)	351,841.57
P				Total CESS @ 1% of (N)	19,546.75
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**2,326,063.73**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	6

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	12	411,864.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	76.00	493.296	37,490.50
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	23.7888	2,319.41
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	76.00	184.212	14,000.11
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	76.00	368.424	28,000.22
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	76.00	736.848	56,000.45
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	76.00	532.116	40,440.82
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	76.00	34.272	2,604.67

9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	76.00	10.476	796.18
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	76.00	9.18	697.68
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	76.00	57.36	4,359.36
12	Danger Plate, 2 no's.	No.	104.00	12	1,248.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	3.6108	352.05
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	12	1,950.00
15	H.T. Stay set (Complete)	Set	1,365.00	12	16,380.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	24	1,560.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	180	17,550.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	12	16,380.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	97.50	339.84	33,134.40
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	36	3,744.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	14.4432	1,408.21
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	13,455.00	18	242,190.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	66,000.00	6	396,000.00
24	33KV pin insulator polymer	No.	624.00	18	11,232.00
25	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	36	23,400.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	36	53,820.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	36	53,820.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	101.40	132.9	13,476.06
29	Black Paint	Ltr	286.00	6	1,716.00
30	Yellow Colour Paint for Background	Ltr	216.00	12	2,592.00
A				**Total Cost of materials**	**1,490,526.12**
B				Stock, Storage & Insurance i.e 3% of A	44,715.78
C				**Sub Total (A+B)**	**1,535,241.90**
D				Contigency @ 3% of C	46,057.26
E				Tools & Plants @ 2% of C	29,596.15
F				Transportation @ 7.5% of C	115,143.14
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	21,211.00
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pole/PSC pole)	105,558.74
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,852,808.18**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	12	27,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	6.6	42,900.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.35	8,775.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	12	44,400.00
K				**Total Civil & Services**	**123,075.00**
L				**Total (J+K)**	1,975,883.18
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N				**Sub Total (L+M)**	**1,975,883.18**
O				Total GST @ 18% of (N)	355,658.97
P				Total CESS @ 1% of (N)	19,758.83
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**2,351,300.98**

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)	10

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	10	343,220.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	76.00	325.04	24,703.04
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	97.50	52.864	5,154.24
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	76.00	58.5072	4,446.55
5	Danger Plate, 1 no's.	No.	104.00	10	1,040.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	3.009	293.38
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	30	3,120.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	12.036	1,173.51
9	33KV pin insulator polymer	No.	624.00	30	18,720.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	60	39,000.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	60	89,700.00
12	Earthing of Support (Coil Type)	EA	215.80	10	2,158.00
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	2.62	255.45
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	60	89,700.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	101.40	48.79	4,947.31
16	Black Paint	Ltr	286.00	10	2,860.00
17	Yellow Colour Paint for Background	Ltr	216.00	20	4,320.00
A				**Total Cost of materials**	**634,811.47**
B				Stock, Storage & Insurance i.e 3% of A	19,044.34
C				**Sub Total (A+B)**	**653,855.81**
D				Contigency @ 3% of C	19,615.67
E				Tools & Plants @ 2% of C	13,077.12

F	Transportation @ 7.5% of C	49,039.19
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	17,675.83
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	30,033.92
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**783,297.54**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	5.5	35,750.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.125	7,312.50
K	**Total Civil & Services**				**43,062.50**
L	**Total (J+K)**				826,360.04
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				-
N	**Sub Total (L+M)**				**826,360.04**
O	Total GST @ 18% of (N)				148,744.81
P	Total CESS @ 1% of (N)				8,263.60
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**983,368.45**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)	8

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	8	274,576.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	76.00	520.064	39,524.86
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	97.50	84.5824	8,246.78
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	76.00	93.61152	7,114.48
5	Danger Plate, 1 no's.	No.	104.00	8	832.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	2.4072	234.70
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	24	2,496.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	9.6288	938.81
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	624.00	32	19,968.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	48	31,200.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	48	71,760.00
12	Earthing of Support (Coil Type)	No.	215.80	8	1,726.40
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	2.096	204.36
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	48	71,760.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	8	1,300.00
16	H.T. Stay set (Complete)	Set	1,365.00	8	10,920.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	8	520.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	120	11,700.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	101.40	90.48	9,174.67
20	Black Paint	Ltr	286.00	8	2,288.00
21	Yellow Colour Paint for Background	Ltr	216.00	16	3,456.00
A	**Total Cost of materials**				**569,941.07**
B	**Stock, Storage & Insurance i.e 3% of A**				17,098.23
C	**Sub Total (A+B)**				**587,039.30**
D	Contigency @ 3% of C				17,611.18
E	Tools & Plants @ 2% of C				11,237.32
F	Transportation @ 7.5% of C				44,027.95
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				14,140.66
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				27,905.28
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**701,961.69**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.40	28,600.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
K	**Total Civil & Services**				**52,450.00**
L	**Total (J+K)**				754,411.69
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				-
N	**Sub Total (L+M)**				**754,411.69**
O	Total GST @ 18% of (N)				135,794.10
P	Total CESS @ 1% of (N)				7,544.12
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**897,749.91**

33 Kv Line Length In KM with 40 Mtr. Span Ref. Drawing No.- TPCODL-HVD-0001)	9

MATERIALS FOR 33 KV Pin Points

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	144	4,942,368.00
2	33 KV V cross Arm (GI) 22Kg each	No.	2,340.00	144	336,960.00
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	195.00	144	28,080.00
4	Danger Plate, 1 no's.	No.	104.00	144	14,976.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	43.33	4,224.64

6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	432.00	44,928.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	173.32	16,898.54
8	33KV pin insulator polymer	No.	624.00	432	269,568.00
9	Earthing of Support (Coil Type)	No.	215.80	144	31,075.20
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	37.73	3,678.48
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	101.40	208.80	21,172.32
12	232 sq.mm AAA conductor	Mtr.	203.45	27810.00	5,657,944.50
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	842.95	27	22,759.54
14	Black Paint	Ltr	286.00	144.0	41,184.00
15	Yellow Colour Paint for Background	Ltr	216.00	288.0	62,208.00
A				**Total Cost of materials**	**11,498,025.22**
B				Stock, Storage & Insurance i.e 3% of A	344,940.76
C				**Sub Total (A+B)**	**11,842,965.98**
D				Contigency @ 3% of C	355,288.98
E				Tools & Plants @ 2% of C	236,859.32
F				Transportation @ 7.5% of C	888,222.45
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	254,531.95
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	675,232.69
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**14,253,101.37**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	79.20	514,800.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	16.20	105,300.00
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	9.00	27810.00	
4	Dismantling of ACSR/AAAC 148/232mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	Mtr.	10.80	0.00	-
K				**Total Civil & Services**	**620,100.00**
L				**Total (J+K)**	14,873,201.37
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N				**Sub Total (L+M)**	**14,873,201.37**
O				Total GST @ 18% of (N)	2,677,176.25
P				Total CESS @ 1% of (N)	148,732.01
Q				**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**17,699,109.63**

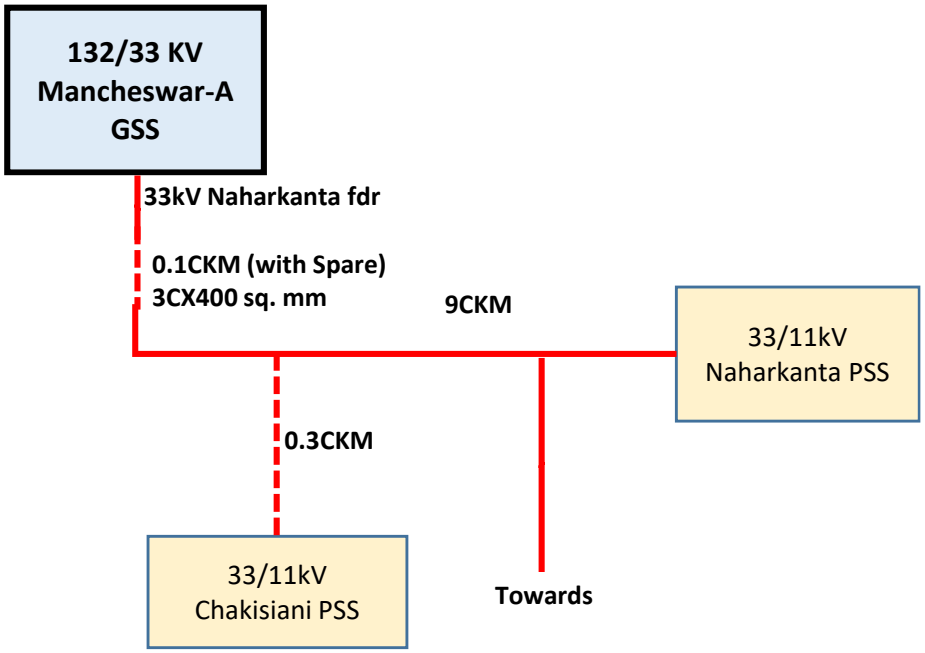
6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

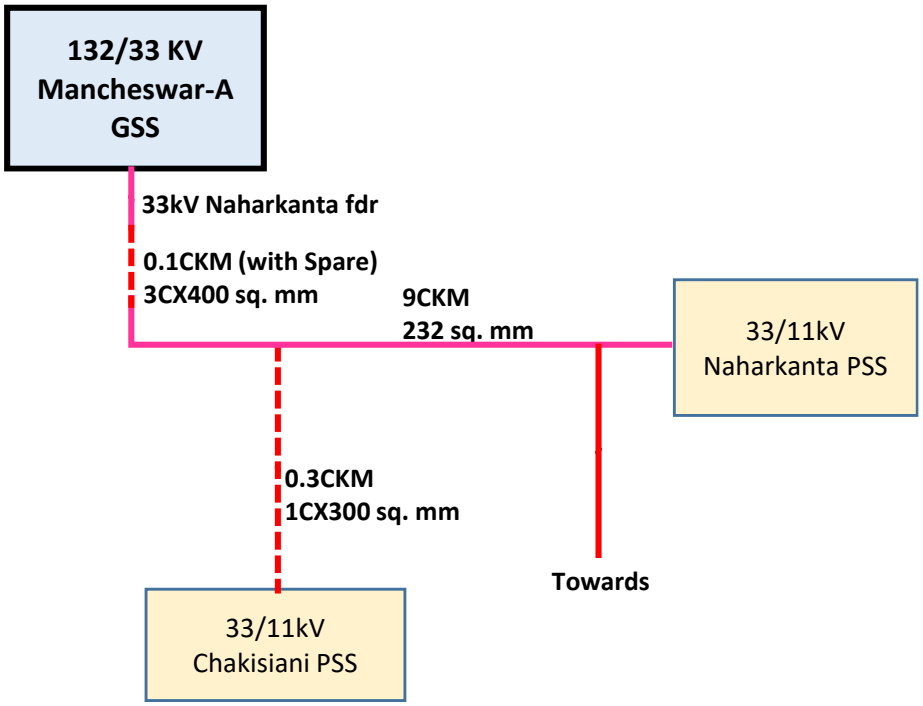
Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	2,326,063.73
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	2,351,300.98
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	983,368.45
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	897,749.91
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	17,699,109.63
Q	**Gross Total Material +Services**	**24,257,592.71**
R	Inspection Fee of Over Head Line (HT) - Rs.1500 up to 1 km.	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**6,000.00**
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**24,265,842.71**

Existing SLD of 33 kV Naharkanta FEEDER



Proposed SLD of 33 kV Naharkanta FEEDER



ANNEXURE-8.4			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**PED**	
	Name of the Sub-Division : -	PURI-III	
	Name of the Work :-	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate overloading issue & providing reliable power supply.	
	Scope of work:-	Part A:- Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Pure GSS to Talabania PSS - 3 Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Pure GSS to Talabania PSS - 3 Ckm.	₹ 46,284,633.83
		Total Amount	**₹ 46,284,633.83**
		Total Amount (In Cr)	**4.63**
Total estimated cost is Rs. 4.63 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.4

Part A:-
Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Pure GSS to Talabania PSS - 3 Ckm.

Standard BoQ and Estimate for 33kV, 1C 630sqmm U/G Cable along with 33kV RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (aloing with 1core spare cable) with accessories**				
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***Mtr.***	***500***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***Mtr.***	***2500***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	Mtr.	9000	1,495.47	13,459,230.00
1.2	Supply of Straight throU/Gh jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium U/G Cable kits for 1Core	Set	36	11,900.00	428,400.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	0	6,350.00	-
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	12	6,100.00	73,200.00
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV U/G cable	Mtr.	1500.00	357.60	536,400.00
2	**Supply of 33kV RMU**				
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***	***1***		
2.4	Supply of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	1	2,335,264.00	2,335,264.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	13.20	97.50	1,287.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,365.00	2,730.00
4	**FRTU for RMU SCADA Automation**				
a	***No. of FRTU***	***nos.***	***1***		
4.1	Pre-Wired FRTU Panel with FRTU	No.	1	121,744.00	121,744.00
4.2	Managed Layer2 Ethernet Switch (FRTU Panel)	No.	1	100,000.00	100,000.00
4.3	Networking Accessories	No.	1	72.00	72.00
4.4	CMR with Mounting Base for Digital Inputs	Nos.	32	650.00	20,800.00
4.5	Interposing Relay for Digital Output	Nos.	16	467.94	7,487.04
4.6	Battery Charger	Nos.	1	15,385.00	15,385.00
4.7	Battery	Nos.	1	8,333.00	8,333.00
4.8	4G Modem cum Router	Nos.	1	18,500.00	18,500.00
4.9	Instrumentation Cable 12 C X 0.5 mm2, Armored cable for Status and Indications	Mtr.	40	204.87	8,194.80
4.10	Instrumentation Cable 7 C X 1.5 mm2, Armored for Control Output	Mtr.	40	305.58	12,223.20
4.11	Twisted Pair Shielded & Over all shielded Instrumentation Cable	Mtr.	40	275.23	11,009.20
4.12	4 C X 2.5 mm2 Copper cable for extension of CT & PT	Mtr.	20	165.25	3,305.00

4.13	2 C X 4 mm2 Cable for DC Power Supply	Mtr.	10	150.00	1,500.00
4.14	4P X 0.36 mm2, Armored Communication Cable for MFM	Mtr.	20.0	148.43	2,968.60
4.15	Armored CAT6 SFTP Cable	Mtr.	20	45.87	917.40
4.16	Un-Armored CAT6 SFTP Cable	Mtr.	20	89.45	1,789.00
4.17	Multi Function Meter	Nos.	2	18,651.00	37,302.00
	Sub Total (Supply Portion) (in Rs.)				**17,208,041.24**

Erection Portion

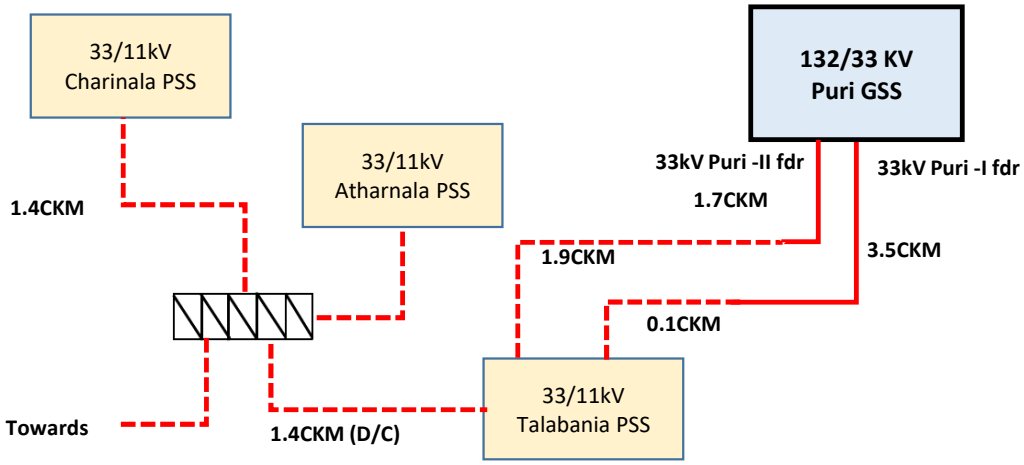
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	Mtr.	1500	94.50	141,750.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	36	2,400.00	86,400.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	0	2,081.70	-
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	12	2,081.70	24,980.40
1.5	Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE U/G cable by **HDD method with** HDPE pipe (110mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr.	7500	2,300.00	17,250,000.00
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	Mtr.	1500.00	300.00	450,000.00
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.4	Erection of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	1	8,000.00	8,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Services of FRTU Panel, Communication and Other Supplied System	EA	1.0	16,000.00	16,000.00
	Sub Total (Erection Portion) (in Rs.)				**17,977,130.40**

Civil Portion

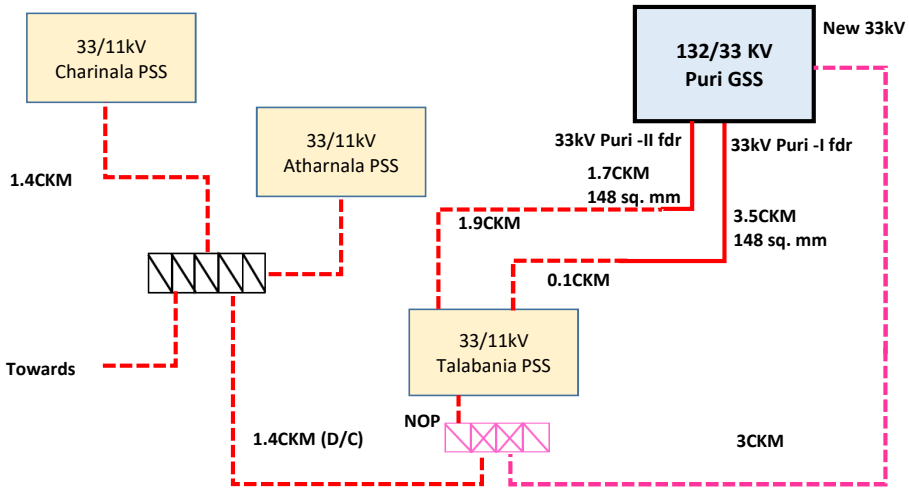
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)-Route Length	Mtr	500		
1.1.a	Earth work excavation of **soil**	Cum	420	700.00	294,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	180	1,720.00	309,600.00
1.2	Back filling with excavated soil outside and above the trench	Cum	600	202.00	121,200.00
1.3	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	Mtr	150	2,643.67	396,550.59
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	1	23,145.30	23,145.30
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	20	3,600.00	72,000.00

4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	Set	2	3,700.00	7,400.00
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	100	1,012.00	101,200.00
	Sub Total (Civil Portion) (in Rs.)				**1,325,095.89**
A	**Sub Total (Supply Portion)**				**17,208,041.24**
B	Stock, Storage & Insurance @ 3 % of A				516,241.24
C	**Sub Total (A+B)**				**17,724,282.48**
D	Contingency @ 3 % of C				531,728.47
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				26.51
F	Transportation @ 7.5% of C				1,329,321.19
G	Erection Charges @ 10% of earthing items				132.56
H	**Total (C+D+E+F+G)**				**19,585,491.21**
I	Sub Total (Erection Portion + Civil Portion)				19,302,226.29
J	**Total Cost (H+I)**				**38,887,717.51**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				-
L	**Total Estimated Capital Cost i.e. (J+K)**				**38,887,717.51**
M	GST @ 18% of L				6,999,789.15
M1	CESS @ 1% of L				388,877.18
N	**Grand Total (L+M+M1)**				**46,276,383.83**
O	Inspection Fee of UG Line (HT) - Rs. 3000/ km.				3,000.00
P	Inspection Fee of UG Line (HT) - Rs. 1500/ Additional Km				3,000.00
Q	Inspection Fee of RMU - Rs. 1500/ RMU				1,500.00
R	Inspection Fee of Drawing Checking and Approval				750.00
S	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R)**				**46,284,633.83**

Existing SLD of 33 kV Puri-I and Puri-II FEEDER



Existing SLD of 33 kV Puri-I and Puri-II FEEDER



ANNEXURE-8.5			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**PED**	
	Name of the Sub-Division : -	PURI-IV	
	Name of the Work :-	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate overloading issue & providing reliable power supply.	
	Scope of work:-	Part A:- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS)	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS)	₹ 15,797,760.89
		Total Amount	**₹ 15,797,760.89**
		Total Amount (In Cr)	**1.58**
Total estimated cost is Rs. 1.58 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.5

Part A:-

Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS)

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor 13 Mtr. H-Pole for Pin-Points and Cut-Points & 13 Mtr WPB Pole for DP

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	5

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's DP without Isolator*	*No. of DP Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	2	5	34,322.00	10	343,220.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	62.14	5	76.00	310.7	23,613.20
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.96	5	97.50	19.824	1,932.84
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	69.97	5	76.00	349.86	26,589.36
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	61.78	5	76.00	308.88	23,474.88
6	Danger Plate, 2 no's.	No.	2	5	104.00	10	1,040.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.60	5	97.50	3.009	293.38
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	2	5	162.50	10	1,625.00
9	H.T. Stay set (Complete)	Set	2	5	1,365.00	10	13,650.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	4	5	65.00	20	1,300.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	30	5	97.50	150	14,625.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1	5	1,365.00	5	6,825.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	11.80	5	97.50	59	5,752.50
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	6	5	104.00	30	3,120.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.41	5	97.50	12.036	1,173.51
16	33KV pin insulator polymer	No.	3	5	624.00	15	9,360.00
17	H W fitting(B&S) 90KN,4 Bolt	No.	6	5	650.00	30	19,500.00
18	Disc insulator (B&S) 90 KN polymer	No.	6	5	1,495.00	30	44,850.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	6	5	1,495.00	30	44,850.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	12.26	5	101.40	61.305	6,216.33
21	Black Paint	Ltr	1	5	286.00	5	1,430.00
22	Yellow Colour Paint for Background	Ltr	2	5	216.00	10	2,160.00
A						**Total Cost of materials**	**596,600.99**
B						Stock, Storage & Insurance i.e 3% of A	17,898.03
C						**Sub Total (A+B)**	**614,499.02**
D						Contigency @ 3% of C	18,434.97
E						Tools & Plants @ 2% of C	11,506.67
F						Transportation @ 7.5% of C	46,087.43
G						Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	17,675.83
H						Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	22,181.67
I						Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J						**Sum of (C to I)**	**730,385.58**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's DP without Isolator*	*No. of DP Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2	5	2,250.00	10	22,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	1.10	5	6,500.00	5.5	35,750.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.23	5	6,500.00	1.125	7,312.50
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	1	5	3,700.00	5	18,500.00
K						**Total Civil & Services**	**84,062.50**
L						**Total (J+K)**	814,448.08
M						Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N						**Sub Total (L+M)**	**814,448.08**
O						Total GST @ 18% of (N)	146,600.66
P						Total CESS @ 1% of (N)	8,144.48
Q						**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**969,193.22**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	1

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's DP with Isolator*	*No. of DP Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	2	1	34,322.00	2	68,644.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	82.22	1	76.00	82.216	6,248.42
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.96	1	97.50	3.9648	386.57
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	30.70	1	76.00	30.702	2,333.35
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	61.40	1	76.00	61.404	4,666.70
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	122.81	1	76.00	122.808	9,333.41
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.69	1	76.00	88.686	6,740.14

8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	5.71	1	76.00	5.712	434.11
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	1.75	1	76.00	1.746	132.70
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	1.53	1	76.00	1.53	116.28
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	9.56	1	76.00	9.56	726.56
12	Danger Plate, 2 no's.	No.	2	1	104.00	2	208.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.60	1	97.50	0.6018	58.68
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	2	1	162.50	2	325.00
15	H.T. Stay set (Complete)	Set	2	1	1,365.00	2	2,730.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	4	1	65.00	4	260.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	30	1	97.50	30	2,925.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	2	1	1,365.00	2	2,730.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	56.64	1	97.50	56.64	5,522.40
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	6	1	104.00	6	624.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.41	1	97.50	2.4072	234.70
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	3.00	1	13,455.00	3	40,365.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	1	1	66,000.00	1	66,000.00
24	33KV pin insulator polymer	No.	3	1	624.00	3	1,872.00
25	H W fitting(B&S) 90KN,4 Bolt	No.	6	1	650.00	6	3,900.00
26	Disc insulator (B&S) 90 KN polymer	No.	6	1	1,495.00	6	8,970.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	6	1	1,495.00	6	8,970.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	22.15	1	101.40	22.15	2,246.01
29	Black Paint	Ltr	1	1	286.00	1	286.00
30	Yellow Colour Paint for Background	Ltr	2	1	216.00	2	432.00
A						**Total Cost of materials**	**248,421.02**
B						Stock, Storage & Insurance i.e 3% of A	7,452.63
C						**Sub Total (A+B)**	**255,873.65**
D						Contigency @ 3% of C	7,676.21
E						Tools & Plants @ 2% of C	4,932.69
F						Transportation @ 7.5% of C	19,190.52
G						Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	3,535.17
H						Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	17,593.12
I						Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J						**Sum of (C to I)**	**308,801.36**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's DP with Isolator*	*No. of DP Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2	1	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	1.10	1	6,500.00	1.1	7,150.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.23	1	6,500.00	0.225	1,462.50
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	2	1	3,700.00	2	7,400.00
K						**Total Civil & Services**	**20,512.50**
L						**Total (J+K)**	329,313.86
M						Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N						**Sub Total (L+M)**	**329,313.86**
O						Total GST @ 18% of (N)	59,276.50
P						Total CESS @ 1% of (N)	3,293.14
Q						**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**391,883.50**

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.-)	7

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's 180 deg. Cut Point*	*No. of Cut Point Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole(GI)	No	1	7	56,735.71	7	397,150.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	32.50	7	76.00	227.528	17,292.13
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	5.29	7	97.50	37.0048	3,607.97
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	5.85	7	76.00	40.95504	3,112.58
5	Danger Plate, 1 no's.	No.	1	7	104.00	7	728.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.30	7	97.50	2.1063	205.36
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	3	7	104.00	21	2,184.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	1.20	7	97.50	8.4252	821.46
9	33KV pin insulator polymer	No.	3	7	624.00	21	13,104.00
10	H W fitting(B&S)90KN,4 Bolt	No.	6	7	650.00	42	27,300.00
11	Disc insulator (B&S)90 KN polymer	No.	6	7	1,495.00	42	62,790.00
12	Earthing of Support (Coil Type)	EA	1	7	215.80	7	1,510.60
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	0.262	7	97.50	1.834	178.82
14	PG Clamp for 232 sq.mm AAA conductor	NO.	6	7	1,495.00	42	62,790.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	4.88	7	101.40	34.153	3,463.11
16	Black Paint	Ltr	1	7	286.00	7	2,002.00
17	Yellow Colour Paint for Background	Ltr	2	7	216.00	14	3,024.00
A						**Total Cost of materials**	**601,264.03**

B	Stock, Storage & Insurance i.e 3% of A	18,037.92
C	**Sub Total (A+B)**	**619,301.95**
D	Contigency @ 3% of C	18,579.06
E	Tools & Plants @ 2% of C	12,386.04
F	Transportation @ 7.5% of C	46,447.65
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	20,453.23
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	21,023.75
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**738,191.66**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's 180 deg. Cut Point*	*No. of Cut Point Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	0.55	7	6,500.00	3.85	25,025.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.11	7	6,500.00	0.7875	5,118.75
K	**Total Civil & Services**						**30,143.75**
L	**Total (J+K)**						**768,335.41**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)						-
N	**Sub Total (L+M)**						**768,335.41**
O	Total GST @ 18% of (N)						138,300.37
P	Total CESS @ 1% of (N)						7,683.35
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**						**914,319.14**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.-)	5

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's 90 deg. Cut Point*	*No. of Cut Point Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole(GI)	No	1	5	56,735.71	5	283,678.57
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	65.01	5	76.00	325.04	24,703.04
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	10.57	5	97.50	52.864	5,154.24
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	11.70	5	76.00	58.5072	4,446.55
5	Danger Plate, 1 no's.	No.	1	5	104.00	5	520.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.30	5	97.50	1.5045	146.69
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	3	5	104.00	15	1,560.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	1.20	5	97.50	6.018	586.76
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	4	5	624.00	20	12,480.00
10	H W fitting(B&S)90KN,4 Bolt	No.	6	5	650.00	30	19,500.00
11	Disc insulator (B&S)90 KN polymer	No.	6	5	1,495.00	30	44,850.00
12	Earthing of Support (Coil Type)	No.	1	5	215.80	5	1,079.00
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	0.262	5	97.50	1.31	127.73
14	PG Clamp for 232 sq.mm AAA conductor	NO.	6	5	1,495.00	30	44,850.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	1	5	162.50	5	812.50
16	H.T. Stay set (Complete)	Set	1	5	1,365.00	5	6,825.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	1	5	65.00	5	325.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	15	5	97.50	75	7,312.50
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	11.31	5	101.40	56.55	5,734.17
20	Black Paint	Ltr	1	5	286.00	5	1,430.00
21	Yellow Colour Paint for Background	Ltr	2	5	216.00	10	2,160.00
A	**Total Cost of materials**						**468,281.74**
B	Stock, Storage & Insurance i.e 3% of A						14,048.45
C	**Sub Total (A+B)**						**482,330.19**
D	Contigency @ 3% of C						14,469.91
E	Tools & Plants @ 2% of C						9,331.94
F	Transportation @ 7.5% of C						36,174.76
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole						14,609.45
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)						17,440.80
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv						-
J	**Sum of (C to I)**						**574,357.05**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's 90 deg. Cut Point*	*No. of Cut Point Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	0.55	5	6,500.00	2.75	17,875.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.11	5	6,500.00	0.56	3,656.25
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	1	5	2,250.00	5	11,250.00
K	**Total Civil & Services**						**32,781.25**
L	**Total (J+K)**						607,138.30
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)						-
N	**Sub Total (L+M)**						**607,138.30**
O	Total GST @ 18% of (N)						109,284.89
P	Total CESS @ 1% of (N)						6,071.38
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**						**722,494.57**

33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.-)	6

MATERIALS FOR 33 KV Pin Points

Sl. No.	Description of Materials	Unit	Quantity for 1 KM Line	Line Length in KM	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole(GI)	No	21	6	56,735.71	72	4,084,971.43
2	33 KV V cross Arm (GI) 22Kg each	No.	21	6	2,340.00	72	168,480.00
3	Top bracket 100x50x6mm GI channel (300mm each)	No.	21	6.00	195.00	72	14,040.00
4	Danger Plate, 1 no's.	No.	21	6	104.00	72	7,488.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	6.32	6	97.50	21.66	2,112.32
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	63	6	104.00	216.00	22,464.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	25.28	6	97.50	86.66	8,449.27
8	33KV pin insulator polymer	No.	63	6	624.00	216	134,784.00
9	Earthing of Support (Coil Type)	No.	21	6	215.80	72	15,537.60
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	5.502	6	97.50	18.86	1,839.24
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	30	6	101.40	104.40	10,586.16
12	232 sq.mm AAA conductor	Mtr.	3090.00	6	203.45	18540.00	3,771,963.00
13	Crimping type Midspan Compression Joint for 148 sq.mm AAA conductor	EA	3	6	842.95	18	15,173.03
14	Black Paint	Ltr	21	6	286.00	72.0	20,592.00
15	Yellow Colour Paint for Background	Ltr	42	6	216.00	144.0	31,104.00
A						**Total Cost of materials**	**8,309,584.05**
B						Stock, Storage & Insurance i.e 3% of A	249,287.52
C						**Sub Total (A+B)**	**8,558,871.57**
D						Contigency @ 3% of C	256,766.15
E						Tools & Plants @ 2% of C	171,177.43
F						Transportation @ 7.5% of C	641,915.37
G						Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	210,376.03
H						Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	435,135.10
I						Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J						**Sum of (C to I)**	**10,274,241.64**

Civil & Services

Sl. No.	Description of Materials	Unit	Quantity for 1 KM Line	Line Length in KM	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	11.55	6	6,500.00	39.60	257,400.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	2.36	6	6,500.00	8.10	52,650.00
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	3000.00	6	9.00	18540.00	166,860.00
4	Dismantling of ACSR/AAAC 148/232mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	Mtr.	3000.00	6	10.80	0.00	-
K						**Total Civil & Services**	**476,910.00**
L						**Total (J+K)**	**10,751,151.64**
M						Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N						**Sub Total (L+M)**	**10,751,151.64**
O						Total GST @ 18% of (N)	1,935,207.30
P						Total CESS @ 1% of (N)	107,511.52
Q						**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**12,793,870.45**

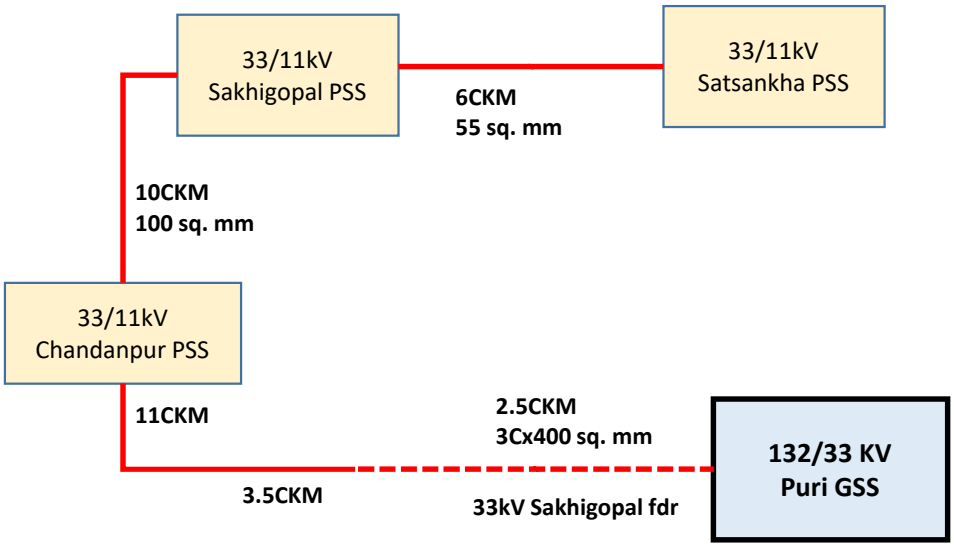
6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

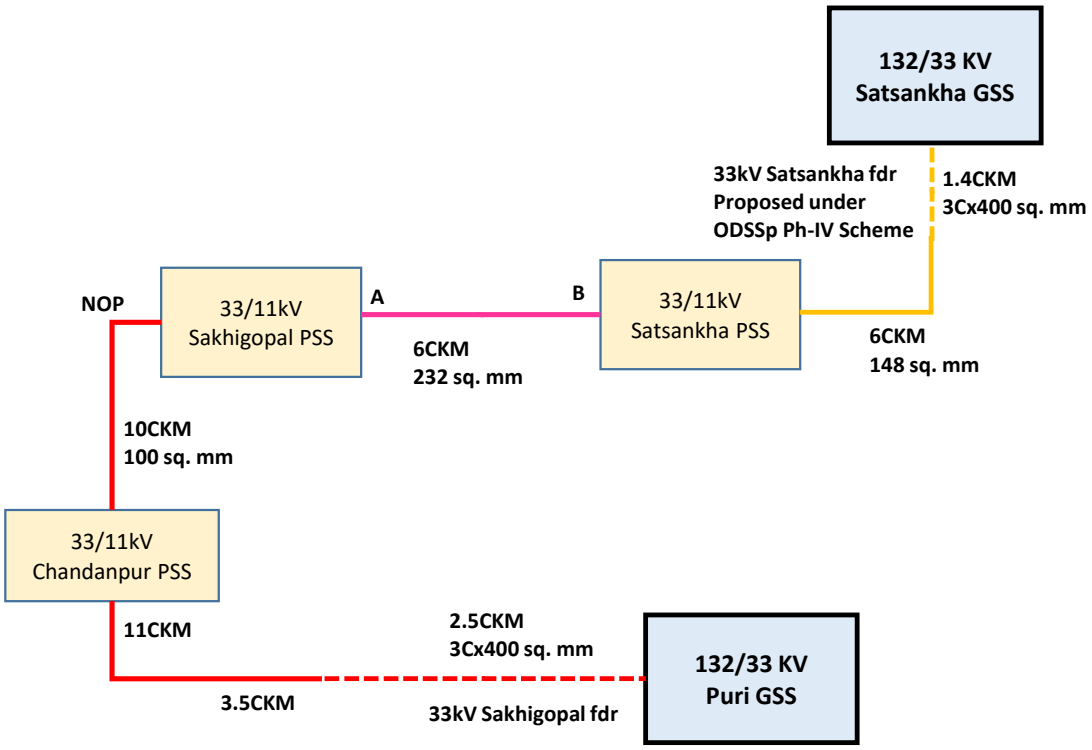
Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	969,193.22
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	391,883.50
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	914,319.14
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	722,494.57
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	12,793,870.45
Q	**Gross Total Material +Services**	**15,791,760.89**
R	Inspection Fee of Over Head Line (HT) - Rs.1500 up to 1 km.	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**3,750.00**
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**15,797,760.89**

Existing SLD of 33 kV Sakhigopal FEEDER



Proposed SLD of 33 kV Sakhigopal FEEDER



ANNEXURE-8.6			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-		**CED**	
Name of the Sub-Division : -		GOPALPUR	
Name of the Work :-		Mitigation of 33kV Overloading: Proposal of new interlinking line from OGP PSS to Balikuda PSS to mitigate overloading issue & providing reliable power supply.	
Scope:-		Part A:- Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm. Part B:- Installation of 33kV line DP with Isolator - 2No's	
Names of Schemes: -		TPCODL CAPEX(FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm.	44,810,757.28
2	B	Part B:- Installation of 33kV line DP with Isolator - 2No's	783,766.99
		Total Amount	**45,594,524.28**
		Total Amount (In Cr)	**4.56**
Total estimated cost is Rs. 4.56 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.6

Part A:-
Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm.

Standard BoQ and Estimate for 33kV, 1C 630sqmm U/G Cable along with 33kV RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (aloing with 1core spare cable) with accessories**				
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***Mtr.***	***2500***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***Mtr.***	***500***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	Mtr.	9000	1,495.47	13,459,230.00
1.2	Supply of Straight throU/Gh jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium U/G Cable kits for 1Core	Set	36	11,900.00	428,400.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	6	6,350.00	38,100.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	12	6,100.00	73,200.00
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV U/G cable	Mtr.	7452.00	357.60	2,664,835.20
2	**Supply of 33kV RMU**				
a	***No. of 33kV 3Way RMU (LLV+M)***	***nos.***			
b	***No. of 33kV 4Way RMU (LLVV+M)***	***nos.***			
c	***No. of 33kV 3Way RMU (LLV)***	***nos.***			
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***	***2***		
e	***No. of 33kV 3Way RMU (LLL)***	***nos.***			
f	***No. of 33kV 4Way RMU (LLLL)***	***nos.***			
2.1	Supply of RMU 33KV 3WAY 630A WITH METERING UNIT (LLV+M) **(CT Ratio to be mentioned)**	Nos.	0	2,293,723.00	-
2.2	Supply of RMU 33KV 4WAY 630A WITH METERING UNIT (LLVV+M) **(CT Ratio to be mentioned)**	Nos.	0	3,174,874.00	-
2.3	Supply of RMU 33KV 3WAY 630A (2ISLTR+ 1BKR) (LLV)	Nos.	0	1,787,101.00	-
2.4	Supply of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	2,335,264.00	4,670,528.00
2.5	Supply of RMU 33KV 3WAY 630AMP (3 ISOLATORS) (LLL)	Nos.	0	1,446,210.00	-
2.6	Supply of RMU 33KV 4WAY 630AMP (4 ISOLATORS) (LLLL)	Nos.	0	1,959,421.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	97.50	2,574.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,365.00	5,460.00
4	**FRTU for RMU SCADA Automation**				
a	***No. of FRTU***	***nos.***	***2***		
4.1	Pre-Wired FRTU Panel with FRTU	No.	2	121,744.00	243,488.00
4.2	Managed Layer2 Ethernet Switch (FRTU Panel)	No.	2	100,000.00	200,000.00
4.3	Networking Accessories	No.	2	72.00	144.00
4.4	CMR with Mounting Base for Digital Inputs	Nos.	64	650.00	41,600.00

4.5	Interposing Relay for Digital Output	Nos.	32	467.94	14,974.08
4.6	Battery Charger	Nos.	2	15,385.00	30,770.00
4.7	Battery	Nos.	2	8,333.00	16,666.00
4.8	4G Modem cum Router	Nos.	2	18,500.00	37,000.00
4.9	Instrumentation Cable 12 C X 0.5 mm2, Armored cable for Status and Indications	Mtr.	80	204.87	16,389.60
4.10	Instrumentation Cable 7 C X 1.5 mm2, Armored for Control Output	Mtr.	80	305.58	24,446.40
4.11	Twisted Pair Shielded & Over all shielded Instrumentation Cable	Mtr.	80	275.23	22,018.40
4.12	4 C X 2.5 mm2 Copper cable for extension of CT & PT	Mtr.	40	165.25	6,610.00
4.13	2 C X 4 mm2 Cable for DC Power Supply	Mtr.	20	150.00	3,000.00
4.14	4P X 0.36 mm2, Armored Communication Cable for MFM	Mtr.	40.0	148.43	5,937.20
4.15	Armored CAT6 SFTP Cable	Mtr.	40	45.87	1,834.80
4.16	Un-Armored CAT6 SFTP Cable	Mtr.	40	89.45	3,578.00
4.17	Multi Function Meter	Nos.	4	18,651.00	74,604.00
	Sub Total (Supply Portion) (in Rs.)				**22,085,387.68**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	Mtr.	7500	94.50	708,750.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	36	2,400.00	86,400.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	6	2,081.70	12,490.20
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	12	2,081.70	24,980.40
1.5	Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE U/G cable by **HDD method with** HDPE pipe (110mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr.	1500	2,300.00	3,450,000.00
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	Mtr.	7452.00	300.00	2,235,600.00
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.1	Erection of RMU 33KV 3WAY 630A WITH METERING UNIT (LLV+M)	Nos.	0	15,000.00	-
2.2	Erection of RMU 33KV 4WAY 630A WITH METERING UNIT (LLVV+M)	Nos.	0	15,000.00	-
2.3	Erection of RMU 33KV 3WAY 630A (2ISLTR+ 1BKR) (LLV)	Nos.	0	8,000.00	-
2.4	Erection of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	8,000.00	16,000.00
2.5	Erection of RMU 33KV 3WAY 630AMP (3 ISOLATORS) (LLL)	Nos.	0	8,000.00	-
2.6	Erection of RMU 33KV 4WAY 630AMP (4 ISOLATORS) (LLLL)	Nos.	0	8,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Services of FRTU Panel, Communication and Other Supplied System	EA	2.0	16,000.00	32,000.00
	Sub Total (Erection Portion) (in Rs.)				**6,566,220.60**

Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)-Route Length	Mtr	2484		
1.1.a	Earth work excavation of **soil**	Cum	2086.56	700.00	1,460,592.00
1.1.b	Earth work excavation of **hard rock**	Cum	894.24	1,720.00	1,538,092.80
1.2	Back filling with excavated soil outside and above the trench	Cum	2980.8	202.00	602,121.60
1.3	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	Mtr	745.2	2,643.67	1,970,063.35
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	144,000.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	Set	4	3,700.00	14,800.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	48	1,463.40	70,243.20
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	100	1,012.00	101,200.00
	Sub Total (Civil Portion) (in Rs.)				**5,947,403.55**
A	**Sub Total (Supply Portion)**				**22,085,387.68**
B	Stock, Storage & Insurance @ 3 % of A				662,561.63
C	**Sub Total (A+B)**				**22,747,949.31**
D	Contingency @ 3 % of C				682,438.48
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				53.02
F	Transportation @ 7.5% of C				1,706,096.20
G	Erection Charges @ 10% of earthing items				265.12
H	**Total (C+D+E+F+G)**				**25,136,802.13**
I	Sub Total (Erection Portion + Civil Portion)				12,513,624.15
J	**Total Cost (H+I)**				**37,650,426.29**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				-
L	**Total Estimated Capital Cost i.e. (J+K)**				**37,650,426.29**
M	GST @ 18% of L				6,777,076.73
M1	CESS @ 1% of L				376,504.26
N	**Grand Total (L+M+M1)**				**44,804,007.28**
O	Inspection Fee of UG Line (HT) - Rs. 3000/ km.				3,000.00
P	Inspection Fee of UG Line (HT) - Rs. 1500/ Additional Km				
Q	Inspection Fee of RMU - Rs. 1500/ RMU				3,000.00
R	Inspection Fee of Drawing Checking and Approval				750.00
S	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R)**				**44,810,757.28**

ANNEXURE-8.6

Part B:-
Installation of 33kV line DP with Isolator - 2No's

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	2

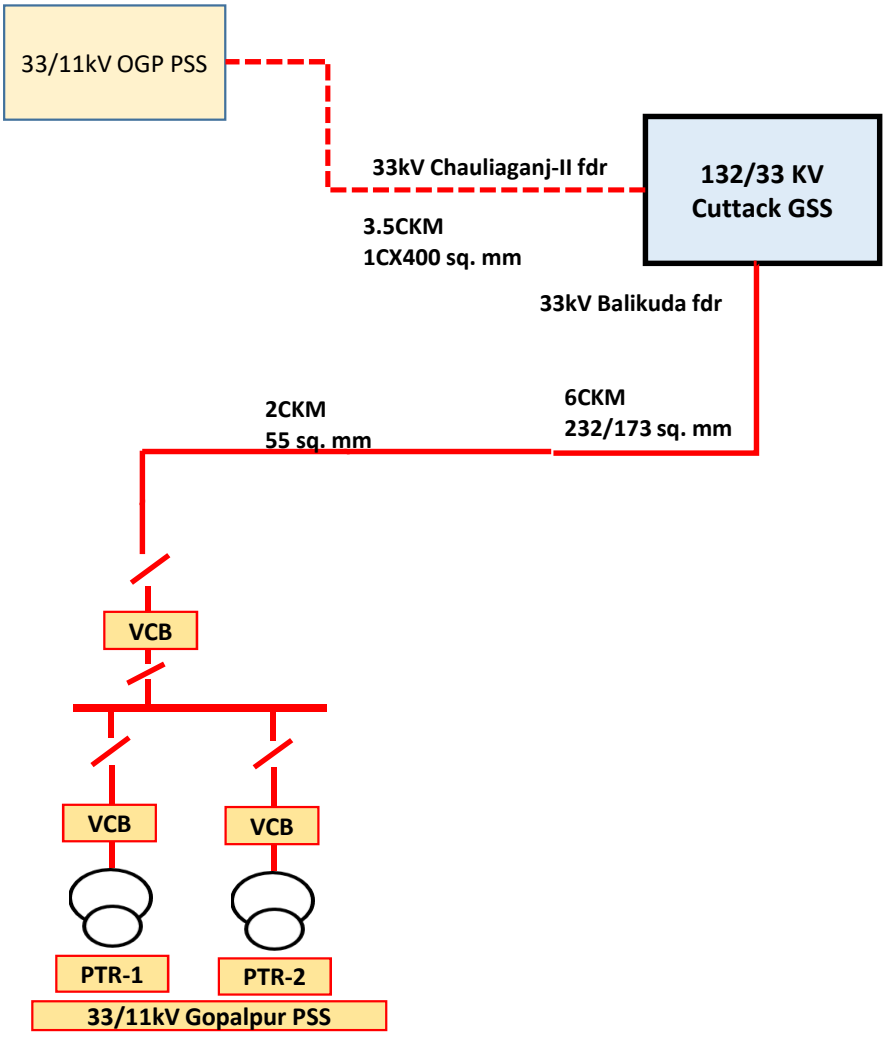
MATERIALS FOR 33 KV DP With Isolator

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	4	137,288.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	76.00	164.432	12,496.83
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	7.9296	773.14
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	76.00	61.404	4,666.70
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	76.00	122.808	9,333.41
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	76.00	245.616	18,666.82
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	76.00	177.372	13,480.27
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	76.00	11.424	868.22
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	76.00	3.492	265.39
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	76.00	3.06	232.56
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	76.00	19.12	1,453.12
12	Danger Plate, 2 no's.	No.	104.00	4	416.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	1.2036	117.35
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	4	650.00
15	H.T. Stay set (Complete)	Set	1,365.00	4	5,460.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	8	520.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	60	5,850.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	4	5,460.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	97.50	113.28	11,044.80
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	12	1,248.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	4.8144	469.40
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	13,455.00	6	80,730.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	66,000.00	2	132,000.00
24	33KV pin insulator polymer	No.	624.00	6	3,744.00
25	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	12	7,800.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	12	17,940.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	12	17,940.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	101.40	44.3	4,492.02
29	Black Paint	Ltr	286.00	2	572.00
30	Yellow Colour Paint for Background	Ltr	216.00	4	864.00
A				**Total Cost of materials**	**496,842.04**
B				Stock, Storage & Insurance i.e 3% of A	14,905.26
C				**Sub Total (A+B)**	**511,747.30**
D				Contigency @ 3% of C	15,352.42
E				Tools & Plants @ 2% of C	9,865.38
F				Transportation @ 7.5% of C	38,381.05
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	7,070.33
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pole/PSC pole)	35,186.25
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**617,602.73**

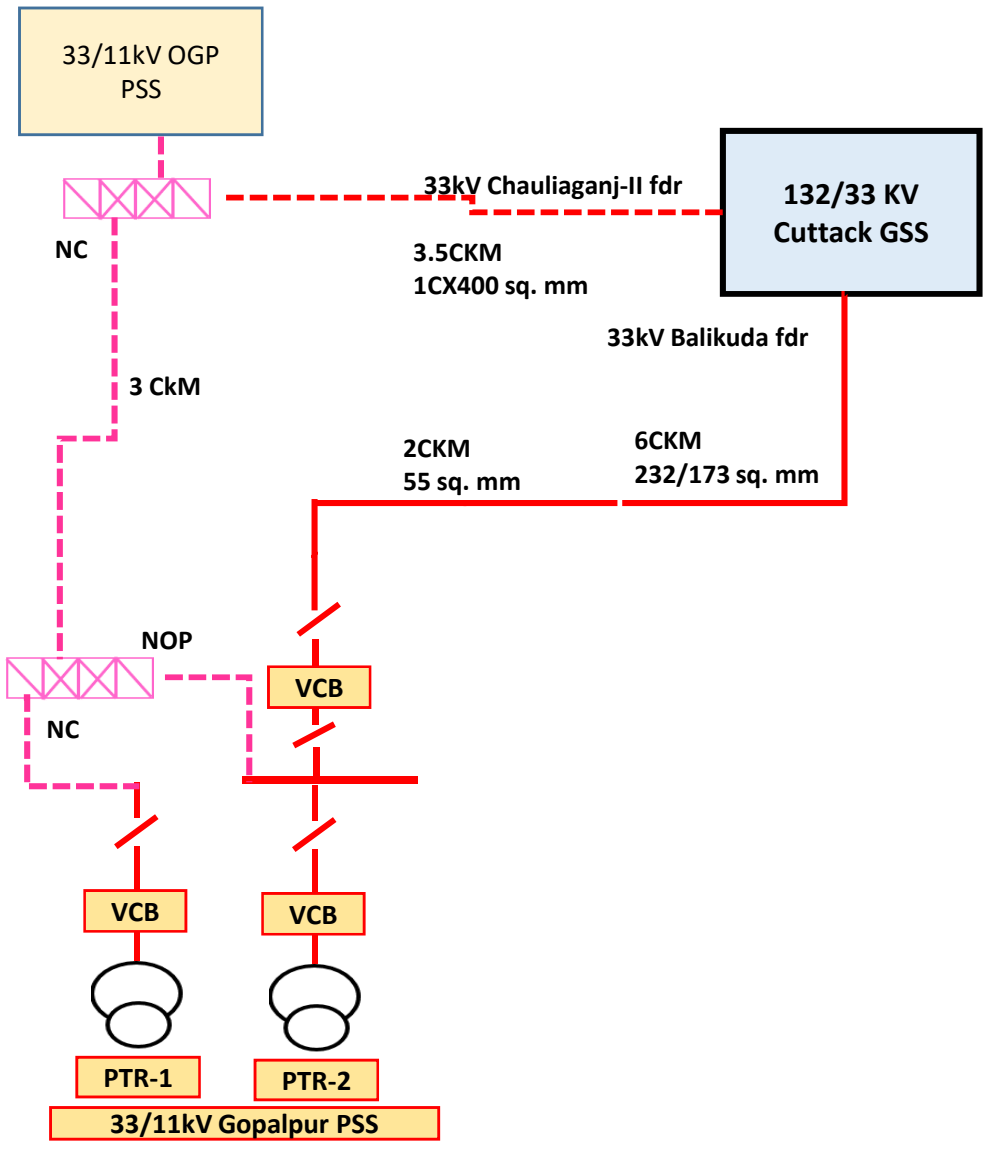
Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.2	14,300.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	4	14,800.00
K				**Total Civil & Services**	**41,025.00**
L				**Total (J+K)**	658,627.73
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N				**Sub Total (L+M)**	**658,627.73**
O				Total GST @ 18% of (N)	118,552.99
P				Total CESS @ 1% of (N)	6,586.28
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**783,766.99**

Existing SLD of 33 kV Balikuda FEEDER



Proposed SLD of 33 kV Balikuda FEEDER



ANNEXURE-8.7			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**CDD-II**		
Name of the Sub-Division : -	JOBRA		
Name of the Work :-	Mitigation of 33kV Overloading: Proposal for New 33kV feeder from Bahugram GSS to Jagatpur IPICOL PSS to mitigate overloading issue & providing reliable power supply.		
Scope:-	Part A:- New 33KV Line from Bahugram GSS to Jagatpur IPICOL PSS of 232 sq.mm. AAAC - 13 Ckm.Part B:- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable - 2 Ckm.		
Names of Schemes: -	TPCODL CAPEX(FY 24-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- New 33KV Line from Bahugram GSS to Jagatpur IPICOL PSS of 232 sq.mm. AAAC - 13 Ckm.	47,867,270.24
2	B	Part B:- Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable - 2 Ckm.	33,024,305.74
		Total Amount	**80,891,575.99**
		Total Amount (In Cr)	**8.09**
Total estimated cost is Rs. 8.09 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.7

Part A:-

New 33KV Line from Bahugram GSS to Jagatpur IPICOL PSS of 232 sq.mm. AAAC - 13 Ckm.

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor 13 Mtr. H-Pole for Pin-Points and Cut-Points & 13 Mtr WPB Pole for DP

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	22

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	44	1,510,168.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	76.00	1367.08	103,898.08
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	87.2256	8,504.50
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	76.00	1539.384	116,993.18
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	76.00	1359.072	103,289.47
6	Danger Plate, 2 no's.	No.	104.00	44	4,576.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	13.2396	1,290.86
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	44	7,150.00
9	H.T. Stay set (Complete)	Set	1,365.00	44	60,060.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	88	5,720.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	660	64,350.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	22	30,030.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	97.50	259.6	25,311.00
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	132	13,728.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	52.9584	5,163.44
16	33KV pin insulator polymer	No.	624.00	66	41,184.00
17	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	132	85,800.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	132	197,340.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	132	197,340.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	101.40	269.742	27,351.84
21	Black Paint	Ltr	286.00	22	6,292.00
22	Yellow Colour Paint for Background	Ltr	216.00	44	9,504.00
A				**Total Cost of materials**	**2,625,044.38**
B				Stock, Storage & Insurance i.e 3% of A	78,751.33
C				**Sub Total (A+B)**	**2,703,795.71**
D				Contigency @ 3% of C	81,113.87
E				Tools & Plants @ 2% of C	50,629.33
F				Transportation @ 7.5% of C	202,784.68
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	77,773.65
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	97,599.34
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,213,696.57**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	44	99,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	24.2	157,300.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	4.95	32,175.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	22	81,400.00
K				**Total Civil & Services**	**369,875.00**
L				**Total (J+K)**	3,583,571.57
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N				**Sub Total (L+M)**	**3,583,571.57**
O				Total GST @ 18% of (N)	645,042.88
P				Total CESS @ 1% of (N)	35,835.72
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**4,264,450.17**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	4

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	8	274,576.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	76.00	328.864	24,993.66
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	15.8592	1,546.27
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	76.00	122.808	9,333.41
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	76.00	245.616	18,666.82
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	76.00	491.232	37,333.63
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	76.00	354.744	26,960.54

8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	76.00	22.848	1,736.45
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	76.00	6.984	530.78
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	76.00	6.12	465.12
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	76.00	38.24	2,906.24
12	Danger Plate, 2 no's.	No.	104.00	8	832.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	2.4072	234.70
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	8	1,300.00
15	H.T. Stay set (Complete)	Set	1,365.00	8	10,920.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	16	1,040.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	120	11,700.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	8	10,920.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	97.50	226.56	22,089.60
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	24	2,496.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	9.6288	938.81
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	13,455.00	12	161,460.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	66,000.00	4	264,000.00
24	33KV pin insulator polymer	No.	624.00	12	7,488.00
25	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	24	15,600.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	24	35,880.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	24	35,880.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	101.40	88.6	8,984.04
29	Black Paint	Ltr	286.00	4	1,144.00
30	Yellow Colour Paint for Background	Ltr	216.00	8	1,728.00
A				**Total Cost of materials**	**993,684.08**
B				Stock, Storage & Insurance i.e 3% of A	29,810.52
C				**Sub Total (A+B)**	**1,023,494.60**
D				Contigency @ 3% of C	30,704.84
E				Tools & Plants @ 2% of C	19,730.76
F				Transportation @ 7.5% of C	76,762.10
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	14,140.66
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	70,372.49
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,235,205.45**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	8	29,600.00
K				**Total Civil & Services**	**82,050.00**
L				**Total (J+K)**	1,317,255.45
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N				**Sub Total (L+M)**	**1,317,255.45**
O				Total GST @ 18% of (N)	237,105.98
P				Total CESS @ 1% of (N)	13,172.55
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**1,567,533.99**

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.-)	18

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole(GI)	No	56,735.71	18	1,021,242.86
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	76.00	585.072	44,465.47
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	97.50	95.1552	9,277.63
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	76.00	105.313	8,003.78
5	Danger Plate, 1 no's.	No.	104.00	18	1,872.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	5.4162	528.08
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	54	5,616.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	21.6648	2,112.32
9	33KV pin insulator polymer	No.	624.00	54	33,696.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	108	70,200.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	108	161,460.00
12	Earthing of Support (Coil Type)	EA	215.80	18	3,884.40
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	4.716	459.81
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	108	161,460.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	101.40	87.822	8,905.15
16	Black Paint	Ltr	286.00	18	5,148.00
17	Yellow Colour Paint for Background	Ltr	216.00	36	7,776.00
A				**Total Cost of materials**	**1,546,107.50**

B	Stock, Storage & Insurance i.e 3% of A	46,383.23
C	**Sub Total (A+B)**	**1,592,490.73**
D	Contigency @ 3% of C	47,774.72
E	Tools & Plants @ 2% of C	31,849.81
F	Transportation @ 7.5% of C	119,436.80
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	52,594.01
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	54,061.06
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**1,898,207.14**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	9.9	64,350.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.025	13,162.50
K	**Total Civil & Services**				**77,512.50**
L	**Total (J+K)**				**1,975,719.64**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				-
N	**Sub Total (L+M)**				**1,975,719.64**
O	Total GST @ 18% of (N)				355,629.53
P	Total CESS @ 1% of (N)				19,757.20
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**2,351,106.37**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.-)	8

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole(GI)	No	56,735.71	8	453,885.71
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	76.00	520.064	39,524.86
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	97.50	84.5824	8,246.78
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	76.00	93.61152	7,114.48
5	Danger Plate, 1 no's.	No.	104.00	8	832.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	2.4072	234.70
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	24	2,496.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	9.6288	938.81
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	624.00	32	19,968.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	48	31,200.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	48	71,760.00
12	Earthing of Support (Coil Type)	No.	215.80	8	1,726.40
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	2.096	204.36
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	48	71,760.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	8	1,300.00
16	H.T. Stay set (Complete)	Set	1,365.00	8	10,920.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	8	520.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	120	11,700.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	101.40	90.48	9,174.67
20	Black Paint	Ltr	286.00	8	2,288.00
21	Yellow Colour Paint for Background	Ltr	216.00	16	3,456.00
A	**Total Cost of materials**				**749,250.78**
B	Stock, Storage & Insurance i.e 3% of A				22,477.52
C	**Sub Total (A+B)**				**771,728.30**
D	Contigency @ 3% of C				23,151.85
E	Tools & Plants @ 2% of C				14,931.10
F	Transportation @ 7.5% of C				57,879.62
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				23,375.11
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				27,905.28
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**918,971.27**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.40	28,600.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
K	**Total Civil & Services**				**52,450.00**
L	**Total (J+K)**				971,421.27
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				-
N	**Sub Total (L+M)**				**971,421.27**
O	Total GST @ 18% of (N)				174,855.83
P	Total CESS @ 1% of (N)				9,714.21
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**1,155,991.32**

33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.-)	13

MATERIALS FOR 33 KV Pin Points

Sl. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole(GI)	No	56,735.71	273	15,488,850.00
2	33 KV V cross Arm (GI) 22Kg each	No.	2,340.00	273	638,820.00
3	Top bracket 100x50x6mm GI channel (300mm each)	No.	195.00	273	53,235.00
4	Danger Plate, 1 no's.	No.	104.00	273	28,392.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	82.15	8,009.21
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	819.00	85,176.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	328.58	32,036.82
8	33KV pin insulator polymer	No.	624.00	819	511,056.00
9	Earthing of Support (Coil Type)	No.	215.80	273	58,913.40
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	71.53	6,973.79
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	101.40	395.85	40,139.19
12	232 sq.mm AAA conductor	Mtr.	203.45	40170.00	8,172,586.50
13	Crimping type Midspan Compression Joint for 148 sq.mm AAA conductor	EA	842.95	39	32,874.89
14	Black Paint	Ltr	286.00	273.0	78,078.00
15	Yellow Colour Paint for Background	Ltr	216.00	546.0	117,936.00
A				**Total Cost of materials**	**25,353,076.80**
B				Stock, Storage & Insurance i.e 3% of A	760,592.30
C				**Sub Total (A+B)**	**26,113,669.10**
D				Contigency @ 3% of C	783,410.07
E				Tools & Plants @ 2% of C	522,273.38
F				Transportation @ 7.5% of C	1,958,525.18
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	797,675.78
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,016,015.36
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**31,191,568.87**

Civil & Services

Sl. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	150.15	975,975.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	30.71	199,631.25
K				**Total Civil & Services**	**1,175,606.25**
L				**Total (J+K)**	**32,367,175.12**
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N				**Sub Total (L+M)**	**32,367,175.12**
O				Total GST @ 18% of (N)	5,826,091.52
P				Total CESS @ 1% of (N)	323,671.75
Q				**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**38,516,938.40**

6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	4,264,450.17
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	1,567,533.99
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	2,351,106.37
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	1,155,991.32
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	38,516,938.40
Q	**Gross Total Material +Services**	**47,856,020.24**
R	Inspection Fee of Over Head Line (HT) - Rs.1500 up to 1 km.	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**9,000.00**
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**47,867,270.24**

ANNEXURE-8.7

Part B:-
Installation of 2 no's 33kV RMU and Laying of 33kV UG Cable - 2 Ckm.

Standard BoQ and Estimate for 33kV, 1C 630sqmm U/G Cable along with 33kV RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (aloing with 1core spare cable) with accessories**				
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***Mtr.***	***1500***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***Mtr.***	***500***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	Mtr.	6000	1,495.47	8,972,820.00
1.2	Supply of Straight throU/Gh jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium U/G Cable kits for 1Core	Set	18	11,900.00	214,200.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	18	6,350.00	114,300.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	18	6,100.00	109,800.00
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV U/G cable	Mtr.	4356.00	357.60	1,557,705.60
2	**Supply of 33kV RMU**				
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***	***2***		
2.4	Supply of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	2,335,264.00	4,670,528.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	97.50	2,574.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,365.00	5,460.00
4	**FRTU for RMU SCADA Automation**				
a	***No. of FRTU***	***nos.***	***2***		
4.1	Pre-Wired FRTU Panel with FRTU	No.	2	121,744.00	243,488.00
4.2	Managed Layer2 Ethernet Switch (FRTU Panel)	No.	2	100,000.00	200,000.00
4.3	Networking Accessories	No.	2	72.00	144.00
4.4	CMR with Mounting Base for Digital Inputs	Nos.	64	650.00	41,600.00
4.5	Interposing Relay for Digital Output	Nos.	32	467.94	14,974.08
4.6	Battery Charger	Nos.	2	15,385.00	30,770.00
4.7	Battery	Nos.	2	8,333.00	16,666.00
4.8	4G Modem cum Router	Nos.	2	18,500.00	37,000.00
4.9	Instrumentation Cable 12 C X 0.5 mm2, Armored cable for Status and Indications	Mtr.	80	204.87	16,389.60
4.10	Instrumentation Cable 7 C X 1.5 mm2, Armored for Control Output	Mtr.	80	305.58	24,446.40
4.11	Twisted Pair Shielded & Over all shielded Instrumentation Cable	Mtr.	80	275.23	22,018.40
4.12	4 C X 2.5 mm2 Copper cable for extension of CT & PT	Mtr.	40	165.25	6,610.00
4.13	2 C X 4 mm2 Cable for DC Power Supply	Mtr.	20	150.00	3,000.00

4.14	4P X 0.36 mm2, Armored Communication Cable for MFM	Mtr.	40.0	148.43	5,937.20
4.15	Armored CAT6 SFTP Cable	Mtr.	40	45.87	1,834.80
4.16	Un-Armored CAT6 SFTP Cable	Mtr.	40	89.45	3,578.00
4.17	Multi Function Meter	Nos.	4	18,651.00	74,604.00
	Sub Total (Supply Portion) (in Rs.)				**16,390,448.08**

Erection Portion

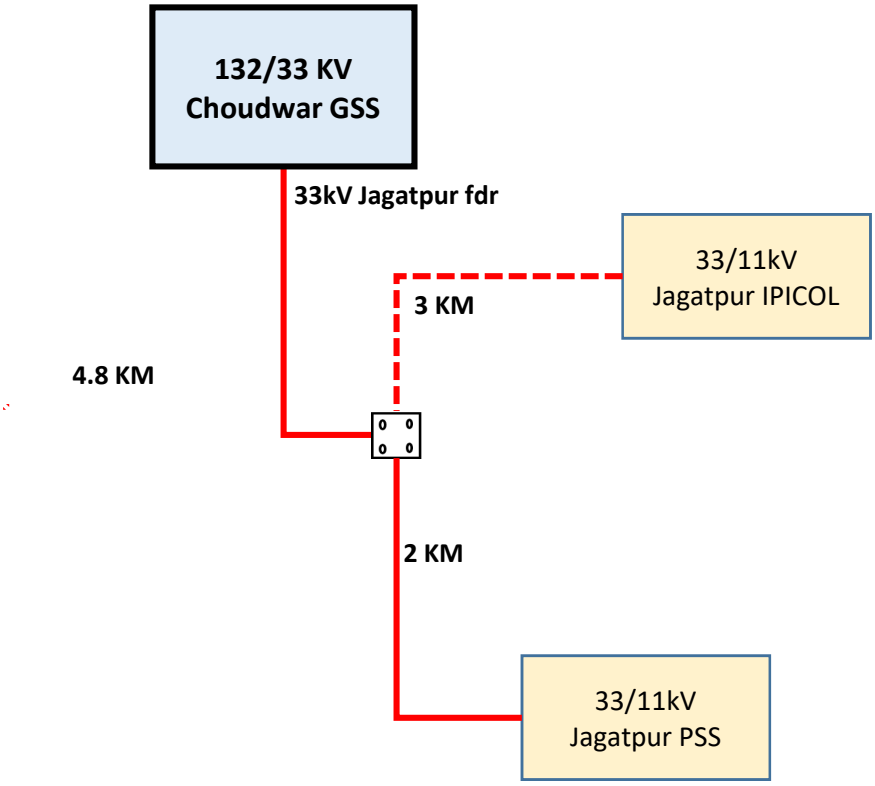
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	Mtr.	4500	94.50	425,250.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	18	2,400.00	43,200.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	18	2,081.70	37,470.60
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	18	2,081.70	37,470.60
1.5	Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE U/G cable by **HDD method with** HDPE pipe (110mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr.	1500	2,300.00	3,450,000.00
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	Mtr.	4356.00	300.00	1,306,800.00
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.4	Erection of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	8,000.00	16,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Services of FRTU Panel, Communication and Other Supplied System	EA	2.0	16,000.00	32,000.00
	Sub Total (Erection Portion) (in Rs.)				**5,348,191.20**

Civil Portion

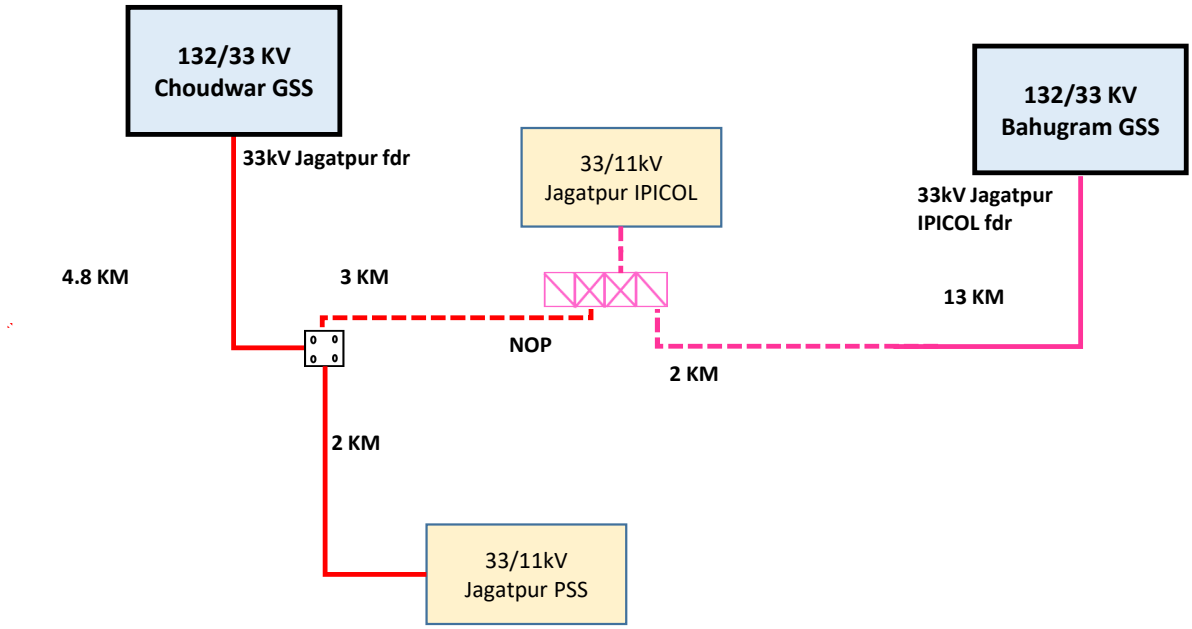
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)-Route Length	Mtr	1452		
1.1.a	Earth work excavation of **soil**	Cum	1219.68	700.00	853,776.00
1.1.b	Earth work excavation of **hard rock**	Cum	522.72	1,720.00	899,078.40
1.2	Back filling with excavated soil outside and above the trench	Cum	1742.4	202.00	351,964.80
1.3	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	Mtr	435.6	2,643.67	1,151,582.93
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	144,000.00

4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	Set	4	3,700.00	14,800.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	144	1,463.40	210,729.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	67	1,012.00	67,804.00
	Sub Total (Civil Portion) (in Rs.)				**3,740,026.33**
A	**Sub Total (Supply Portion)**				**16,390,448.08**
B	Stock, Storage & Insurance @ 3 % of A				491,713.44
C	**Sub Total (A+B)**				**16,882,161.52**
D	Contingency @ 3 % of C				506,464.85
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				53.02
F	Transportation @ 7.5% of C				1,266,162.11
G	Erection Charges @ 10% of earthing items				265.12
H	**Total (C+D+E+F+G)**				**18,655,106.63**
I	Sub Total (Erection Portion + Civil Portion)				9,088,217.53
J	**Total Cost (H+I)**				**27,743,324.16**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				-
L	**Total Estimated Capital Cost i.e. (J+K)**				**27,743,324.16**
M	GST @ 18% of L				4,993,798.35
M1	CESS @ 1% of L				277,433.24
N	**Grand Total (L+M+M1)**				**33,014,555.74**
O	Inspection Fee of UG Line (HT) - Rs. 3000/ km.				3,000.00
P	Inspection Fee of UG Line (HT) - Rs. 1500/ Additional Km				3,000.00
Q	Inspection Fee of RMU - Rs. 1500/ RMU				3,000.00
R	Inspection Fee of Drawing Checking and Approval				750.00
S	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R)**				**33,024,305.74**

Existing SLD of 33 kV Jagatpur FEEDER



Proposed SLD of 33 kV Jagatpur FEEDER



ANNEXURE-8.8			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-		**DED**	
Name of the Sub-Division : -		DHENKANAL	
Name of the Work :-		Mitigation of 33kV Overloading: Proposal for augmentation of existing 33 kV line from 4-P near Mahispat to College PSS to mitigate overloading issue & providing reliable power supply.	
Scope:-		Part A:- Augmentation of existing 33KV Line from 80 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Dhenkanal Fdr - 8 CKM (4-P near Mahispat to College PSS)	
Names of Schemes: -		TPCODL CAPEX(FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33KV Line from 80 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Dhenkanal Fdr - 8 CKM (4-P near Mahispat to College PSS)	24,390,750.69
		Total Amount	**24,390,750.69**
		Total Amount (In Cr)	**2.44**
Total estimated cost is Rs. 2.44 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.8

Part A:-

Augmentation of existing 33KV Line from 80 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Dhenkanal Fdr - 8 CKM (4-P near Mahispat to College PSS)

33kV Line Length with 40 Mtr. Span using 241 SQ.MM. -AAA Conductor

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	6

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	12	411,864.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	76.00	372.84	28,335.84
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	23.7888	2,319.41
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	76.00	419.832	31,907.23
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	76.00	370.656	28,169.86
6	Danger Plate, 2 no's.	No.	104.00	12	1,248.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	3.6108	352.05
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	12	1,950.00
9	H.T. Stay set (Complete)	Set	1,365.00	12	16,380.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	24	1,560.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	180	17,550.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	6	8,190.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	97.50	70.8	6,903.00
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	36	3,744.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	14.4432	1,408.21
16	33KV pin insulator polymer	No.	624.00	18	11,232.00
17	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	18	5,958.00
18	IPC for 241 sq.mm AAA conductor (For covered conductor)	No.	915.00	36	32,940.00
19	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	24	7,968.00
20	H W fitting(B&S)90KN,4 Bolt	No.	650.00	36	23,400.00
21	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	36	53,820.00
22	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	101.40	73.566	7,459.59
23	Black Paint	Ltr	286.00	6	1,716.00
24	Yellow Colour Paint for Background	Ltr	216.00	12	2,592.00
A				**Total Cost of materials**	**708,967.19**
B				Stock, Storage & Insurance i.e 3% of A	21,269.02
C				**Sub Total (A+B)**	**730,236.21**
D				Contigency @ 3% of C	21,907.09
E				Tools & Plants @ 2% of C	13,664.75
F				Transportation @ 7.5% of C	54,767.72
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	21,211.00
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	25,901.74
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**867,688.49**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	12	27,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	6.6	42,900.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.35	8,775.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	6	22,200.00
K				**Total Civil & Services**	**100,875.00**
L				**Total (J+K)**	968,563.49
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N				**Sub Total (L+M)**	**968,563.49**
O				Total GST @ 18% of (N)	174,341.43
P				Total CESS @ 1% of (N)	9,685.63
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**1,152,590.56**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	2

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	4	137,288.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	76.00	164.432	12,496.83
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	7.9296	773.14
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	76.00	61.404	4,666.70
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	76.00	122.808	9,333.41
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	76.00	245.616	18,666.82
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	76.00	177.372	13,480.27
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	76.00	11.424	868.22

9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	76.00	3.492	265.39
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	76.00	3.06	232.56
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	76.00	19.12	1,453.12
12	Danger Plate, 2 no's.	No.	104.00	4	416.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	1.2036	117.35
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	4	650.00
15	H.T. Stay set (Complete)	Set	1,365.00	4	5,460.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	8	520.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	60	5,850.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	4	5,460.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	97.50	113.28	11,044.80
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	12	1,248.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	4.8144	469.40
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	13,455.00	6	80,730.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	66,000.00	2	132,000.00
24	33KV pin insulator polymer	No.	624.00	6	3,744.00
25	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	6	1,986.00
26	IPC for 241 sq.mm AAA conductor (For covered conductor)	No.	915.00	12	10,980.00
27	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	8	2,656.00
28	H W fitting(B&S)90KN,4 Bolt	No.	650.00	12	7,800.00
29	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	12	17,940.00
30	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	101.40	44.3	4,492.02
31	Black Paint	Ltr	286.00	2	572.00
32	Yellow Colour Paint for Background	Ltr	216.00	4	864.00
A				**Total Cost of materials**	**494,524.04**
B				Stock, Storage & Insurance i.e 3% of A	14,835.72
C				**Sub Total (A+B)**	**509,359.76**
D				Contigency @ 3% of C	15,280.79
E				Tools & Plants @ 2% of C	9,817.63
F				Transportation @ 7.5% of C	38,201.98
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	7,070.33
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pole/PSC pole)	34,947.49
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**614,677.99**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.2	14,300.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	4	14,800.00
K				**Total Civil & Services**	**41,025.00**
L				**Total (J+K)**	655,702.99
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N				**Sub Total (L+M)**	**655,702.99**
O				Total GST @ 18% of (N)	118,026.54
P				Total CESS @ 1% of (N)	6,557.03
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**780,286.56**
No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)		5			

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	5	171,610.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	76.00	162.52	12,351.52
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	97.50	26.432	2,577.12
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	76.00	29.2536	2,223.27
5	Danger Plate, 1 no's.	No.	104.00	5	520.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	1.5045	146.69
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	15	1,560.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	6.018	586.76
9	33KV pin insulator polymer	No.	624.00	15	9,360.00
10	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	15	4,965.00
11	IPC for 241 sq.mm AAA conductor (For covered conductor)	No.	915.00	30	27,450.00
12	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	10	3,320.00
13	H W fitting(B&S)90KN,4 Bolt	No.	650.00	30	19,500.00
14	Disc insulator (B&S)90 KN polymer	No.	1,495.00	30	44,850.00
15	Earthing of Support (Coil Type)	EA	215.80	5	1,079.00
16	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	1.31	127.73
17	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	101.40	24.395	2,473.65
18	Black Paint	Ltr	286.00	5	1,430.00
19	Yellow Colour Paint for Background	Ltr	216.00	10	2,160.00
A				**Total Cost of materials**	**308,290.74**
B				Stock, Storage & Insurance i.e 3% of A	9,248.72

C	**Sub Total (A+B)**	**317,539.46**
D	Contigency @ 3% of C	9,526.18
E	Tools & Plants @ 2% of C	6,350.79
F	Transportation @ 7.5% of C	23,815.46
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	8,837.92
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	14,078.12
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**380,147.92**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.75	17,875.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.5625	3,656.25
K	**Total Civil & Services**				**21,531.25**
L	**Total (J+K)**				401,679.17
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				-
N	**Sub Total (L+M)**				**401,679.17**
O	Total GST @ 18% of (N)				72,302.25
P	Total CESS @ 1% of (N)				4,016.79
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**477,998.21**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)	3

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	3	102,966.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	76.00	195.024	14,821.82
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	97.50	31.7184	3,092.54
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	76.00	35.10432	2,667.93
5	Danger Plate, 1 no's.	No.	104.00	3	312.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	0.9027	88.01
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	9	936.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	3.6108	352.05
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	624.00	12	7,488.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	18	11,700.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	18	26,910.00
12	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	12	3,972.00
13	IPC for 241 sq.mm AAA conductor (For covered conductor)	No.	915.00	18	16,470.00
14	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	6	1,992.00
15	Earthing of Support (Coil Type)	No.	215.80	3	647.40
16	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	0.786	76.64
17	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	3	487.50
18	H.T. Stay set (Complete)	Set	1,365.00	3	4,095.00
19	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	3	195.00
20	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	45	4,387.50
21	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	101.40	33.93	3,440.50
22	Black Paint	Ltr	286.00	3	858.00
23	Yellow Colour Paint for Background	Ltr	216.00	6	1,296.00
A	**Total Cost of materials**				**209,251.90**
B	**Stock, Storage & Insurance i.e 3% of A**				6,277.56
C	**Sub Total (A+B)**				**215,529.46**
D	Contigency @ 3% of C				6,465.88
E	Tools & Plants @ 2% of C				4,121.79
F	Transportation @ 7.5% of C				16,164.71
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				5,302.75
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				10,003.45
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**257,588.04**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	1.65	10,725.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.34	2,193.75
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	3	6,750.00
K	**Total Civil & Services**				**19,668.75**
L	**Total (J+K)**				277,256.79
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				-
N	**Sub Total (L+M)**				**277,256.79**
O	Total GST @ 18% of (N)				49,906.22
P	Total CESS @ 1% of (N)				2,772.57
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**329,935.58**

33 Kv Line Length In KM with 40 Mtr. Span Ref. Drawing No.- TPCODL-HVD-0001)	8

MATERIALS FOR 33 KV Pin Points

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	104	3,569,488.00

2	33 KV V cross Arm (GI) 22Kg each	No.	2,340.00	104	243,360.00
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	195.00	104	20,280.00
4	Danger Plate, 1 no's.	No.	104.00	104	10,816.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	31.29	3,051.13
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	312.00	32,448.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	125.17	12,204.50
8	33KV pin insulator polymer	No.	624.00	312	194,688.00
9	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	312	103,272.00
10	Earthing of Support (Coil Type)	No.	215.80	104	22,443.20
11	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	27.25	2,656.68
12	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	101.40	150.80	15,291.12
13	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	208	69,056.00
14	241 sq.mm AAA conductor	Mtr.	386.00	24720.00	9,541,920.00
15	Crimping type Midspan Compression Joint for 241 sq.mm AAA conductor	EA	4,701.00	24	112,824.00
16	Black Paint	Ltr	286.00	104.0	29,744.00
17	Yellow Colour Paint for Background	Ltr	216.00	208.0	44,928.00
A				**Total Cost of materials**	**14,028,470.63**
B				Stock, Storage & Insurance i.e 3% of A	420,854.12
C				**Sub Total (A+B)**	**14,449,324.75**
D				Contigency @ 3% of C	433,479.74
E				Tools & Plants @ 2% of C	288,986.49
F				Transportation @ 7.5% of C	1,083,699.36
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	183,828.63
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,077,275.21
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**17,516,594.19**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	57.20	371,800.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	11.70	76,050.00
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	9.00	24720.00	222,480.00
4	Dismantling of ACSR/AAAC 148/232mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	Mtr.	10.80	0.00	-
K				**Total Civil & Services**	**670,330.00**
L				**Total (J+K)**	18,186,924.19
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N				**Sub Total (L+M)**	**18,186,924.19**
O				Total GST @ 18% of (N)	3,273,646.35
P				Total CESS @ 1% of (N)	181,869.24
Q				**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**21,642,439.78**

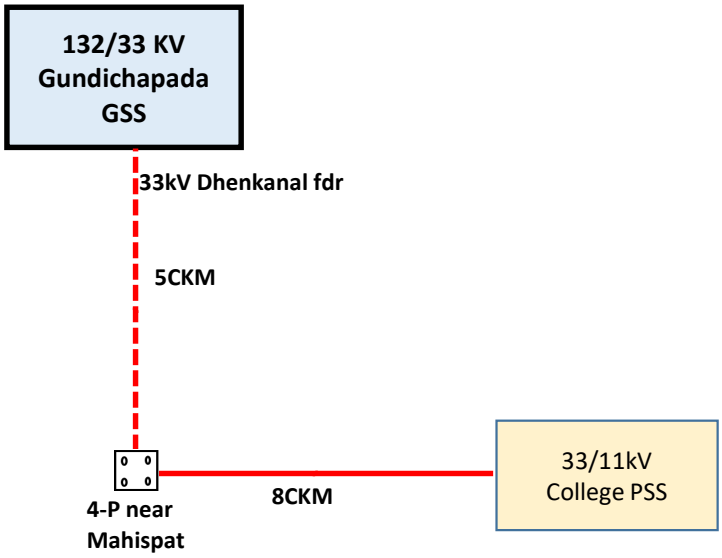
6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

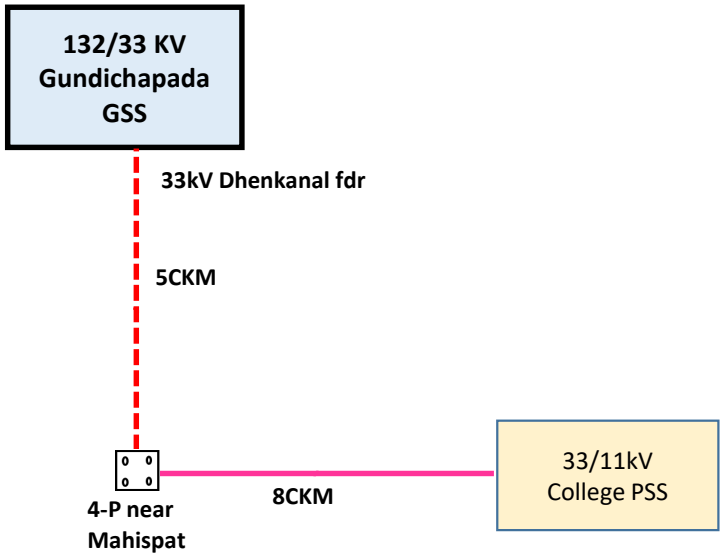
Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	1,152,590.56
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	780,286.56
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	477,998.21
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	329,935.58
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	21,642,439.78
Q	**Gross Total Material +Services**	**24,383,250.69**
R	Inspection Fee of Over Head Line (HT) - Rs. 1500 upto 1 KM	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**5,250.00**
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**24,390,750.69**

Existing SLD of 33 kV Dhenkanal FEEDER



Existing SLD of 33 kV Dhenkanal FEEDER



ANNEXURE-8.9			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**TED**	
	Name of the Sub-Division : -	CHAINPAL	
	Name of the Work :-	Mitigation of 33kV Feeder Overloading: New 33kV feeder from Puri GSS to Talabania PSS to to mitigate overloading issue & providing reliable power supply.	
	Scope of work:-	Part A:- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS) Part A:- Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS)	₹ 9,886,583.95
2	B	Part A:- Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm.	₹ 5,951,395.66
		Total Amount	**₹ 15,837,979.61**
		Total Amount (In Cr)	**1.58**
Total estimated cost is Rs. 1.58 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.9

Part A:-

Augmentation of existing 33KV Line from 55 sq.mm. AAAC to 232 sq.mm. AAAC for 33 KV Sakhigopal Fdr - 6 CKM (Satsankha PSS to Sakhigopal PSS)

33kV Line Length with 40 Mtr. Span using 241 SQ.MM. -AAA Conductor

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	4

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	8	274,576.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	76.00	248.56	18,890.56
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	15.8592	1,546.27
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	76.00	279.888	21,271.49
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	76.00	247.104	18,779.90
6	Danger Plate, 2 no's.	No.	104.00	8	832.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	2.4072	234.70
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	8	1,300.00
9	H.T. Stay set (Complete)	Set	1,365.00	8	10,920.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	16	1,040.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	120	11,700.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	4	5,460.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	97.50	47.2	4,602.00
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	24	2,496.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	9.6288	938.81
16	33KV pin insulator polymer	No.	624.00	12	7,488.00
17	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	12	3,972.00
18	IPC for 241 sq.mm AAA conductor (For covered conductor)	No.	915.00	24	21,960.00
19	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	16	5,312.00
20	H W fitting(B&S)90KN,4 Bolt	No.	650.00	24	15,600.00
21	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	24	35,880.00
22	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	101.40	49.044	4,973.06
23	Black Paint	Ltr	286.00	4	1,144.00
24	Yellow Colour Paint for Background	Ltr	216.00	8	1,728.00
A				**Total Cost of materials**	**472,644.80**
B				Stock, Storage & Insurance i.e 3% of A	14,179.34
C				**Sub Total (A+B)**	**486,824.14**
D				Contigency @ 3% of C	14,604.72
E				Tools & Plants @ 2% of C	9,109.83
F				Transportation @ 7.5% of C	36,511.81
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	14,140.66
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	17,267.83
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**578,458.99**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	4	14,800.00
K				**Total Civil & Services**	**67,250.00**
L				**Total (J+K)**	645,708.99
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N				**Sub Total (L+M)**	**645,708.99**
O				Total GST @ 18% of (N)	116,227.62
P				Total CESS @ 1% of (N)	6,457.09
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**768,393.70**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	2

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	4	137,288.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	76.00	164.432	12,496.83
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	7.9296	773.14
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	76.00	61.404	4,666.70
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	76.00	122.808	9,333.41
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	76.00	245.616	18,666.82
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	76.00	177.372	13,480.27
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	76.00	11.424	868.22

9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	76.00	3.492	265.39
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	76.00	3.06	232.56
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	76.00	19.12	1,453.12
12	Danger Plate, 2 no's.	No.	104.00	4	416.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	1.2036	117.35
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	4	650.00
15	H.T. Stay set (Complete)	Set	1,365.00	4	5,460.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	8	520.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	60	5,850.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	4	5,460.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	97.50	113.28	11,044.80
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	12	1,248.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	4.8144	469.40
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	13,455.00	6	80,730.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	66,000.00	2	132,000.00
24	33KV pin insulator polymer	No.	624.00	6	3,744.00
25	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	6	1,986.00
26	IPC for 241 sq.mm AAA conductor (For covered conductor)	No.	915.00	12	10,980.00
27	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	8	2,656.00
28	H W fitting(B&S)90KN,4 Bolt	No.	650.00	12	7,800.00
29	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	12	17,940.00
30	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	101.40	44.3	4,492.02
31	Black Paint	Ltr	286.00	2	572.00
32	Yellow Colour Paint for Background	Ltr	216.00	4	864.00
A				**Total Cost of materials**	**494,524.04**
B				Stock, Storage & Insurance i.e 3% of A	14,835.72
C				**Sub Total (A+B)**	**509,359.76**
D				Contigency @ 3% of C	15,280.79
E				Tools & Plants @ 2% of C	9,817.63
F				Transportation @ 7.5% of C	38,201.98
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	7,070.33
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pole/PSC pole)	34,947.49
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**614,677.99**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.2	14,300.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	4	14,800.00
K				**Total Civil & Services**	**41,025.00**
L				**Total (J+K)**	655,702.99
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N				**Sub Total (L+M)**	**655,702.99**
O				Total GST @ 18% of (N)	118,026.54
P				Total CESS @ 1% of (N)	6,557.03
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**780,286.56**

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)	3

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	3	102,966.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	76.00	97.512	7,410.91
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	97.50	15.8592	1,546.27
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	76.00	17.55216	1,333.96
5	Danger Plate, 1 no's.	No.	104.00	3	312.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	0.9027	88.01
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	9	936.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	3.6108	352.05
9	33KV pin insulator polymer	No.	624.00	9	5,616.00
10	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	9	2,979.00
11	IPC for 241 sq.mm AAA conductor (For covered conductor)	No.	915.00	18	16,470.00
12	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	6	1,992.00
13	H W fitting(B&S)90KN,4 Bolt	No.	650.00	18	11,700.00
14	Disc insulator (B&S)90 KN polymer	No.	1,495.00	18	26,910.00
15	Earthing of Support (Coil Type)	EA	215.80	3	647.40
16	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	0.786	76.64
17	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	101.40	14.637	1,484.19
18	Black Paint	Ltr	286.00	3	858.00
19	Yellow Colour Paint for Background	Ltr	216.00	6	1,296.00
A				**Total Cost of materials**	**184,974.44**
B				Stock, Storage & Insurance i.e 3% of A	5,549.23

C	**Sub Total (A+B)**	**190,523.67**
D	Contigency @ 3% of C	5,715.71
E	Tools & Plants @ 2% of C	3,810.47
F	Transportation @ 7.5% of C	14,289.28
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	5,302.75
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	8,446.87
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**228,088.75**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	1.65	10,725.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.3375	2,193.75
K	**Total Civil & Services**				**12,918.75**
L	**Total (J+K)**				241,007.50
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				-
N	**Sub Total (L+M)**				**241,007.50**
O	Total GST @ 18% of (N)				43,381.35
P	Total CESS @ 1% of (N)				2,410.08
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**286,798.93**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)	3

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	3	102,966.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	76.00	195.024	14,821.82
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	97.50	31.7184	3,092.54
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	76.00	35.10432	2,667.93
5	Danger Plate, 1 no's.	No.	104.00	3	312.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	0.9027	88.01
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	9	936.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	3.6108	352.05
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	624.00	12	7,488.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	18	11,700.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	18	26,910.00
12	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	12	3,972.00
13	IPC for 241 sq.mm AAA conductor (For covered conductor)	No.	915.00	18	16,470.00
14	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	6	1,992.00
15	Earthing of Support (Coil Type)	No.	215.80	3	647.40
16	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	0.786	76.64
17	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	3	487.50
18	H.T. Stay set (Complete)	Set	1,365.00	3	4,095.00
19	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	3	195.00
20	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	45	4,387.50
21	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	101.40	33.93	3,440.50
22	Black Paint	Ltr	286.00	3	858.00
23	Yellow Colour Paint for Background	Ltr	216.00	6	1,296.00
A	**Total Cost of materials**				**209,251.90**
B	**Stock, Storage & Insurance i.e 3% of A**				6,277.56
C	**Sub Total (A+B)**				**215,529.46**
D	Contigency @ 3% of C				6,465.88
E	Tools & Plants @ 2% of C				4,121.79
F	Transportation @ 7.5% of C				16,164.71
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				5,302.75
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				10,003.45
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**257,588.04**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	1.65	10,725.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.34	2,193.75
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	3	6,750.00
K	**Total Civil & Services**				**19,668.75**
L	**Total (J+K)**				277,256.79
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				-
N	**Sub Total (L+M)**				**277,256.79**
O	Total GST @ 18% of (N)				49,906.22
P	Total CESS @ 1% of (N)				2,772.57
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**329,935.58**

33 Kv Line Length In KM with 40 Mtr. Span Ref. Drawing No.- TPCODL-HVD-0001)	3

MATERIALS FOR 33 KV Pin Points

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	33	1,132,626.00

2	33 KV V cross Arm (GI) 22Kg each	No.	2,340.00	33	77,220.00
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	195.00	33	6,435.00
4	Danger Plate, 1 no's.	No.	104.00	33	3,432.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	9.93	968.15
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	99.00	10,296.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	39.72	3,872.58
8	33KV pin insulator polymer	No.	624.00	99	61,776.00
9	Non Metallic Ties 33KV (For covered conductor)	No.	331.00	99	32,769.00
10	Earthing of Support (Coil Type)	No.	215.80	33	7,121.40
11	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	8.65	842.99
12	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	101.40	47.85	4,851.99
13	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	332.00	66	21,912.00
14	241 sq.mm AAA conductor	Mtr.	386.00	9270.00	3,578,220.00
15	Crimping type Midspan Compression Joint for 241 sq.mm AAA conductor	EA	4,701.00	9	42,309.00
16	Black Paint	Ltr	286.00	33.0	9,438.00
17	Yellow Colour Paint for Background	Ltr	216.00	66.0	14,256.00
A				**Total Cost of materials**	**5,008,346.10**
B				Stock, Storage & Insurance i.e 3% of A	150,250.38
C				**Sub Total (A+B)**	**5,158,596.49**
D				Contigency @ 3% of C	154,757.89
E				Tools & Plants @ 2% of C	103,171.93
F				Transportation @ 7.5% of C	386,894.74
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	58,330.24
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	399,199.17
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**6,260,950.46**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	18.15	117,975.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.71	24,131.25
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	9.00	9270.00	83,430.00
4	Dismantling of ACSR/AAAC 148/232mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	Mtr.	10.80	0.00	-
K				**Total Civil & Services**	**225,536.25**
L				**Total (J+K)**	6,486,486.71
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N				**Sub Total (L+M)**	**6,486,486.71**
O				Total GST @ 18% of (N)	1,167,567.61
P				Total CESS @ 1% of (N)	64,864.87
Q				**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**7,718,919.18**

6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	768,393.70
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	780,286.56
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	286,798.93
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	329,935.58
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	7,718,919.18
Q	**Gross Total Material +Services**	**9,884,333.95**
R	Inspection Fee of Over Head Line (HT) - Rs. 1500 upto 1 KM	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**9,886,583.95**

ANNEXURE-8.9

Part A:-
Laying of 33kV UG Cable from OGP PSS to Gopalpur(Balikuda) PSS - 3 Ckm.

Standard BoQ and Estimate for 33kV, 1C 630sqmm U/G Cable along with 33kV RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (aloing with 1core spare cable) with accessories**				
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***Mtr.***	***500***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***Mtr.***			
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	Mtr.	1500	1,495.47	2,243,205.00
1.2	Supply of Straight throU/Gh jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium U/G Cable kits for 1Core	Set	3	11,900.00	35,700.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	6	6,350.00	38,100.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set		6,100.00	-
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV U/G cable	Mtr.	1452.00	357.60	519,235.20
2	**Supply of 33kV RMU**				
a	***No. of 33kV 3Way RMU (LLV+M)***	***nos.***			
b	***No. of 33kV 4Way RMU (LLVV+M)***	***nos.***			
c	***No. of 33kV 3Way RMU (LLV)***	***nos.***			
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***			
e	***No. of 33kV 3Way RMU (LLL)***	***nos.***			
f	***No. of 33kV 4Way RMU (LLLL)***	***nos.***			
2.1	Supply of RMU 33KV 3WAY 630A WITH METERING UNIT (LLV+M) **(CT Ratio to be mentioned)**	Nos.	0	2,293,723.00	-
2.2	Supply of RMU 33KV 4WAY 630A WITH METERING UNIT (LLVV+M) **(CT Ratio to be mentioned)**	Nos.	0	3,174,874.00	-
2.3	Supply of RMU 33KV 3WAY 630A (2ISLTR+ 1BKR) (LLV)	Nos.	0	1,787,101.00	-
2.4	Supply of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	0	2,335,264.00	-
2.5	Supply of RMU 33KV 3WAY 630AMP (3 ISOLATORS) (LLL)	Nos.	0	1,446,210.00	-
2.6	Supply of RMU 33KV 4WAY 630AMP (4 ISOLATORS) (LLLL)	Nos.	0	1,959,421.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	0.00	97.50	-
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	0	1,365.00	-
4	**FRTU for RMU SCADA Automation**				
a	***No. of FRTU***	***nos.***	***0***		
4.1	Pre-Wired FRTU Panel with FRTU	No.	0	121,744.00	-
4.2	Managed Layer2 Ethernet Switch (FRTU Panel)	No.	0	100,000.00	-
4.3	Networking Accessories	No.	0	72.00	-
4.4	CMR with Mounting Base for Digital Inputs	Nos.	0	650.00	-

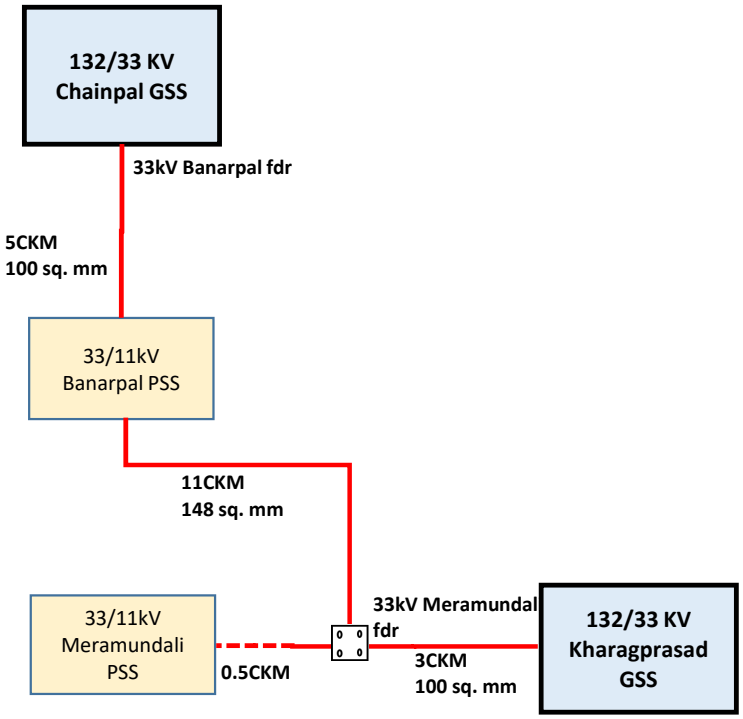
4.5	Interposing Relay for Digital Output	Nos.	0	467.94	-
4.6	Battery Charger	Nos.	0	15,385.00	-
4.7	Battery	Nos.	0	8,333.00	-
4.8	4G Modem cum Router	Nos.	0	18,500.00	-
4.9	Instrumentation Cable 12 C X 0.5 mm2, Armored cable for Status and Indications	Mtr.	0	204.87	-
4.10	Instrumentation Cable 7 C X 1.5 mm2, Armored for Control Output	Mtr.	0	305.58	-
4.11	Twisted Pair Shielded & Over all shielded Instrumentation Cable	Mtr.	0	275.23	-
4.12	4 C X 2.5 mm2 Copper cable for extension of CT & PT	Mtr.	0	165.25	-
4.13	2 C X 4 mm2 Cable for DC Power Supply	Mtr.	0	150.00	-
4.14	4P X 0.36 mm2, Armored Communication Cable for MFM	Mtr.	0.0	148.43	-
4.15	Armored CAT6 SFTP Cable	Mtr.	0	45.87	-
4.16	Un-Armored CAT6 SFTP Cable	Mtr.	0	89.45	-
4.17	Multi Function Meter	Nos.	0	18,651.00	-
	Sub Total (Supply Portion) (in Rs.)				**2,836,240.20**

Erection Portion

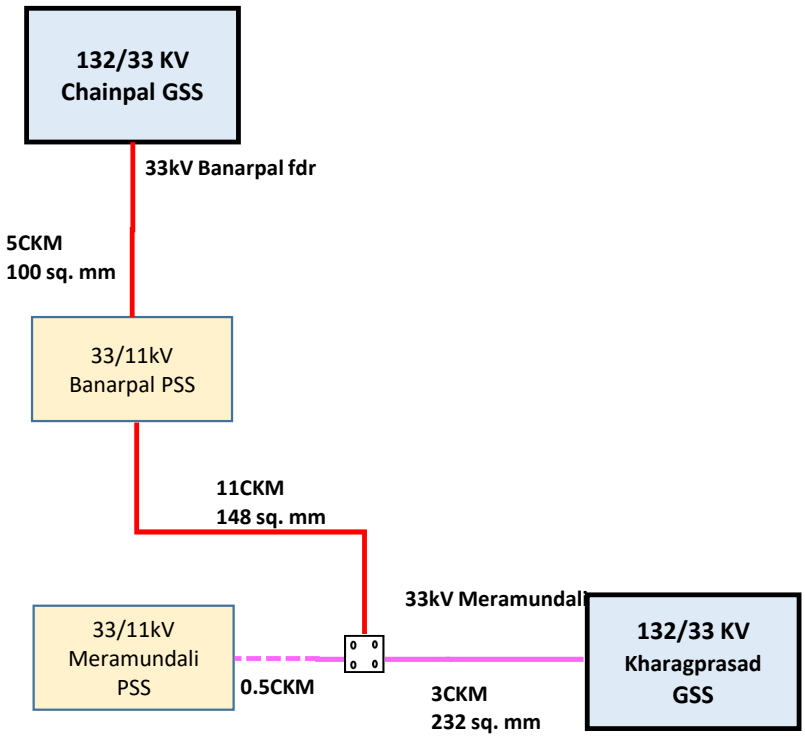
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	Mtr.	1500	94.50	141,750.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	3	2,400.00	7,200.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	6	2,081.70	12,490.20
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	0	2,081.70	-
1.5	Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE U/G cable by **HDD method with** HDPE pipe (110mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr.	0	2,300.00	-
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	Mtr.	1452.00	300.00	435,600.00
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.1	Erection of RMU 33KV 3WAY 630A WITH METERING UNIT (LLV+M)	Nos.	0	15,000.00	-
2.2	Erection of RMU 33KV 4WAY 630A WITH METERING UNIT (LLVV+M)	Nos.	0	15,000.00	-
2.3	Erection of RMU 33KV 3WAY 630A (2ISLTR+ 1BKR) (LLV)	Nos.	0	8,000.00	-
2.4	Erection of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	0	8,000.00	-
2.5	Erection of RMU 33KV 3WAY 630AMP (3 ISOLATORS) (LLL)	Nos.	0	8,000.00	-
2.6	Erection of RMU 33KV 4WAY 630AMP (4 ISOLATORS) (LLLL)	Nos.	0	8,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Services of FRTU Panel, Communication and Other Supplied System	EA	0.0	16,000.00	-
	Sub Total (Erection Portion) (in Rs.)				**597,040.20**

Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)-Route Length	Mtr	484		
1.1.a	Earth work excavation of **soil**	Cum	406.56	700.00	284,592.00
1.1.b	Earth work excavation of **hard rock**	Cum	174.24	1,720.00	299,692.80
1.2	Back filling with excavated soil outside and above the trench	Cum	580.8	202.00	117,321.60
1.3	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	Mtr	145.2	2,643.67	383,860.98
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	0	23,145.30	-
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	0	3,600.00	-
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	Set	0	3,700.00	-
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	48	1,463.40	70,243.20
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	17	1,012.00	17,204.00
	Sub Total (Civil Portion) (in Rs.)				**1,172,914.58**
A	**Sub Total (Supply Portion)**				**2,836,240.20**
B	Stock, Storage & Insurance @ 3 % of A				85,087.21
C	**Sub Total (A+B)**				**2,921,327.41**
D	Contingency @ 3 % of C				87,639.82
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				219,099.56
G	Erection Charges @ 10% of earthing items				-
H	**Total (C+D+E+F+G)**				**3,228,066.78**
I	Sub Total (Erection Portion + Civil Portion)				1,769,954.78
J	**Total Cost (H+I)**				**4,998,021.56**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				-
L	**Total Estimated Capital Cost i.e. (J+K)**				**4,998,021.56**
M	GST @ 18% of L				899,643.88
M1	CESS @ 1% of L				49,980.22
N	**Grand Total (L+M+M1)**				**5,947,645.66**
O	Inspection Fee of UG Line (HT) - Rs. 3000/ km.				3,000.00
P	Inspection Fee of UG Line (HT) - Rs. 1500/ Additional Km				
Q	Inspection Fee of RMU - Rs. 1500/ RMU				-
R	Inspection Fee of Drawing Checking and Approval				750.00
S	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R)**				**5,951,395.66**

Existing SLD of 33 kV Meramundali FEEDER



Proposed SLD of 33 kV Meramundali FEEDER



ANNEXURE-8.10			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**BED**	
	Name of the Sub-Division : -	RASULGARH	
	Name of the Work :-	Power Evacuation: Proposal for construction of 10Ckm new U/G line from Balianta GSS to Phulnakhra 33/11kV PSS and 1 no of 33kV RMU at Phulnakhra PSS for load spliting.	
	Scope of work:-	Part A:- Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Balianta GSS to Phulnakhra PSS -10 Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Balianta GSS to Phulnakhra PSS -10 Ckm.	₹ 130,254,896.50
		Total Amount	**₹ 130,254,896.50**
		Total Amount (In Cr)	**13.03**
Total estimated cost is Rs. 13.03 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.10

Part A:-
Installation of 1No's 33 kV RMU and Laying of 33kV UG Cable from Balianta GSS to Phulnakhra PSS -10 Ckm.

Standard BoQ and Estimate for 33kV, 1C 630sqmm U/G Cable along with 33kV RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (aloing with 1core spare cable) with accessories**				
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***Mtr.***	***7000***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***Mtr.***	***3000***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation U/G Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	Mtr.	30000	1,495.47	44,864,100.00
1.2	Supply of Straight throU/Gh jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium U/G Cable kits for 1Core	Set	90	11,900.00	1,071,000.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	9	6,350.00	57,150.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	9	6,100.00	54,900.00
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV U/G cable	Mtr.	20928.00	357.60	7,483,852.80
2	**Supply of 33kV RMU**				
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***	***1***		
2.4	Supply of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	1	2,335,264.00	2,335,264.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	13.20	97.50	1,287.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,365.00	2,730.00
4	**FRTU for RMU SCADA Automation**				
a	***No. of FRTU***	***nos.***	***1***		
4.1	Pre-Wired FRTU Panel with FRTU	No.	1	121,744.00	121,744.00
4.2	Managed Layer2 Ethernet Switch (FRTU Panel)	No.	1	100,000.00	100,000.00
4.3	Networking Accessories	No.	1	72.00	72.00
4.4	CMR with Mounting Base for Digital Inputs	Nos.	32	650.00	20,800.00
4.5	Interposing Relay for Digital Output	Nos.	16	467.94	7,487.04
4.6	Battery Charger	Nos.	1	15,385.00	15,385.00
4.7	Battery	Nos.	1	8,333.00	8,333.00
4.8	4G Modem cum Router	Nos.	1	18,500.00	18,500.00
4.9	Instrumentation Cable 12 C X 0.5 mm2, Armored cable for Status and Indications	Mtr.	40	204.87	8,194.80
4.10	Instrumentation Cable 7 C X 1.5 mm2, Armored for Control Output	Mtr.	40	305.58	12,223.20
4.11	Twisted Pair Shielded & Over all shielded Instrumentation Cable	Mtr.	40	275.23	11,009.20
4.12	4 C X 2.5 mm2 Copper cable for extension of CT & PT	Mtr.	20	165.25	3,305.00

4.13	2 C X 4 mm2 Cable for DC Power Supply	Mtr.	10	150.00	1,500.00
4.14	4P X 0.36 mm2, Armored Communication Cable for MFM	Mtr.	20.0	148.43	2,968.60
4.15	Armored CAT6 SFTP Cable	Mtr.	20	45.87	917.40
4.16	Un-Armored CAT6 SFTP Cable	Mtr.	20	89.45	1,789.00
4.17	Multi Function Meter	Nos.	2	18,651.00	37,302.00
	Sub Total (Supply Portion) (in Rs.)				**56,241,814.04**

Erection Portion

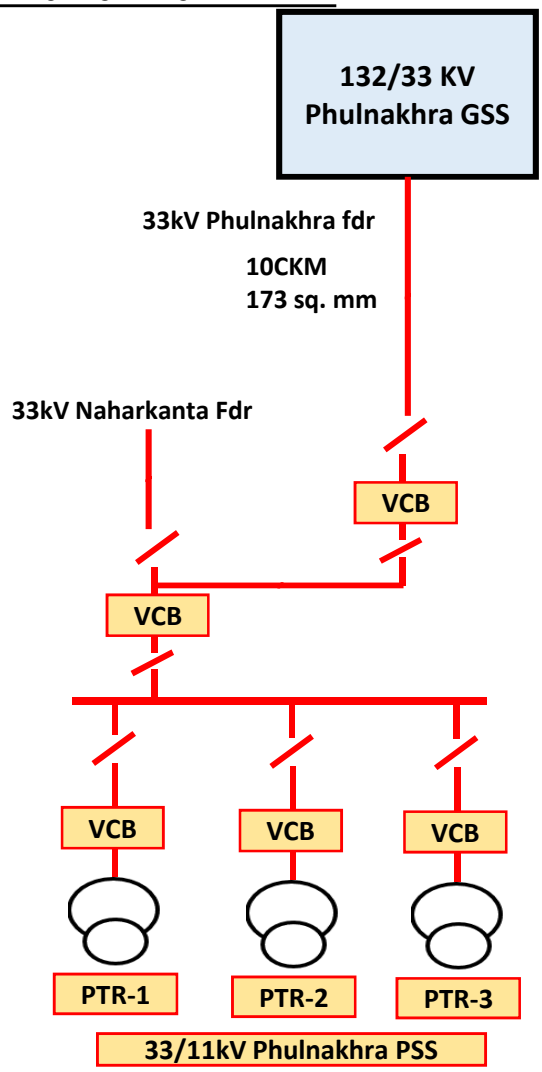
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	Mtr.	21000	94.50	1,984,500.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	90	2,400.00	216,000.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	9	2,081.70	18,735.30
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	9	2,081.70	18,735.30
1.5	Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE U/G cable by **HDD method with** HDPE pipe (110mm dia, PN8 PE80) including suply of HDPE Pipe.	Mtr.	9000	2,300.00	20,700,000.00
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	Mtr.	20928.00	300.00	6,278,400.00
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.4	Erection of RMU 33KV 4WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	1	8,000.00	8,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Services of FRTU Panel, Communication and Other Supplied System	EA	1.0	16,000.00	16,000.00
	Sub Total (Erection Portion) (in Rs.)				**29,240,370.60**

Civil Portion

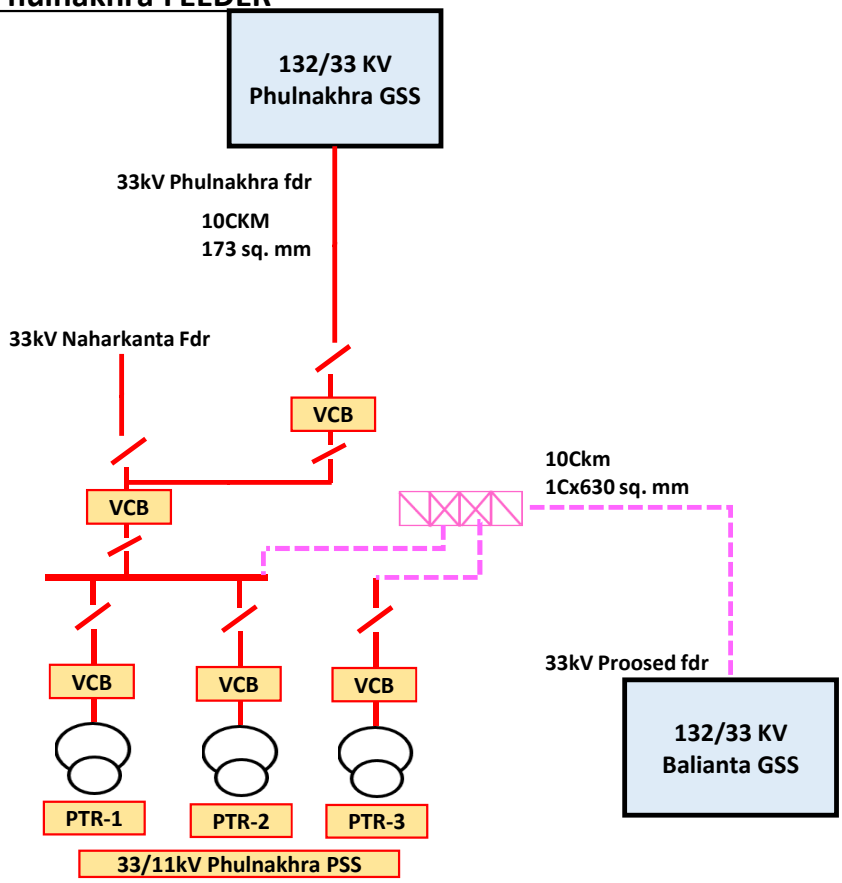
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)-Route Length	Mtr	6976		
1.1.a	Earth work excavation of **soil**	Cum	5859.84	700.00	4,101,888.00
1.1.b	Earth work excavation of **hard rock**	Cum	2511.36	1,720.00	4,319,539.20
1.2	Back filling with excavated soil outside and above the trench	Cum	8371.2	202.00	1,690,982.40
1.3	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	Mtr	2092.8	2,643.67	5,532,673.89
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	1	23,145.30	23,145.30
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	20	3,600.00	72,000.00

4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	Set	2	3,700.00	7,400.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	72	1,463.40	105,364.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	333	1,012.00	336,996.00
	Sub Total (Civil Portion) (in Rs.)				**16,189,989.59**
A	**Sub Total (Supply Portion)**				**56,241,814.04**
B	Stock, Storage & Insurance @ 3 % of A				1,687,254.42
C	**Sub Total (A+B)**				**57,929,068.46**
D	Contingency @ 3 % of C				1,737,872.05
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				26.51
F	Transportation @ 7.5% of C				4,344,680.13
G	Erection Charges @ 10% of earthing items				132.56
H	**Total (C+D+E+F+G)**				**64,011,779.72**
I	Sub Total (Erection Portion + Civil Portion)				45,430,360.19
J	**Total Cost (H+I)**				**109,442,139.92**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				-
L	**Total Estimated Capital Cost i.e. (J+K)**				**109,442,139.92**
M	GST @ 18% of L				19,699,585.19
M1	CESS @ 1% of L				1,094,421.40
N	**Grand Total (L+M+M1)**				**130,236,146.50**
O	Inspection Fee of UG Line (HT) - Rs. 3000/ km.				3,000.00
P	Inspection Fee of UG Line (HT) - Rs. 1500/ Additional Km				13,500.00
Q	Inspection Fee of RMU - Rs. 1500/ RMU				1,500.00
R	Inspection Fee of Drawing Checking and Approval				750.00
S	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R)**				**130,254,896.50**

Existing SLD of 33 kV Phulnakhra FEEDER



Proposed SLD of 33 kV Phulnakhra FEEDER



ANNEXURE-8.11			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**NED**	
	Name of the Sub-Division : -	NIMAPADA	
	Name of the Work :-	33kV Feeder Refurbishment : Proposal for Refurbishment of existing 33 kV Chhaitana Feeder from Gop PSS to Nagapur PSS to providing reliable power supply.	
	Scope of work:-	Part A:- 33kV Chhaitana Feeder Refurbishment with Conductor Augmentation (existing 55 & 80 sqmm to 232sqmm) from Gop PSS to Nagapur PSS - 7Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- 33kV Chhaitana Feeder Refurbishment with Conductor Augmentation (existing 55 & 80 sqmm to 232sqmm) from Gop PSS to Nagapur PSS - 7Ckm.	₹ 18,101,637.71
		Total Amount	**₹ 18,101,637.71**
		Total Amount (In Cr)	**1.81**
Total estimated cost is Rs. 1.81 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.11

Part A:-

33kV Chhaitana Feeder Refurbishment with Conductor Augmentation (existing 55 & 80 sqmm to 232sqmm) from Gop PSS to Nagapur PSS - 7Ckm.

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor 13 Mtr. H-Pole for Pin-Points and Cut-Points & 13 Mtr WPB Pole for DP

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	6

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	12	411,864.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	76.00	372.84	28,335.84
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	23.7888	2,319.41
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	76.00	419.832	31,907.23
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	76.00	370.656	28,169.86
6	Danger Plate, 2 no's.	No.	104.00	12	1,248.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	3.6108	352.05
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	12	1,950.00
9	H.T. Stay set (Complete)	Set	1,365.00	12	16,380.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	24	1,560.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	180	17,550.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	6	8,190.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	97.50	70.8	6,903.00
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	36	3,744.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	14.4432	1,408.21
16	33KV pin insulator polymer	No.	624.00	18	11,232.00
17	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	36	23,400.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	36	53,820.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	36	53,820.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	101.40	73.566	7,459.59
21	Black Paint	Ltr	286.00	6	1,716.00
22	Yellow Colour Paint for Background	Ltr	216.00	12	2,592.00
A				**Total Cost of materials**	**715,921.19**
B				Stock, Storage & Insurance i.e 3% of A	21,477.64
C				**Sub Total (A+B)**	**737,398.83**
D				Contigency @ 3% of C	22,121.96
E				Tools & Plants @ 2% of C	13,808.00
F				Transportation @ 7.5% of C	55,304.91
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	21,211.00
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	26,618.00
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**876,462.70**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	12	27,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	6.6	42,900.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.35	8,775.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	6	22,200.00
K				**Total Civil & Services**	**100,875.00**
L				**Total (J+K)**	977,337.70
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N				**Sub Total (L+M)**	**977,337.70**
O				Total GST @ 18% of (N)	175,920.79
P				Total CESS @ 1% of (N)	9,773.38
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**1,163,031.87**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	1

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	2	68,644.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	76.00	82.216	6,248.42
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	3.9648	386.57
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	76.00	30.702	2,333.35
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	76.00	61.404	4,666.70
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	76.00	122.808	9,333.41
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	76.00	88.686	6,740.14

8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	76.00	5.712	434.11
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	76.00	1.746	132.70
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	76.00	1.53	116.28
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	76.00	9.56	726.56
12	Danger Plate, 2 no's.	No.	104.00	2	208.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	0.6018	58.68
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	2	325.00
15	H.T. Stay set (Complete)	Set	1,365.00	2	2,730.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	4	260.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	30	2,925.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	2	2,730.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	97.50	56.64	5,522.40
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	6	624.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	2.4072	234.70
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	13,455.00	3	40,365.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	66,000.00	1	66,000.00
24	33KV pin insulator polymer	No.	624.00	3	1,872.00
25	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	6	3,900.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	6	8,970.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	6	8,970.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	101.40	22.15	2,246.01
29	Black Paint	Ltr	286.00	1	286.00
30	Yellow Colour Paint for Background	Ltr	216.00	2	432.00
A				**Total Cost of materials**	**248,421.02**
B				Stock, Storage & Insurance i.e 3% of A	7,452.63
C				**Sub Total (A+B)**	**255,873.65**
D				Contigency @ 3% of C	7,676.21
E				Tools & Plants @ 2% of C	4,932.69
F				Transportation @ 7.5% of C	19,190.52
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	3,535.17
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	17,593.12
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**308,801.36**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	1.1	7,150.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.225	1,462.50
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	2	7,400.00
K				**Total Civil & Services**	**20,512.50**
L				**Total (J+K)**	329,313.86
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N				**Sub Total (L+M)**	**329,313.86**
O				Total GST @ 18% of (N)	59,276.50
P				Total CESS @ 1% of (N)	3,293.14
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**391,883.50**

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.-)	5

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole(GI)	No	56,735.71	5	283,678.57
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	76.00	162.52	12,351.52
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	97.50	26.432	2,577.12
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	76.00	29.2536	2,223.27
5	Danger Plate, 1 no's.	No.	104.00	5	520.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	1.5045	146.69
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	15	1,560.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	6.018	586.76
9	33KV pin insulator polymer	No.	624.00	15	9,360.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	30	19,500.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	30	44,850.00
12	Earthing of Support (Coil Type)	EA	215.80	5	1,079.00
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	1.31	127.73
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	30	44,850.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	101.40	24.395	2,473.65
16	Black Paint	Ltr	286.00	5	1,430.00
17	Yellow Colour Paint for Background	Ltr	216.00	10	2,160.00
A				**Total Cost of materials**	**429,474.31**

B	Stock, Storage & Insurance i.e 3% of A	12,884.23
C	**Sub Total (A+B)**	**442,358.54**
D	Contigency @ 3% of C	13,270.76
E	Tools & Plants @ 2% of C	8,847.17
F	Transportation @ 7.5% of C	33,176.89
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	14,609.45
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,016.96
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**527,279.76**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.75	17,875.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.5625	3,656.25
K	**Total Civil & Services**				**21,531.25**
L	**Total (J+K)**				**548,811.01**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				-
N	**Sub Total (L+M)**				**548,811.01**
O	Total GST @ 18% of (N)				98,785.98
P	Total CESS @ 1% of (N)				5,488.11
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**653,085.10**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.-)	2

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole(GI)	No	56,735.71	2	113,471.43
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	76.00	130.016	9,881.22
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	97.50	21.1456	2,061.70
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	76.00	23.40288	1,778.62
5	Danger Plate, 1 no's.	No.	104.00	2	208.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	0.6018	58.68
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	6	624.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	2.4072	234.70
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	624.00	8	4,992.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	12	7,800.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	12	17,940.00
12	Earthing of Support (Coil Type)	No.	215.80	2	431.60
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	0.524	51.09
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	12	17,940.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	2	325.00
16	H.T. Stay set (Complete)	Set	1,365.00	2	2,730.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	2	130.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	30	2,925.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	101.40	22.62	2,293.67
20	Black Paint	Ltr	286.00	2	572.00
21	Yellow Colour Paint for Background	Ltr	216.00	4	864.00
A	**Total Cost of materials**				**187,312.69**
B	Stock, Storage & Insurance i.e 3% of A				5,619.38
C	**Sub Total (A+B)**				**192,932.08**
D	Contigency @ 3% of C				5,787.96
E	Tools & Plants @ 2% of C				3,732.78
F	Transportation @ 7.5% of C				14,469.91
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				5,843.78
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				6,976.32
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**229,742.82**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	1.10	7,150.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	2	4,500.00
K	**Total Civil & Services**				**13,112.50**
L	**Total (J+K)**				242,855.32
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				-
N	**Sub Total (L+M)**				**242,855.32**
O	Total GST @ 18% of (N)				43,713.96
P	Total CESS @ 1% of (N)				2,428.55
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**288,997.83**

33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.-)	7

MATERIALS FOR 33 KV Pin Points

Sl. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole(GI)	No	56,735.71	91	5,162,950.00
2	33 KV V cross Arm (GI) 22Kg each	No.	2,340.00	91	212,940.00
3	Top bracket 100x50x6mm GI channel (300mm each)	No.	195.00	91	17,745.00
4	Danger Plate, 1 no's.	No.	104.00	91	9,464.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	27.38	2,669.74
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	273.00	28,392.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	109.53	10,678.94
8	33KV pin insulator polymer	No.	624.00	273	170,352.00
9	Earthing of Support (Coil Type)	No.	215.80	91	19,637.80
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	23.84	2,324.60
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	101.40	131.95	13,379.73
12	232 sq.mm AAA conductor	Mtr.	203.45	21630.00	4,400,623.50
13	Crimping type Midspan Compression Joint for 148 sq.mm AAA conductor	EA	842.95	21	17,701.87
14	Black Paint	Ltr	286.00	91.0	26,026.00
15	Yellow Colour Paint for Background	Ltr	216.00	182.0	39,312.00
A				**Total Cost of materials**	**10,134,197.17**
B				Stock, Storage & Insurance i.e 3% of A	304,025.92
C				**Sub Total (A+B)**	**10,438,223.08**
D				Contigency @ 3% of C	313,146.69
E				Tools & Plants @ 2% of C	208,764.46
F				Transportation @ 7.5% of C	782,866.73
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	265,891.93
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	512,038.46
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**12,520,931.35**

Civil & Services

Sl. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	50.05	325,325.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	10.24	66,543.75
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	9.00	21630.00	194,670.00
4	Dismantling of ACSR/AAAC 148/232mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	Mtr.	10.80	0.00	-
K				**Total Civil & Services**	**586,538.75**
L				**Total (J+K)**	**13,107,470.10**
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N				**Sub Total (L+M)**	**13,107,470.10**
O				Total GST @ 18% of (N)	2,359,344.62
P				Total CESS @ 1% of (N)	131,074.70
Q				**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**15,597,889.42**

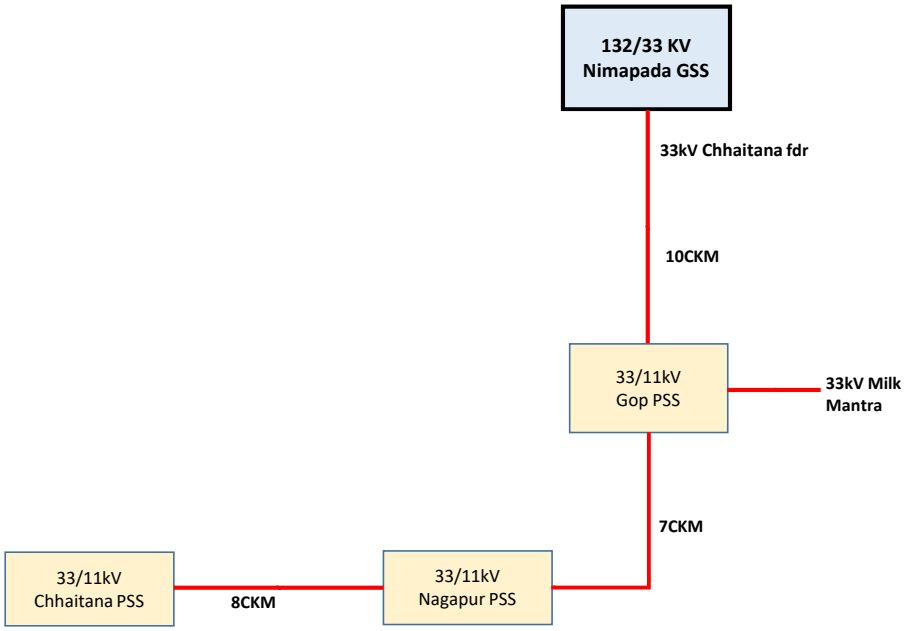
6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

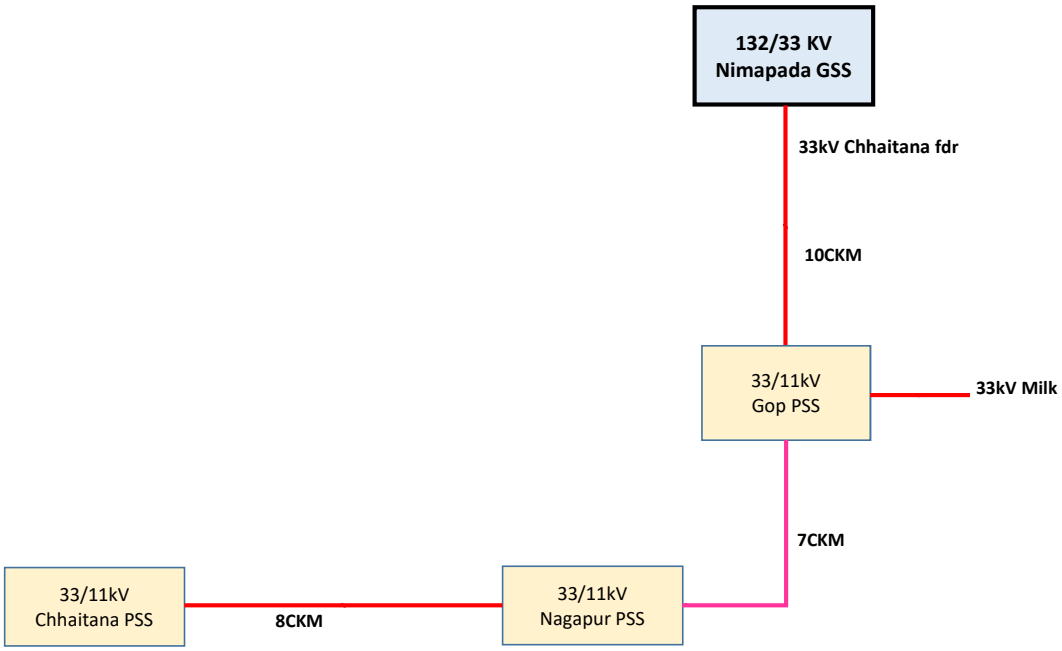
Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	1,163,031.87
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	391,883.50
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	653,085.10
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	288,997.83
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	15,597,889.42
Q	**Gross Total Material +Services**	**18,094,887.71**
R	Inspection Fee of Over Head Line (HT) - Rs.1500 up to 1 km.	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**4,500.00**
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**18,101,637.71**

Existing SLD of 33 kV Chhaitana FEEDER



Proposed SLD of 33 kV Chaitana FEEDER



ANNEXURE-8.12			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**NYED**	
	Name of the Sub-Division : -	Dasapalla	
	Name of the Work :-	33kV Feeder Refurbishment : Proposal for Refurbishment of existing 33 kV Daspalla Feeder from Nuagaon PSS to Daspalla PSS to providing reliable power supply.	
	Scope of work:-	Part A:- 33kV Daspalla Feeder Refurbishment with Conductor Augmentation (existing 34/55 sqmm to 232sqmm) from Nuagaon PSS to Daspalla PSS - 5Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- 33kV Daspalla Feeder Refurbishment with Conductor Augmentation (existing 34/55 sqmm to 232sqmm) from Nuagaon PSS to Daspalla PSS - 5Ckm.	₹ 10,716,089.25
		Total Amount	**₹ 10,716,089.25**
		Total Amount (In Cr)	**1.07**
Total estimated cost is Rs. 1.07 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.12

Part A:-

33kV Daspalla Feeder Refurbishment with Conductor Augmentation (existing 34/55 sqmm to 232sqmm) from Nuagaon PSS to Daspalla PSS - 5Ckm.

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	4

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's DP without Isolator*	*No. of DP Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	2	4	34,322.00	8	274,576.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	62.14	4	76.00	248.56	18,890.56
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.96	4	97.50	15.8592	1,546.27
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	69.97	4	76.00	279.888	21,271.49
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	61.78	4	76.00	247.104	18,779.90
6	Danger Plate, 2 no's.	No.	2	4	104.00	8	832.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.60	4	97.50	2.4072	234.70
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	2	4	162.50	8	1,300.00
9	H.T. Stay set (Complete)	Set	2	4	1,365.00	8	10,920.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	4	4	65.00	16	1,040.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	30	4	97.50	120	11,700.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1	4	1,365.00	4	5,460.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	11.80	4	97.50	47.2	4,602.00
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	6	4	104.00	24	2,496.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.41	4	97.50	9.6288	938.81
16	33KV pin insulator polymer	No.	3	4	624.00	12	7,488.00
17	H W fitting(B&S) 90KN,4 Bolt	No.	6	4	650.00	24	15,600.00
18	Disc insulator (B&S) 90 KN polymer	No.	6	4	1,495.00	24	35,880.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	6	4	1,495.00	24	35,880.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	12.26	4	101.40	49.044	4,973.06
21	Black Paint	Ltr	1	4	286.00	4	1,144.00
22	Yellow Colour Paint for Background	Ltr	2	4	216.00	8	1,728.00
A						**Total Cost of materials**	**477,280.80**
B						Stock, Storage & Insurance i.e 3% of A	14,318.42
C						**Sub Total (A+B)**	**491,599.22**
D						Contigency @ 3% of C	14,747.98
E						Tools & Plants @ 2% of C	9,205.33
F						Transportation @ 7.5% of C	36,869.94
G						Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	14,140.66
H						Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	17,745.33
I						Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J						**Sum of (C to I)**	**584,308.47**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's DP without Isolator*	*No. of DP Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2	4	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	1.10	4	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.23	4	6,500.00	0.9	5,850.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	1	4	3,700.00	4	14,800.00
K						**Total Civil & Services**	**67,250.00**
L						**Total (J+K)**	651,558.47
M						Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N						**Sub Total (L+M)**	**651,558.47**
O						Total GST @ 18% of (N)	117,280.52
P						Total CESS @ 1% of (N)	6,515.58
Q						**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**775,354.58**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	1

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's DP with Isolator*	*No. of DP Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	2	1	34,322.00	2	68,644.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	82.22	1	76.00	82.216	6,248.42
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	3.96	1	97.50	3.9648	386.57
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	30.70	1	76.00	30.702	2,333.35
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	61.40	1	76.00	61.404	4,666.70
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	122.81	1	76.00	122.808	9,333.41
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.69	1	76.00	88.686	6,740.14
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	5.71	1	76.00	5.712	434.11

9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	1.75	1	76.00	1.746	132.70
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	1.53	1	76.00	1.53	116.28
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	9.56	1	76.00	9.56	726.56
12	Danger Plate, 2 no's.	No.	2	1	104.00	2	208.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	0.60	1	97.50	0.6018	58.68
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	2	1	162.50	2	325.00
15	H.T. Stay set (Complete)	Set	2	1	1,365.00	2	2,730.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	4	1	65.00	4	260.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	30	1	97.50	30	2,925.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	2	1	1,365.00	2	2,730.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	56.64	1	97.50	56.64	5,522.40
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	6	1	104.00	6	624.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	2.41	1	97.50	2.4072	234.70
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	3.00	1	13,455.00	3	40,365.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	1	1	66,000.00	1	66,000.00
24	33KV pin insulator polymer	No.	3	1	624.00	3	1,872.00
25	H W fitting(B&S) 90KN,4 Bolt	No.	6	1	650.00	6	3,900.00
26	Disc insulator (B&S) 90 KN polymer	No.	6	1	1,495.00	6	8,970.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	6	1	1,495.00	6	8,970.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	22.15	1	101.40	22.15	2,246.01
29	Black Paint	Ltr	1	1	286.00	1	286.00
30	Yellow Colour Paint for Background	Ltr	2	1	216.00	2	432.00
A						**Total Cost of materials**	**248,421.02**
B						Stock, Storage & Insurance i.e 3% of A	7,452.63
C						**Sub Total (A+B)**	**255,873.65**
D						Contigency @ 3% of C	7,676.21
E						Tools & Plants @ 2% of C	4,932.69
F						Transportation @ 7.5% of C	19,190.52
G						Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	3,535.17
H						Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pole/PSC pole)	17,593.12
I						Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J						**Sum of (C to I)**	**308,801.36**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's DP with Isolator*	*No. of DP Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2	1	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	1.10	1	6,500.00	1.1	7,150.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.23	1	6,500.00	0.225	1,462.50
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	2	1	3,700.00	2	7,400.00
K						**Total Civil & Services**	**20,512.50**
L						**Total (J+K)**	329,313.86
M						Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N						**Sub Total (L+M)**	**329,313.86**
O						Total GST @ 18% of (N)	59,276.50
P						Total CESS @ 1% of (N)	3,293.14
Q						**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**391,883.50**

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)	3

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's 180 deg. Cut Point*	*No. of Cut Point Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	1	3	34,322.00	3	102,966.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	32.50	3	76.00	97.512	7,410.91
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	5.29	3	97.50	15.8592	1,546.27
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	5.85	3	76.00	17.55216	1,333.96
5	Danger Plate, 1 no's.	No.	1	3	104.00	3	312.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.30	3	97.50	0.9027	88.01
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	3	3	104.00	9	936.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	1.20	3	97.50	3.6108	352.05
9	33KV pin insulator polymer	No.	3	3	624.00	9	5,616.00
10	H W fitting(B&S)90KN,4 Bolt	No.	6	3	650.00	18	11,700.00
11	Disc insulator (B&S)90 KN polymer	No.	6	3	1,495.00	18	26,910.00
12	Earthing of Support (Coil Type)	EA	1	3	215.80	3	647.40
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	0.262	3	97.50	0.786	76.64
14	PG Clamp for 232 sq.mm AAA conductor	NO.	6	3	1,495.00	18	26,910.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	4.88	3	101.40	14.637	1,484.19
16	Black Paint	Ltr	1	3	286.00	3	858.00
17	Yellow Colour Paint for Background	Ltr	2	3	216.00	6	1,296.00
A						**Total Cost of materials**	**190,443.44**
B						Stock, Storage & Insurance i.e 3% of A	5,713.30
C						**Sub Total (A+B)**	**196,156.74**
D						Contigency @ 3% of C	5,884.70
E						Tools & Plants @ 2% of C	3,923.13

F	Transportation @ 7.5% of C	14,711.76
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	5,302.75
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	9,010.18
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**234,989.26**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's 180 deg. Cut Point*	*No. of Cut Point Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	0.55	3	6,500.00	1.65	10,725.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.11	3	6,500.00	0.3375	2,193.75
K	**Total Civil & Services**						**12,918.75**
L	**Total (J+K)**						247,908.01
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)						-
N	**Sub Total (L+M)**						**247,908.01**
O	Total GST @ 18% of (N)						44,623.44
P	Total CESS @ 1% of (N)						2,479.08
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**						**295,010.54**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)	2

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's 90 deg. Cut Point*	*No. of Cut Point Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	1	2	34,322.00	2	68,644.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	65.01	2	76.00	130.016	9,881.22
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	10.57	2	97.50	21.1456	2,061.70
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	11.70	2	76.00	23.40288	1,778.62
5	Danger Plate, 1 no's.	No.	1	2	104.00	2	208.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	0.30	2	97.50	0.6018	58.68
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	3	2	104.00	6	624.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	1.20	2	97.50	2.4072	234.70
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	4	2	624.00	8	4,992.00
10	H W fitting(B&S)90KN,4 Bolt	No.	6	2	650.00	12	7,800.00
11	Disc insulator (B&S)90 KN polymer	No.	6	2	1,495.00	12	17,940.00
12	Earthing of Support (Coil Type)	No.	1	2	215.80	2	431.60
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	0.262	2	97.50	0.524	51.09
14	PG Clamp for 232 sq.mm AAA conductor	NO.	6	2	1,495.00	12	17,940.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	1	2	162.50	2	325.00
16	H.T. Stay set (Complete)	Set	1	2	1,365.00	2	2,730.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	1	2	65.00	2	130.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	15	2	97.50	30	2,925.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	11.31	2	101.40	22.62	2,293.67
20	Black Paint	Ltr	1	2	286.00	2	572.00
21	Yellow Colour Paint for Background	Ltr	2	2	216.00	4	864.00
A	**Total Cost of materials**						**142,485.27**
B	**Stock, Storage & Insurance i.e 3% of A**						4,274.56
C	**Sub Total (A+B)**						**146,759.82**
D	Contigency @ 3% of C						4,402.79
E	Tools & Plants @ 2% of C						2,809.33
F	Transportation @ 7.5% of C						11,006.99
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole						3,535.17
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)						6,976.32
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv						-
J	**Sum of (C to I)**						**175,490.42**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 No's 90 deg. Cut Point*	*No. of Cut Point Requirment*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	0.55	2	6,500.00	1.10	7,150.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.11	2	6,500.00	0.23	1,462.50
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	1	2	2,250.00	2	4,500.00
K	**Total Civil & Services**						**13,112.50**
L	**Total (J+K)**						188,602.92
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)						-
N	**Sub Total (L+M)**						**188,602.92**
O	Total GST @ 18% of (N)						33,948.53
P	Total CESS @ 1% of (N)						1,886.03
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**						**224,437.48**

33 Kv Line Length In KM with 40 Mtr. Span Ref. Drawing No.- TPCODL-HVD-0001)	5

MATERIALS FOR 33 KV Pin Points

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 KM Line*	*Line Length in KM*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	21	5	34,322.00	65	2,230,930.00
2	33 KV V cross Arm (GI) 22Kg each	No.	21	5	2,340.00	65	152,100.00
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	21	5.00	195.00	65	12,675.00
4	Danger Plate, 1 no's.	No.	21	5	104.00	65	6,760.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	6.32	5	97.50	19.56	1,906.95

6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	63	5	104.00	195.00	20,280.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	25.28	5	97.50	78.23	7,627.82
8	33KV pin insulator polymer	No.	63	5	624.00	195	121,680.00
9	Earthing of Support (Coil Type)	No.	21	5	215.80	65	14,027.00
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	5.502	5	97.50	17.03	1,660.43
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	30	5	101.40	94.25	9,556.95
12	232 sq.mm AAA conductor	Mtr.	3090.00	5	203.45	15450.00	3,143,302.50
14	Black Paint	Ltr	21	5	286.00	65.0	18,590.00
15	Yellow Colour Paint for Background	Ltr	42	5	216.00	130.0	28,080.00
A						**Total Cost of materials**	**5,769,176.64**
B						Stock, Storage & Insurance i.e 3% of A	173,075.30
C						**Sub Total (A+B)**	**5,942,251.94**
D						Contigency @ 3% of C	178,267.56
E						Tools & Plants @ 2% of C	118,845.04
F						Transportation @ 7.5% of C	445,668.90
G						Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	114,892.90
H						Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	364,439.40
I						Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J						**Sum of (C to I)**	**7,164,365.74**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Quantity for 1 KM Line*	*Line Length in KM*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	11.55	5	6,500.00	35.75	232,375.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	2.36	5	6,500.00	7.31	47,531.25
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	3000.00	5	9.00	15450.00	139,050.00
4	Dismantling of ACSR/AAAC 148/232mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	Mtr.	3000.00	5	10.80	0.00	-
K						**Total Civil & Services**	**418,956.25**
L						**Total (J+K)**	7,583,321.99
M						Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N						**Sub Total (L+M)**	**7,583,321.99**
O						Total GST @ 18% of (N)	1,364,997.96
P						Total CESS @ 1% of (N)	75,833.22
Q						**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**9,024,153.16**

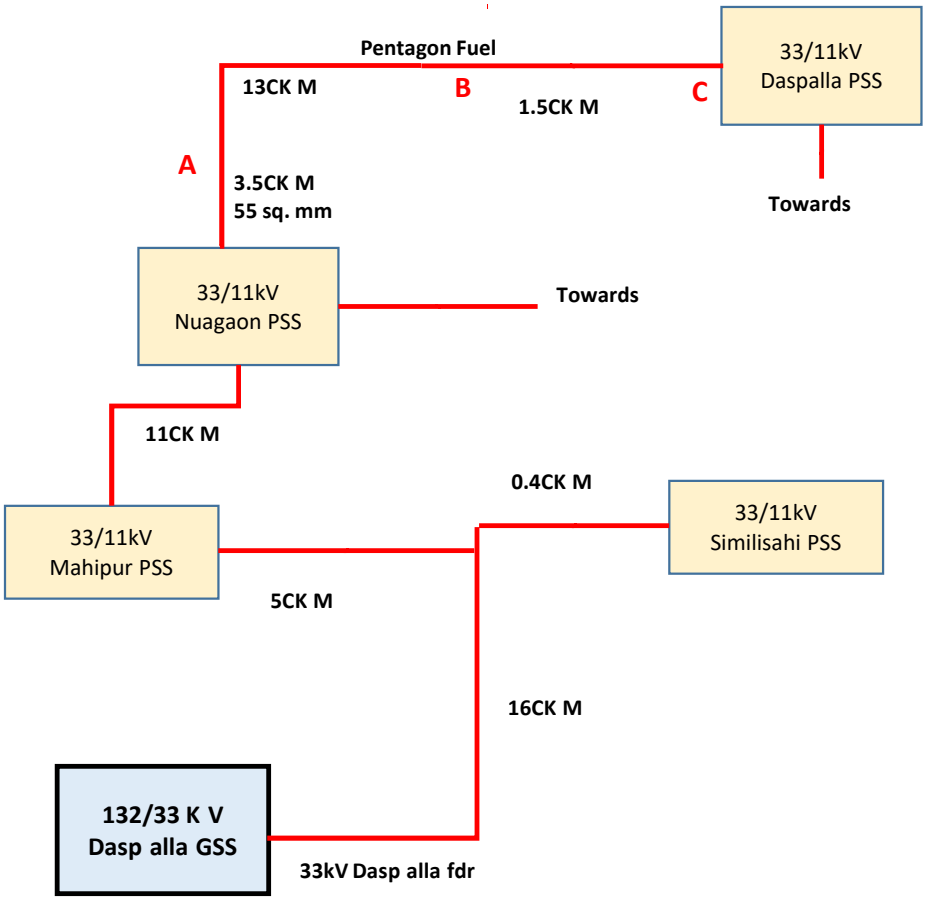
6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

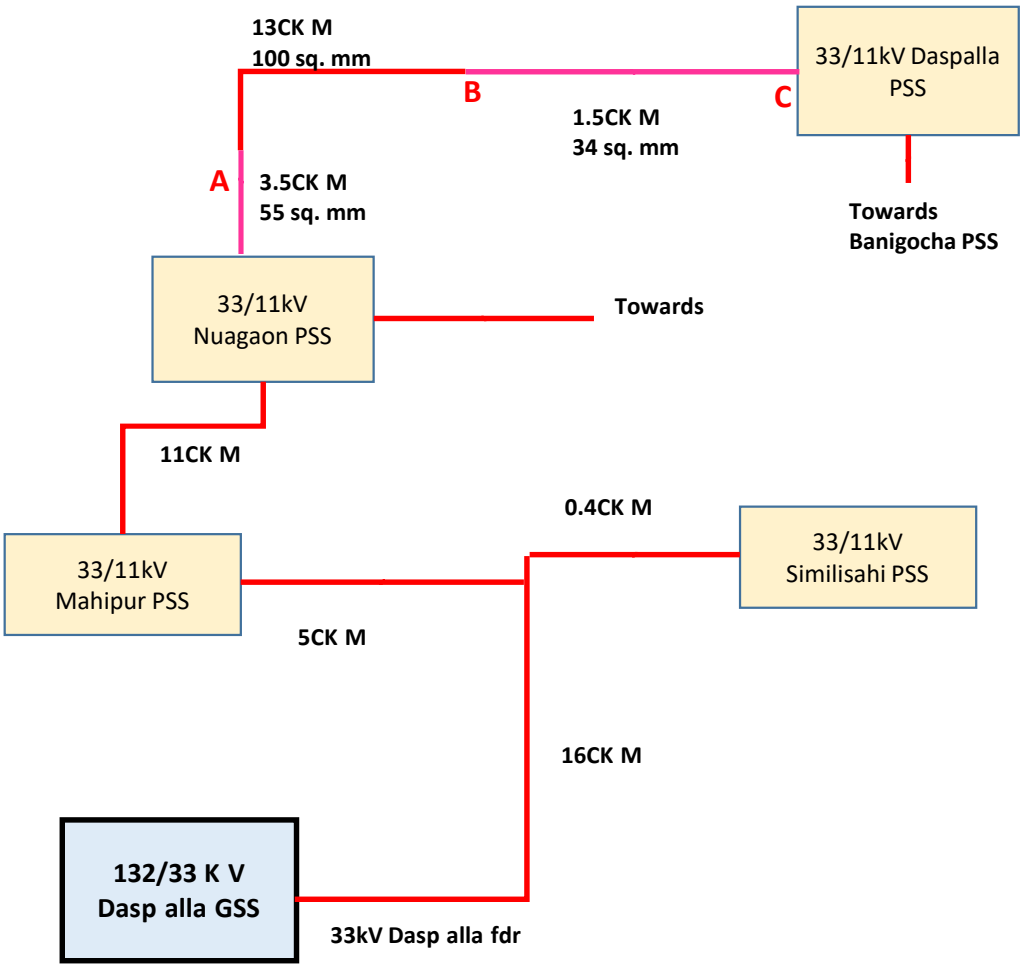
Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	775,354.58
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	391,883.50
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	295,010.54
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	224,437.48
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	9,024,153.16
Q	**Gross Total Material +Services**	**10,710,839.25**
R	Inspection Fee of Over Head Line (HT) - Rs.1500 up to 1 km.	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**3,000.00**
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**10,716,089.25**

Existing SLD of 33 kV Dasp alla FEEDER



Prop osed SLD of 33 kV Dasp alla FEEDER



ANNEXURE-8.13			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**KED-I**	
	Name of the Sub-Division : -	KENDRAPARA	
	Name of the Work :-	33kV Feeder Refurbishment : Proposal for Refurbishment of existing 33 kV Danpur Feeder from Danpur PSS to Koru PSS to providing reliable power supply.	
	Scope of work:-	Part A:- 33kV Danpur Feeder Refurbishment with Augmentation of existing 33KV Line from 34/55/80 sq.mm. AAAC to 232 sq.mm. AAAC - 9 CKM (Danpur PSS to Koru PSS)	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- 33kV Danpur Feeder Refurbishment with Augmentation of existing 33KV Line from 34/55/80 sq.mm. AAAC to 232 sq.mm. AAAC - 9 CKM (Danpur PSS to Koru PSS)	₹ 24,134,175.05
		Total Amount	**₹ 24,134,175.05**
		Total Amount (In Cr)	**2.41**
Total estimated cost is Rs. 2.41 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.13

Part A:-

33kV Danpur Feeder Refurbishment with Augmentation of existing 33KV Line from 34/55/80 sq.mm. AAAC to 232 sq.mm. AAAC - 9 CKM (Danpur PSS to Koru PSS)

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	14

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	28	961,016.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	76.00	869.96	66,116.96
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	55.5072	5,411.95
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	76.00	979.608	74,450.21
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	76.00	864.864	65,729.66
6	Danger Plate, 2 no's.	No.	104.00	28	2,912.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	8.4252	821.46
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	28	4,550.00
9	H.T. Stay set (Complete)	Set	1,365.00	28	38,220.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	56	3,640.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	420	40,950.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	14	19,110.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	97.50	165.2	16,107.00
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	84	8,736.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	33.7008	3,285.83
16	33KV pin insulator polymer	No.	624.00	42	26,208.00
17	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	84	54,600.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	84	125,580.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	84	125,580.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	101.40	171.654	17,405.72
21	Black Paint	Ltr	286.00	14	4,004.00
22	Yellow Colour Paint for Background	Ltr	216.00	28	6,048.00
A				**Total Cost of materials**	**1,670,482.78**
B				Stock, Storage & Insurance i.e 3% of A	50,114.48
C				**Sub Total (A+B)**	**1,720,597.27**
D				Contigency @ 3% of C	51,617.92
E				Tools & Plants @ 2% of C	32,218.66
F				Transportation @ 7.5% of C	129,044.80
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	49,492.32
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	62,108.67
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**2,045,079.64**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	28	63,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	15.4	100,100.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.15	20,475.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	14	51,800.00
K				**Total Civil & Services**	**235,375.00**
L				**Total (J+K)**	2,280,454.64
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N				**Sub Total (L+M)**	**2,280,454.64**
O				Total GST @ 18% of (N)	410,481.83
P				Total CESS @ 1% of (N)	22,804.55
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**2,713,741.02**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	4

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	8	274,576.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	76.00	328.864	24,993.66
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	15.8592	1,546.27
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	76.00	122.808	9,333.41
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	76.00	245.616	18,666.82
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	76.00	491.232	37,333.63
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	76.00	354.744	26,960.54
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	76.00	22.848	1,736.45

9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	76.00	6.984	530.78
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	76.00	6.12	465.12
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	76.00	38.24	2,906.24
12	Danger Plate, 2 no's.	No.	104.00	8	832.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	2.4072	234.70
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	8	1,300.00
15	H.T. Stay set (Complete)	Set	1,365.00	8	10,920.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	16	1,040.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	120	11,700.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	8	10,920.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	97.50	226.56	22,089.60
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	24	2,496.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	9.6288	938.81
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	13,455.00	12	161,460.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	66,000.00	4	264,000.00
24	33KV pin insulator polymer	No.	624.00	12	7,488.00
25	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	24	15,600.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	24	35,880.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	24	35,880.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	101.40	88.6	8,984.04
29	Black Paint	Ltr	286.00	4	1,144.00
30	Yellow Colour Paint for Background	Ltr	216.00	8	1,728.00
A				**Total Cost of materials**	**993,684.08**
B				Stock, Storage & Insurance i.e 3% of A	29,810.52
C				**Sub Total (A+B)**	**1,023,494.60**
D				Contigency @ 3% of C	30,704.84
E				Tools & Plants @ 2% of C	19,730.76
F				Transportation @ 7.5% of C	76,762.10
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	14,140.66
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pole/PSC pole)	70,372.49
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,235,205.45**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	8	29,600.00
K				**Total Civil & Services**	**82,050.00**
L				**Total (J+K)**	1,317,255.45
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N				**Sub Total (L+M)**	**1,317,255.45**
O				Total GST @ 18% of (N)	237,105.98
P				Total CESS @ 1% of (N)	13,172.55
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**1,567,533.99**

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)	10

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	10	343,220.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	76.00	325.04	24,703.04
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	97.50	52.864	5,154.24
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	76.00	58.5072	4,446.55
5	Danger Plate, 1 no's.	No.	104.00	10	1,040.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	3.009	293.38
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	30	3,120.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	12.036	1,173.51
9	33KV pin insulator polymer	No.	624.00	30	18,720.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	60	39,000.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	60	89,700.00
12	Earthing of Support (Coil Type)	EA	215.80	10	2,158.00
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	2.62	255.45
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	60	89,700.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	101.40	48.79	4,947.31
16	Black Paint	Ltr	286.00	10	2,860.00
17	Yellow Colour Paint for Background	Ltr	216.00	20	4,320.00
A				**Total Cost of materials**	**634,811.47**
B				Stock, Storage & Insurance i.e 3% of A	19,044.34
C				**Sub Total (A+B)**	**653,855.81**
D				Contigency @ 3% of C	19,615.67
E				Tools & Plants @ 2% of C	13,077.12

F	Transportation @ 7.5% of C	49,039.19
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	17,675.83
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	30,033.92
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**783,297.54**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	5.5	35,750.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.125	7,312.50
K	**Total Civil & Services**				**43,062.50**
L	**Total (J+K)**				826,360.04
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				-
N	**Sub Total (L+M)**				**826,360.04**
O	Total GST @ 18% of (N)				148,744.81
P	Total CESS @ 1% of (N)				8,263.60
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**983,368.45**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)	8

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	8	274,576.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	76.00	520.064	39,524.86
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	97.50	84.5824	8,246.78
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	76.00	93.61152	7,114.48
5	Danger Plate, 1 no's.	No.	104.00	8	832.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	2.4072	234.70
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	24	2,496.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	9.6288	938.81
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	624.00	32	19,968.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	48	31,200.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	48	71,760.00
12	Earthing of Support (Coil Type)	No.	215.80	8	1,726.40
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	2.096	204.36
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	48	71,760.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	8	1,300.00
16	H.T. Stay set (Complete)	Set	1,365.00	8	10,920.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	8	520.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	120	11,700.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	101.40	90.48	9,174.67
20	Black Paint	Ltr	286.00	8	2,288.00
21	Yellow Colour Paint for Background	Ltr	216.00	16	3,456.00
A	**Total Cost of materials**				**569,941.07**
B	**Stock, Storage & Insurance i.e 3% of A**				17,098.23
C	**Sub Total (A+B)**				**587,039.30**
D	Contigency @ 3% of C				17,611.18
E	Tools & Plants @ 2% of C				11,237.32
F	Transportation @ 7.5% of C				44,027.95
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				14,140.66
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				27,905.28
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**701,961.69**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.40	28,600.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
K	**Total Civil & Services**				**52,450.00**
L	**Total (J+K)**				754,411.69
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				-
N	**Sub Total (L+M)**				**754,411.69**
O	Total GST @ 18% of (N)				135,794.10
P	Total CESS @ 1% of (N)				7,544.12
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**897,749.91**

33 Kv Line Length In KM with 40 Mtr. Span Ref. Drawing No.- TPCODL-HVD-0001)	9

MATERIALS FOR 33 KV Pin Points

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	144	4,942,368.00
2	33 KV V cross Arm (GI) 22Kg each	No.	2,340.00	144	336,960.00
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	195.00	144	28,080.00
4	Danger Plate, 1 no's.	No.	104.00	144	14,976.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	43.33	4,224.64

6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	432.00	44,928.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	173.32	16,898.54
8	33KV pin insulator polymer	No.	624.00	432	269,568.00
9	Earthing of Support (Coil Type)	No.	215.80	144	31,075.20
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	37.73	3,678.48
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	101.40	208.80	21,172.32
12	232 sq.mm AAA conductor	Mtr.	203.45	27810.00	5,657,944.50
14	Black Paint	Ltr	286.00	144.0	41,184.00
15	Yellow Colour Paint for Background	Ltr	216.00	288.0	62,208.00
A				**Total Cost of materials**	**11,475,265.68**
B				Stock, Storage & Insurance i.e 3% of A	344,257.97
C				**Sub Total (A+B)**	**11,819,523.65**
D				Contigency @ 3% of C	354,585.71
E				Tools & Plants @ 2% of C	236,390.47
F				Transportation @ 7.5% of C	886,464.27
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	254,531.95
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	672,888.46
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**14,224,384.52**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	79.20	514,800.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	16.20	105,300.00
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	9.00	27810.00	250,290.00
4	Dismantling of ACSR/AAAC 148/232mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	Mtr.	10.80	0.00	-
K				**Total Civil & Services**	**870,390.00**
L				**Total (J+K)**	15,094,774.52
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N				**Sub Total (L+M)**	**15,094,774.52**
O				Total GST @ 18% of (N)	2,717,059.41
P				Total CESS @ 1% of (N)	150,947.75
Q				**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**17,962,781.68**

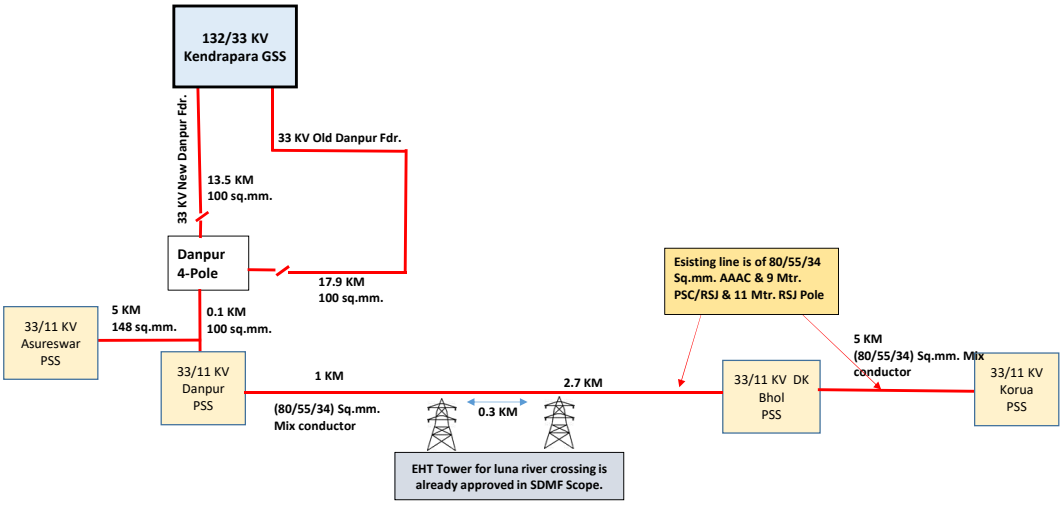
6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

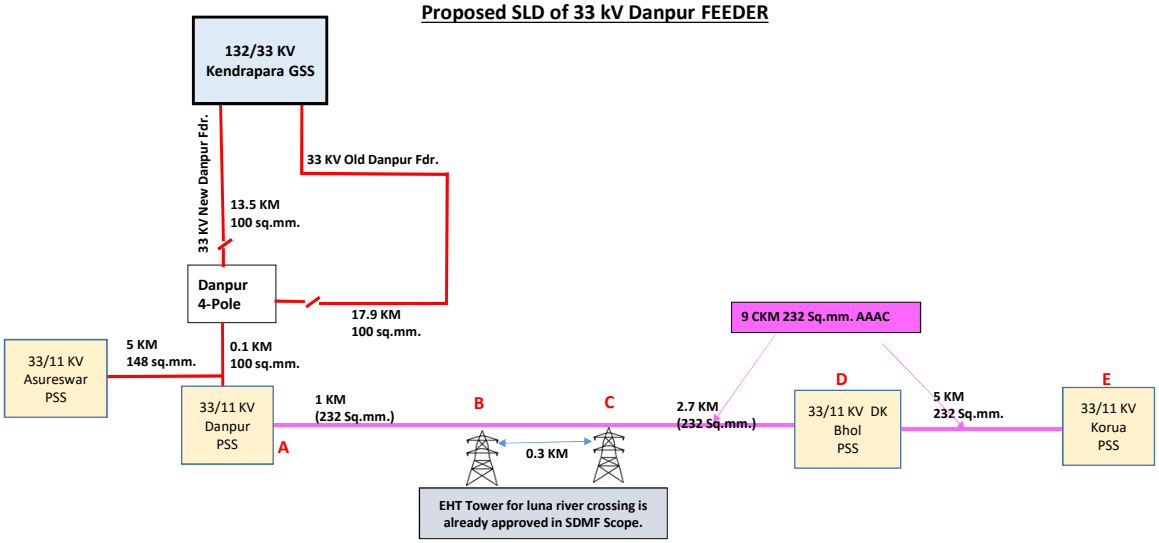
Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	2,713,741.02
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	1,567,533.99
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	983,368.45
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	897,749.91
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	17,962,781.68
Q	**Gross Total Material +Services**	**24,125,175.05**
R	Inspection Fee of Over Head Line (HT) - Rs.1500 up to 1 km.	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**6,750.00**
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**24,134,175.05**

Existing SLD of 33 kV Danpur FEEDER



Proposed SLD of 33 kV Danpur FEEDER



ANNEXURE-8.14			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**KED-I**	
	Name of the Sub-Division : -	Kendrapada	
	Name of the Work :-	33kV Feeder Refurbishment : Proposal for Refurbishment of existing 33 kV Indupur Feeder from Kendrapada GSS to Indupur and Chhata PSS to providing reliable power supply.	
	Scope of work:-	Part A:- 33kV Indupur Feeder Refurbishment with Conductor Augmentation (from existing 55 & 80 sqmm to 232sqmm) from Kendrapada GSS to Indupur and Chhata PSS - 19Ckm.	
	Names of Schemes: -	TPCODL CAPEX (FY 24-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Part A:- 33kV Indupur Feeder Refurbishment with Conductor Augmentation (from existing 55 & 80 sqmm to 232sqmm) from Kendrapada GSS to Indupur and Chhata PSS - 19Ckm.	₹ 46,769,865.15
		Total Amount	**₹ 46,769,865.15**
		Total Amount (In Cr)	**4.68**
Total estimated cost is Rs. 4.68 Crore. (On TPCODL Capex Scheme)			

ANNEXURE-8.14

Part A:-

33kV Indupur Feeder Refurbishment with Conductor Augmentation (from existing 55 & 80 sqmm to 232sqmm) from Kendrapada GSS to Indupur and Chhata PSS - 19Ckm.

33kV Line Length with 40 Mtr. Span using 232 SQ.MM. -AAA Conductor

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)	15

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	30	1,029,660.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	76.00	932.1	70,839.60
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	59.472	5,798.52
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	76.00	1049.58	79,768.08
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	76.00	926.64	70,424.64
6	Danger Plate, 2 no's.	No.	104.00	30	3,120.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	9.027	880.13
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	30	4,875.00
9	H.T. Stay set (Complete)	Set	1,365.00	30	40,950.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	60	3,900.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	450	43,875.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	15	20,475.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	97.50	177	17,257.50
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	90	9,360.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	36.108	3,520.53
16	33KV pin insulator polymer	No.	624.00	45	28,080.00
17	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	90	58,500.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	90	134,550.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	90	134,550.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	101.40	183.915	18,648.98
21	Black Paint	Ltr	286.00	15	4,290.00
22	Yellow Colour Paint for Background	Ltr	216.00	30	6,480.00
A				**Total Cost of materials**	**1,789,802.98**
B				Stock, Storage & Insurance i.e 3% of A	53,694.09
C				**Sub Total (A+B)**	**1,843,497.07**
D				Contigency @ 3% of C	55,304.91
E				Tools & Plants @ 2% of C	34,520.00
F				Transportation @ 7.5% of C	138,262.28
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	53,027.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pipe/PSC pole)	66,545.00
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**2,191,156.75**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	30	67,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	16.5	107,250.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.375	21,937.50
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	15	55,500.00
K				**Total Civil & Services**	**252,187.50**
L				**Total (J+K)**	2,443,344.25
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
N				**Sub Total (L+M)**	**2,443,344.25**
O				Total GST @ 18% of (N)	439,801.97
P				Total CESS @ 1% of (N)	24,433.44
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**2,907,579.66**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-TCE-0001)	4

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	8	274,576.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	76.00	328.864	24,993.66
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	97.50	15.8592	1,546.27
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	76.00	122.808	9,333.41
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	76.00	245.616	18,666.82
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	76.00	491.232	37,333.63
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	76.00	354.744	26,960.54
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	76.00	22.848	1,736.45

9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	76.00	6.984	530.78
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	76.00	6.12	465.12
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	76.00	38.24	2,906.24
12	Danger Plate, 2 no's.	No.	104.00	8	832.00
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	97.50	2.4072	234.70
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	8	1,300.00
15	H.T. Stay set (Complete)	Set	1,365.00	8	10,920.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	16	1,040.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	120	11,700.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,365.00	8	10,920.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	97.50	226.56	22,089.60
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	24	2,496.00
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	97.50	9.6288	938.81
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	13,455.00	12	161,460.00
23	33 KV 1250 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	66,000.00	4	264,000.00
24	33KV pin insulator polymer	No.	624.00	12	7,488.00
25	H W fitting(B&S) 90KN,4 Bolt	No.	650.00	24	15,600.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,495.00	24	35,880.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	24	35,880.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	101.40	88.6	8,984.04
29	Black Paint	Ltr	286.00	4	1,144.00
30	Yellow Colour Paint for Background	Ltr	216.00	8	1,728.00
A				**Total Cost of materials**	**993,684.08**
B				Stock, Storage & Insurance i.e 3% of A	29,810.52
C				**Sub Total (A+B)**	**1,023,494.60**
D				Contigency @ 3% of C	30,704.84
E				Tools & Plants @ 2% of C	19,730.76
F				Transportation @ 7.5% of C	76,762.10
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	14,140.66
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/GI Pole/PSC pole)	70,372.49
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,235,205.45**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
4	Construction Earthing chamber including installation of earthing pipe.Making earthing chamber including excavation , soil treatment with bentonide powder , calculation of earth resistance, including Installation of 3Mtr GI Pipe 40mm/50mm including welding of GI flat around pipe .	No.	3,700.00	8	29,600.00
K				**Total Civil & Services**	**82,050.00**
L				**Total (J+K)**	1,317,255.45
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
N				**Sub Total (L+M)**	**1,317,255.45**
O				Total GST @ 18% of (N)	237,105.98
P				Total CESS @ 1% of (N)	13,172.55
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**1,567,533.99**

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)	14

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	14	480,508.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	76.00	455.056	34,584.26
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	97.50	74.0096	7,215.94
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	76.00	81.91008	6,225.17
5	Danger Plate, 1 no's.	No.	104.00	14	1,456.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	4.2126	410.73
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	42	4,368.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	16.8504	1,642.91
9	33KV pin insulator polymer	No.	624.00	42	26,208.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	84	54,600.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	84	125,580.00
12	Earthing of Support (Coil Type)	EA	215.80	14	3,021.20
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	3.668	357.63
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	84	125,580.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	101.40	68.306	6,926.23
16	Black Paint	Ltr	286.00	14	4,004.00
17	Yellow Colour Paint for Background	Ltr	216.00	28	6,048.00
A				**Total Cost of materials**	**888,736.06**
B				Stock, Storage & Insurance i.e 3% of A	26,662.08
C				**Sub Total (A+B)**	**915,398.14**
D				Contigency @ 3% of C	27,461.94
E				Tools & Plants @ 2% of C	18,307.96

F	Transportation @ 7.5% of C	68,654.86
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	24,746.16
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	42,047.49
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**1,096,616.56**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	7.7	50,050.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.575	10,237.50
K				**Total Civil & Services**	**60,287.50**
L				**Total (J+K)**	1,156,904.06
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				-
N				**Sub Total (L+M)**	**1,156,904.06**
O				Total GST @ 18% of (N)	208,242.73
P				Total CESS @ 1% of (N)	11,569.04
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**1,376,715.83**

No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)	5

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	5	171,610.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	76.00	325.04	24,703.04
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	97.50	52.864	5,154.24
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	76.00	58.5072	4,446.55
5	Danger Plate, 1 no's.	No.	104.00	5	520.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	1.5045	146.69
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	15	1,560.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	6.018	586.76
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	624.00	20	12,480.00
10	H W fitting(B&S)90KN,4 Bolt	No.	650.00	30	19,500.00
11	Disc insulator (B&S)90 KN polymer	No.	1,495.00	30	44,850.00
12	Earthing of Support (Coil Type)	No.	215.80	5	1,079.00
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	1.31	127.73
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,495.00	30	44,850.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	162.50	5	812.50
16	H.T. Stay set (Complete)	Set	1,365.00	5	6,825.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	65.00	5	325.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	97.50	75	7,312.50
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	101.40	56.55	5,734.17
20	Black Paint	Ltr	286.00	5	1,430.00
21	Yellow Colour Paint for Background	Ltr	216.00	10	2,160.00
A				**Total Cost of materials**	**356,213.17**
B				**Stock, Storage & Insurance i.e 3% of A**	10,686.39
C				**Sub Total (A+B)**	**366,899.56**
D				Contigency @ 3% of C	11,006.99
E				Tools & Plants @ 2% of C	7,023.33
F				Transportation @ 7.5% of C	27,517.47
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	8,837.92
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	17,440.80
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**438,726.06**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.75	17,875.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.56	3,656.25
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	5	11,250.00
K				**Total Civil & Services**	**32,781.25**
L				**Total (J+K)**	471,507.31
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				-
N				**Sub Total (L+M)**	**471,507.31**
O				Total GST @ 18% of (N)	84,871.32
P				Total CESS @ 1% of (N)	4,715.07
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**561,093.70**

33 Kv Line Length In KM with 40 Mtr. Span Ref. Drawing No.- TPCODL-HVD-0001)	19

MATERIALS FOR 33 KV Pin Points

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB (GI) Pole 160x152 (13Mtr. Long, 30.44KG/Mtr.)	No	34,322.00	342	11,738,124.00
2	33 KV V cross Arm (GI) 22Kg each	No.	2,340.00	342	800,280.00
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	195.00	342	66,690.00
4	Danger Plate, 1 no's.	No.	104.00	342	35,568.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	97.50	102.91	10,033.51

6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	104.00	1026.00	106,704.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	97.50	411.63	40,134.04
8	33KV pin insulator polymer	No.	624.00	1026	640,224.00
9	Earthing of Support (Coil Type)	No.	215.80	342	73,803.60
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	97.50	89.60	8,736.39
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	101.40	495.90	50,284.26
12	232 sq.mm AAA conductor	Mtr.	203.45	58710.00	11,944,549.50
14	Black Paint	Ltr	286.00	342.0	97,812.00
15	Yellow Colour Paint for Background	Ltr	216.00	684.0	147,744.00
A				**Total Cost of materials**	**25,760,687.30**
B				Stock, Storage & Insurance i.e 3% of A	772,820.62
C				**Sub Total (A+B)**	**26,533,507.92**
D				Contigency @ 3% of C	796,005.24
E				Tools & Plants @ 2% of C	530,670.16
F				Transportation @ 7.5% of C	1,990,013.09
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	604,513.39
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,444,324.02
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**31,899,033.82**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	188.10	1,222,650.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	38.48	250,087.50
3	Dismantling of ACSR/AAAC 80/100 mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/site store	Mtr.	9.00	58710.00	528,390.00
4	Dismantling of ACSR/AAAC 148/232mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	Mtr.	10.80	0.00	-
K				**Total Civil & Services**	**2,001,127.50**
L				**Total (J+K)**	33,900,161.32
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
N				**Sub Total (L+M)**	**33,900,161.32**
O				Total GST @ 18% of (N)	6,102,029.04
P				Total CESS @ 1% of (N)	339,001.61
Q				**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**40,341,191.97**

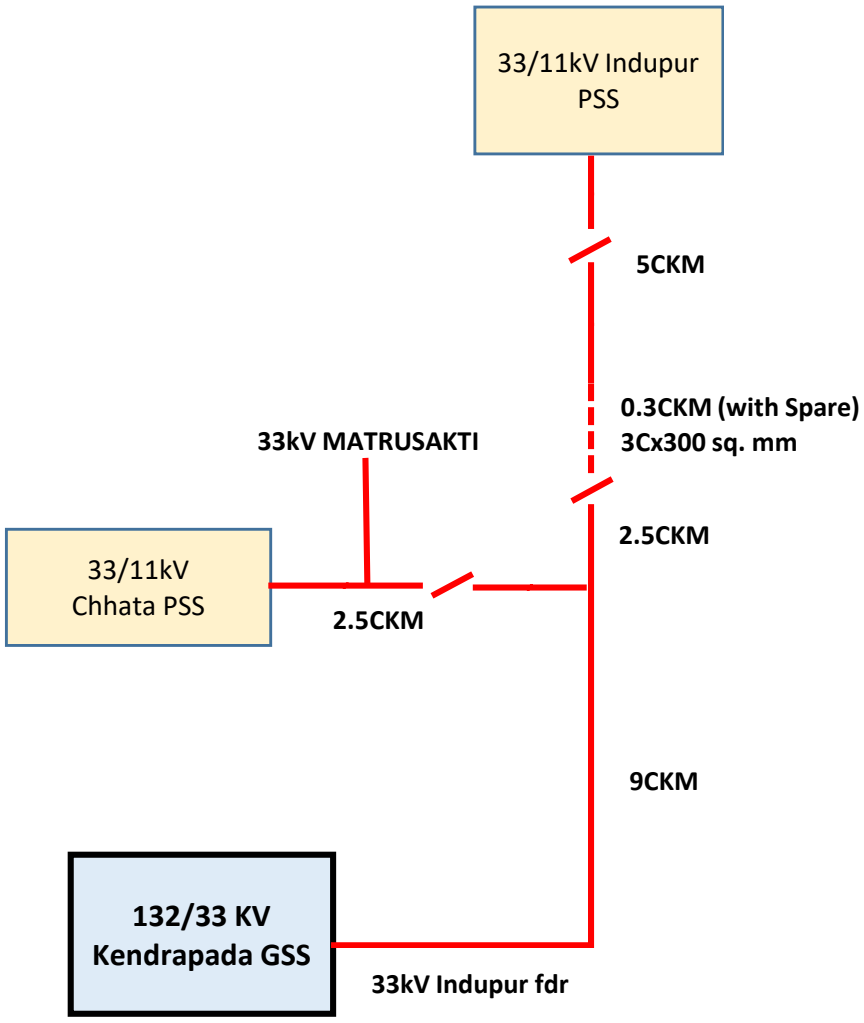
6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	-
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	-
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	-
	Total (6% supervision charges)	**-**

Gross Total Summary

1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	2,907,579.66
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	1,567,533.99
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	1,376,715.83
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	561,093.70
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	40,341,191.97
Q	**Gross Total Material +Services**	**46,754,115.15**
R	Inspection Fee of Over Head Line (HT) - Rs.1500 up to 1 km.	1,500.00
S	Inspection Fee of Over Head Line (HT) - Rs. 750/ Additional Km	**13,500.00**
T	Inspection Fee of Drawing Checking and Approval	750.00
U	**Gross Total Material, Services and Inspection Fees (Q+R+S+T)**	**46,769,865.15**

Existing SLD of 33 kV Indupur FEEDER



Proposed SLD of 33 kV Indupur FEEDER

