ANNEXURE-12

POWER TRANSFORMER AUGMENTATION

ANNEXURE-12

Power Transformer Augmentation

Overloading of PTR is an alarming issue and need immediate attention for implementing mitigation proposals. PTR overloading issue can be mitigated by replacement of existing PTR with higher rating of PTR.

Since the priority of PTR overloading is very high we have prioritized & considered wherein PTR loading is greater than 70% in 2years timeline. Approx. costing is given below:

Summary of Proposal Details for PTR Augmentation:

Annexure-12 Power Transformer Augmentation							
Sl. No.	**Name of Circle**	**Name of Division**	**Name of 33/11kV PSS**	**PTR No.**	**Proposal Details**	**Amount (in cr.)**	**Annexure**
1	BBSR-1	BCDD-2	NAYAPALLI	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 12.5MVA to 25MVA at Nayapalli 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5.57	Annexure-12.1
2	BBSR-1	BCDD-2	KANAN VIHAR	PTR-1	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 25MVA at Kanan Vihar 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5.57	Annexure-12.2
3	BBSR-1	BED	MULAPADIA	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Mulapadia 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5.57	Annexure-12.3
4	BBSR-1	BED	PANDRA	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Pandra 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5.57	Annexure-12.4
5	BBSR-1	BED	PHULNAKHARA	PTR-1	Augmentation of 01no. Power Transformer (PTR-1) from 5MVA to 25MVA at Phulnakhara 33/11kV PSS with other civil works along with installation of 33kV and 11kV Switch panel board and construction of new Control Room.	6.92	Annexure-12.5

Annexure-12 Power Transformer Augmentation							
Sl. No.	**Name of Circle**	**Name of Division**	**Name of 33/11kV PSS**	**PTR No.**	**Proposal Details**	**Amount (in cr.)**	**Annexure**
6	BBSR-1	BED	Lingipur	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Lingipur 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5.57	Annexure-12.6
7	CUTTACK	CDD-1	KALINGA	PTR-3	Augmentation of 01no. Power Transformer (PTR-3) from 12.5MVA to 25MVA at Kalinga 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5.57	Annexure-12.7
8	CUTTACK	CDD-2	OGP	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at 33/11kV OGP PSS with other civil works.	2.32	Annexure-12.8
9	CUTTACK	CED	CHOUDWAR	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at 33/11kV Choudwar PSS with other civil works.	2.32	Annexure-12.9
10	BBSR-2	KHD	KHORDHA TOWN/ 10-POLE	PTR-1	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 16MVA at 33/11kV Khordha Town/ 10-Pole PSS with other civil works.	2.32	Annexure-12.10
TOTAL						**47.32**	

1.0 Augmentation of Power Transformer at NAYAPALLI Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 12.5MVA Power Transformer (PTR-2) to 25MVA at Nayapalli 33/11kV Substation in BCDD-2 division of BBSR-1 circle to mitigate overloading condition.

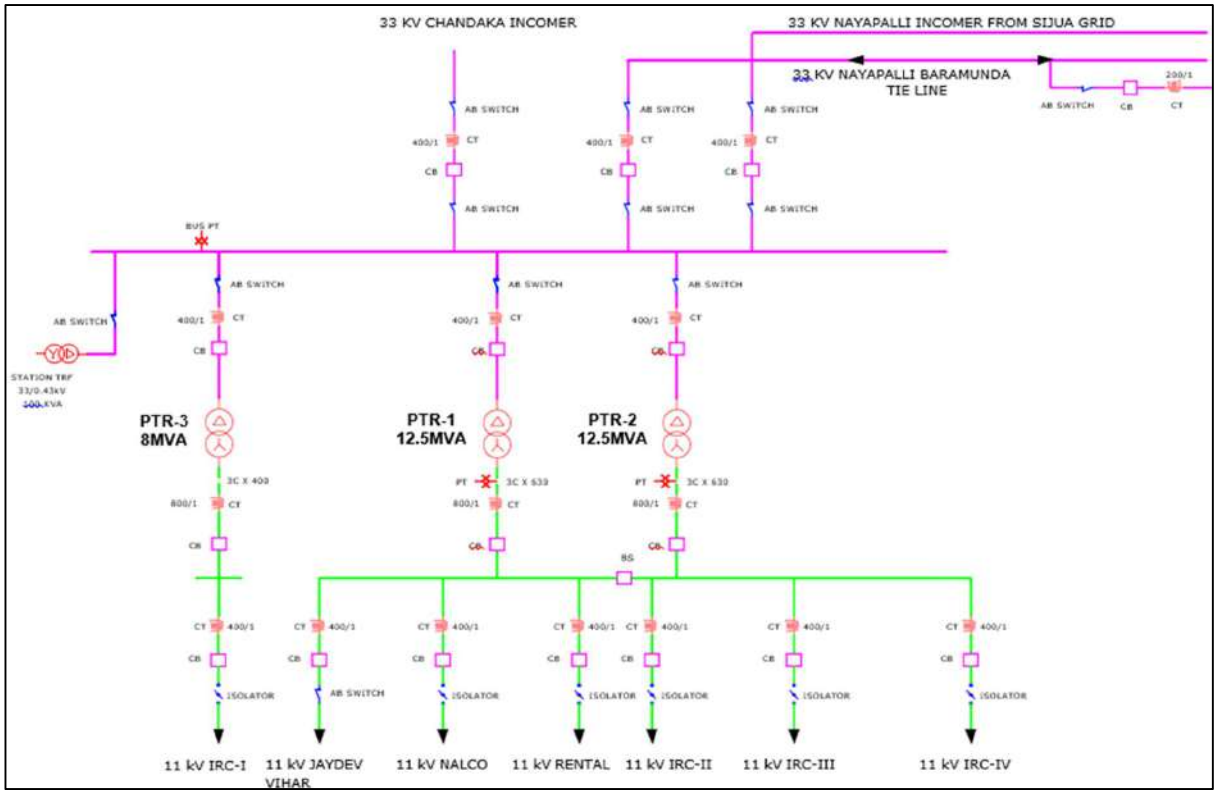
Existing Scenario:

- Loading of 33/11kV Nayapalli PTR-1, 2 and 3 are 9.6MVA, 10.51MVA and 3.09MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (20% load growth per year for 2years), the projected loading of Summer'25 for PTR-1, 2 and 3 would be 13.83MVA, 15.13MVA and 4.44MVA respectively.
- PTR-2 and PTR-1 will be loaded up to 121% and 111% respectively, w.r.t, the existing transformer capacity of 12.5MVA in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

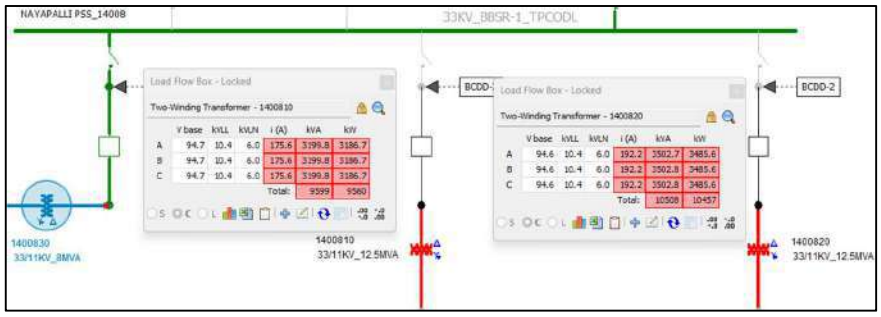
Existing Summer'23 Loading and projected load at Nayapalli PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Nayapalli	PTR-1	12.5	9.60	77%	70%-90%	13.83	111%	≥100%
2	Nayapalli	PTR-2	12.5	10.51	84%	70%-90%	15.13	121%	≥100%
3	Nayapalli	PTR-3	8	3.09	39%	70%-90%	4.44	56%	50%-70%

Existing SLD of NAYAPALLI 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

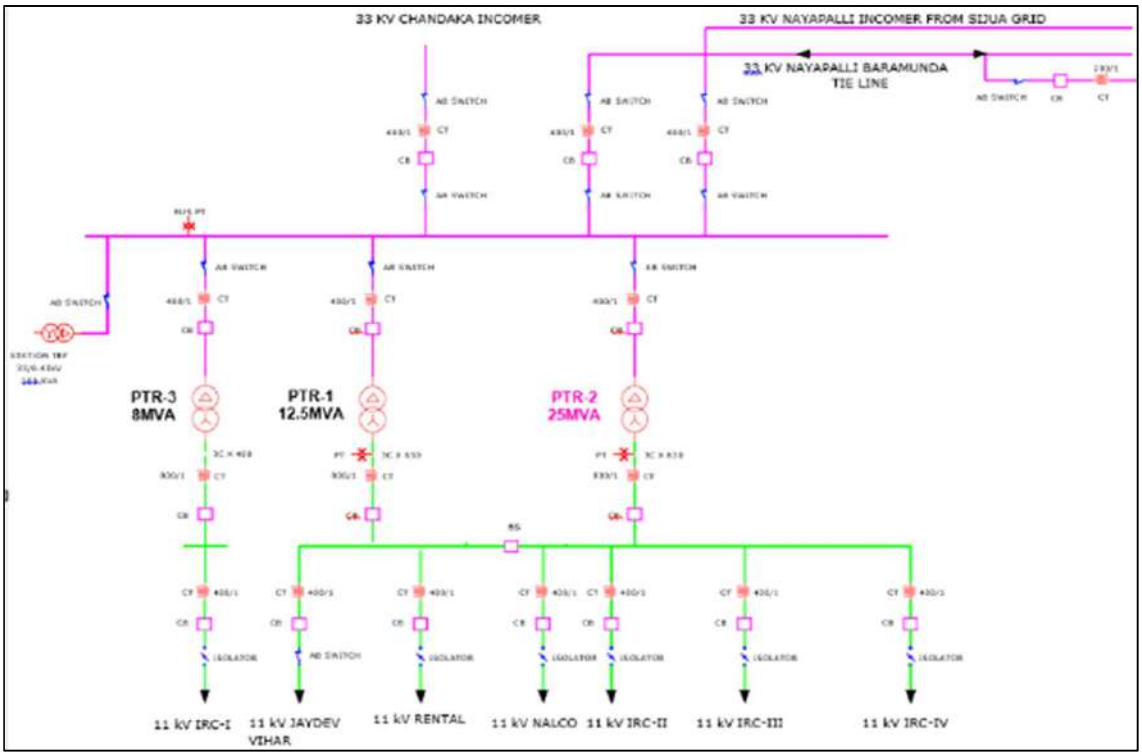


Proposed Scenario:

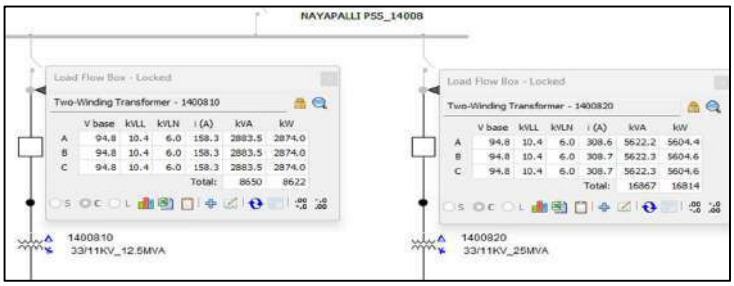
- Augmentation of PTR-2 from 12.5 MVA to 25MVA at Nayapalli PSS is proposed to meet the full load of Nayapalli PSS along with PTR-1 and 3 at peak load condition after 2years load growth.
- 11kV Switch panel board along with new Control Room with the proposed augmented PTR is proposed to be installed.
- Further, it is proposed to shift the 11kV Nalco feeder (3.7MVA) from PTR-1 to PTR-2. It is proposed to divert 1.4MVA load from Jaydev Vihar feeder (PTR-1) to IRC-I feeder (PTR-3).
- It is proposed to divert 2MVA load from 11kV IRC-3 feeder (PTR-2) to 11kV Satabdi Nagar feeder of Delta PSS in order to mitigate the overloading of PTR-2 at Summer'25.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Nayapalli	PTR-1	12.5	8.65	69.2%	50%-70%
2	Nayapalli	PTR-2	25	16.87	67.5%	50%-70%
3	Nayapalli	PTR-3	8	5.44	68%	50%-70%

Proposed SLD of NAYAPALLI 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-2):

Name of the Division :-	**BCDD-2**
Name of the Sub-Division : -	Nayapalli
Name of the Section : -	Nayapalli
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 12.5MVA to 25MVA at Nayapalli 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 12.5MVA to 25MVA at Nayapalli 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	₹ 5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 5.57cr. (For detailed BoQ refer Annexure-12.1).

Benefits:

- To mitigate overloading condition on power transformer PTR-2 of Nayapalli PSS.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

2.0 Augmentation of Power Transformer at KANAN VIHAR Substation

Proposal:

Augmentation of existing 1no. 33/11kV 12.5MVA Power Transformer (PTR-1) to 16MVA at Kanan Vihar 33/11kV Substation in BCDD-2 division of BBSR-1 circle to mitigate overloading condition.

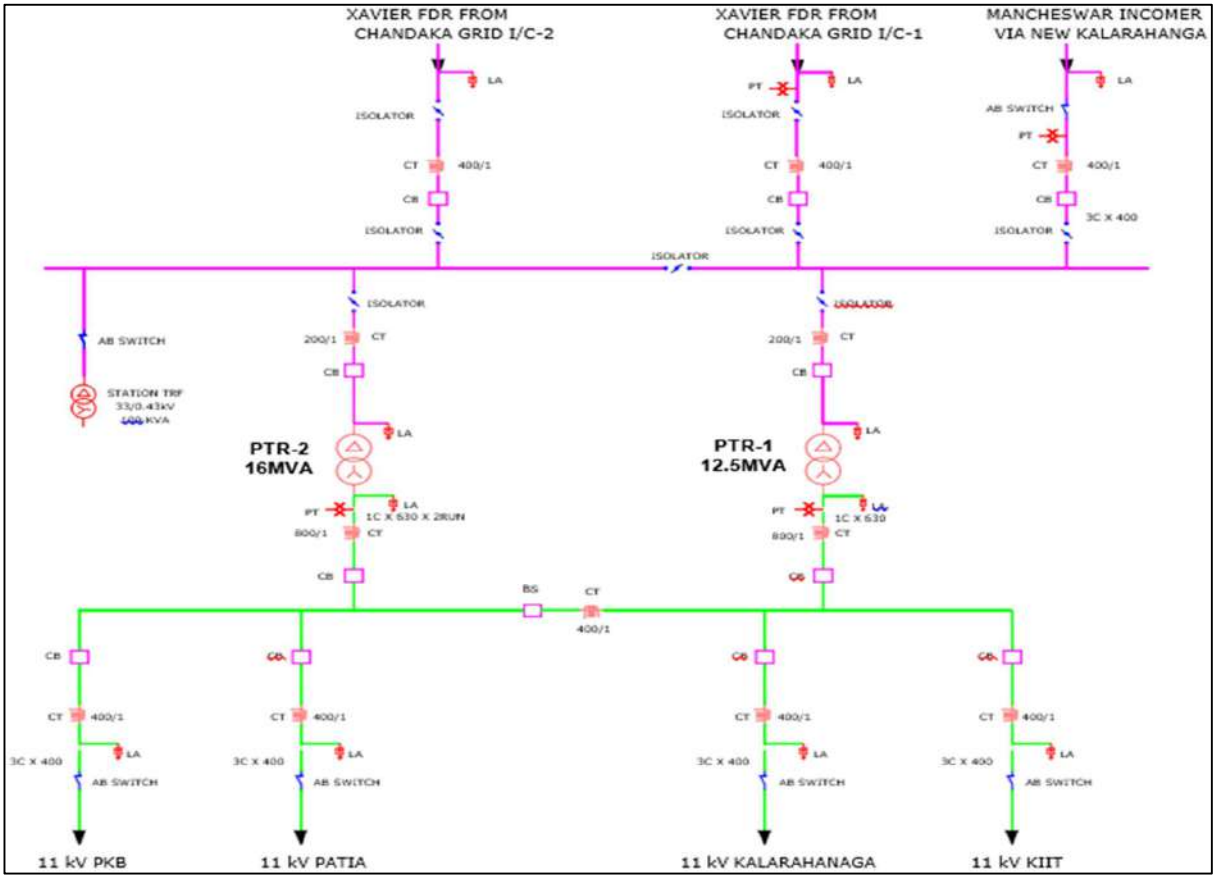
Existing Scenario:

- Loading of 33/11kV Kanan Vihar PTR-1 and 2 are 10.6MVA and 7.76MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (20% load growth per year for 2years), the projected loading of Summer'25 for PTR-1 and 2 would be 15.29MVA and 11.17MVA respectively.
- PTR-1 will be loaded up to 122%, w.r.t, the existing transformer capacity of 12.5MVA in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

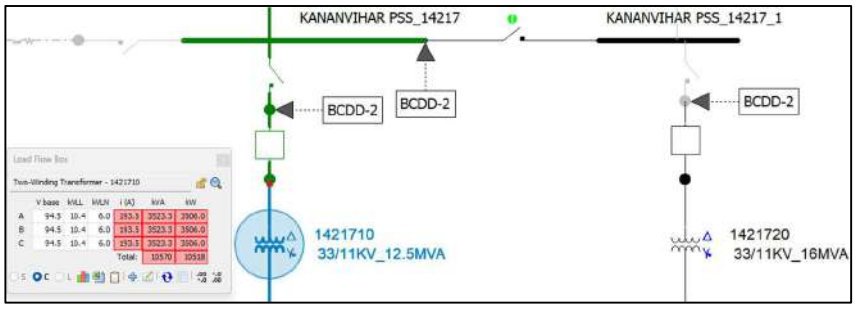
Existing Summer'23 Loading and projected load at Kanan Vihar PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Kanan Vihar	PTR-1	12.5	10.6	85%	70%-90%	15.29	122%	≥100%
2	Kanan Vihar	PTR-2	16	7.76	48%	0-50%	11.17	69.8%	50%-70%

Existing SLD of KANAN VIHAR 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:

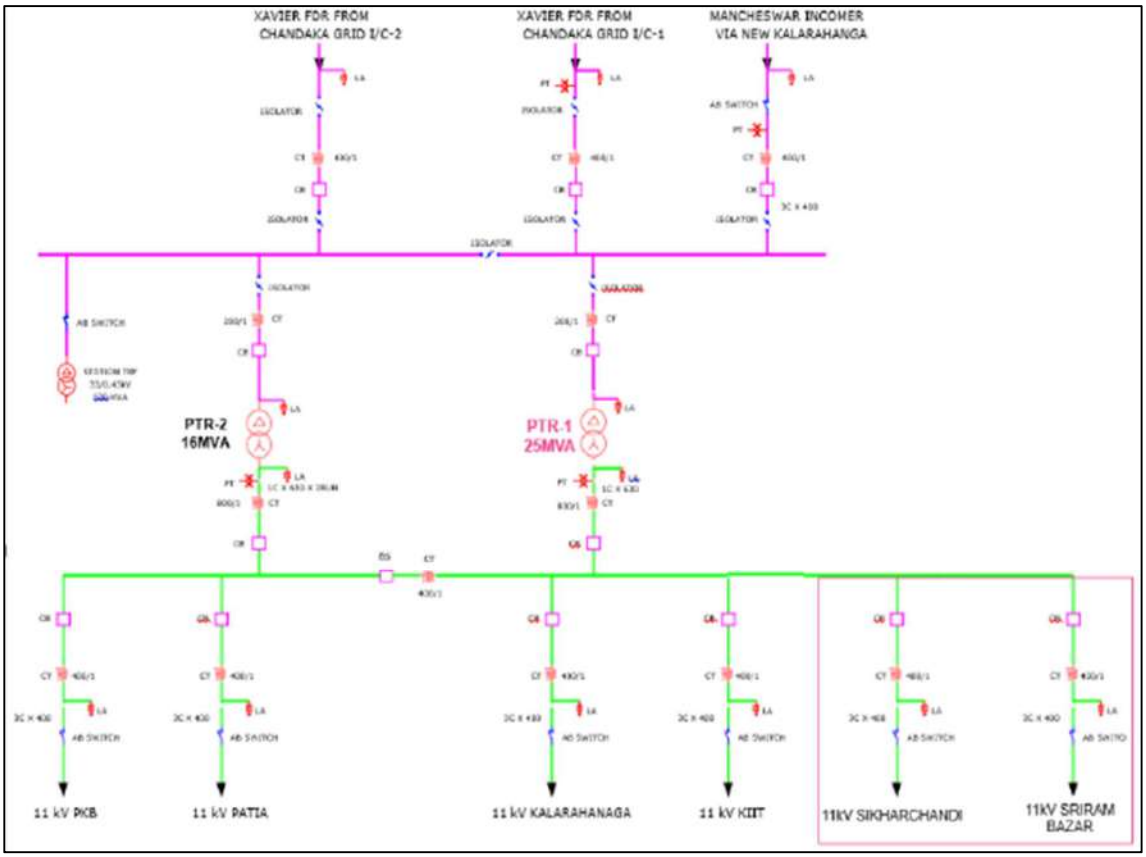


Proposed Scenario:

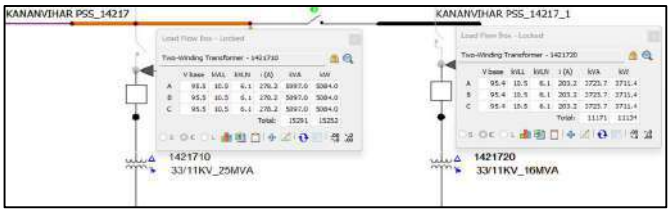
- Augmentation of PTR-1 from 12.5MVA to 25MVA at Kanan Vihar PSS is proposed to meet the full load of Kanan Vihar PSS at peak load condition after 2years load growth.
- 11kV Switch panel board along with new Control Room with the proposed augmented PTR is proposed to be installed.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Kanan Vihar	PTR-1	25	15.29	61.2%	50%-70%
2	Kanan Vihar	PTR-2	16	11.17	69.8%	50%-70%

Proposed SLD of KANAN VIHAR 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-1):

Name of the Division :-	**BCDD-2**
Name of the Sub-Division : -	Periphery
Name of the Section : -	Kanan Vihar
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 25MVA at Kanan Vihar 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 25MVA at Kanan Vihar 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 5.57cr. (For detailed BoQ refer Annexure-12.2).

Benefits:

- To mitigate overloading condition on power transformer PTR-1 of Kanan Vihar PSS.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

3.0 Augmentation of Power Transformer at MULAPADIA Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 8MVA Power Transformer (PTR-2) to 25MVA at Mulapadia 33/11kV Substation in BED division of BBSR-1 circle to mitigate overloading condition.

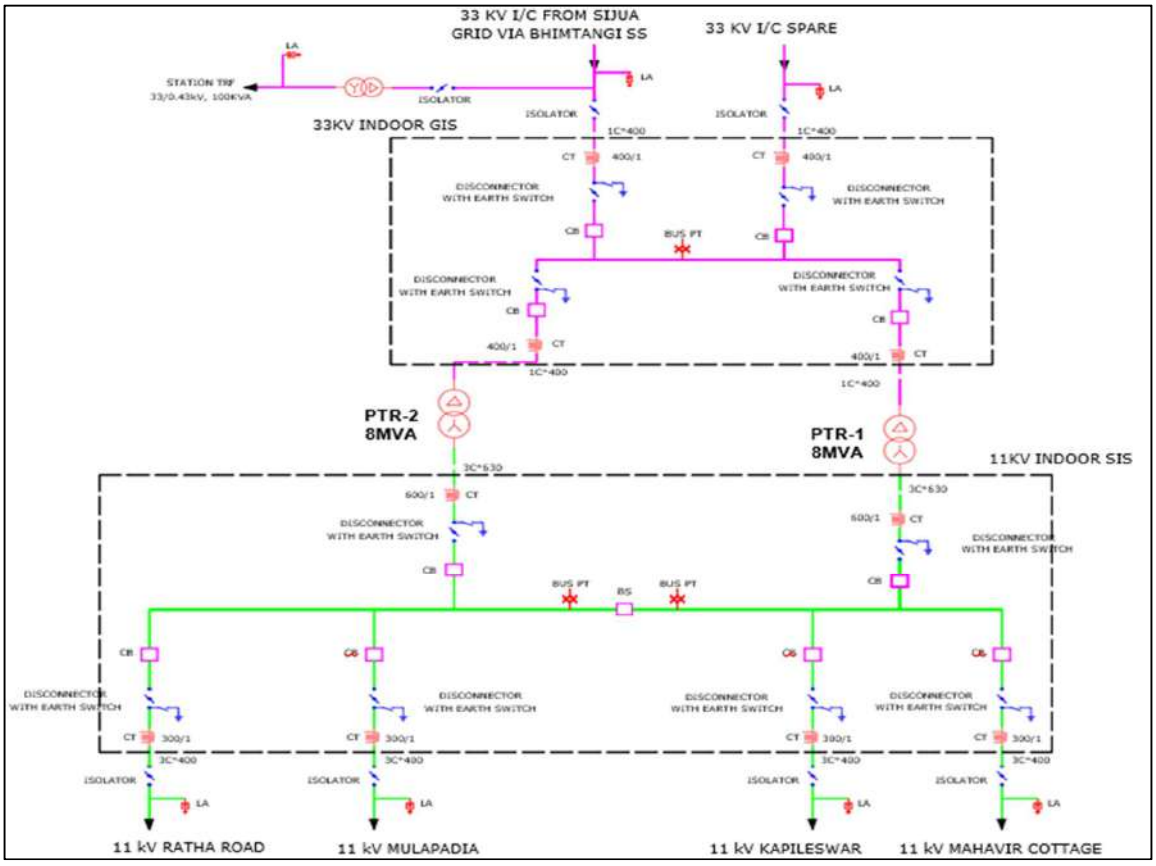
Existing Scenario:

- Loading of 33/11kV Mulapadia PTR-1 and PTR-2 are 5.89MVA and 8.57MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (20% load growth per year for 2years), the projected loading of Summer'25 for PTR-1 and PTR-2 would be 8.48MVA and 12.34MVA.
- PTR-2 will be loaded up to 154%, w.r.t, the existing transformer capacity of 8MVA in Summer'24 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

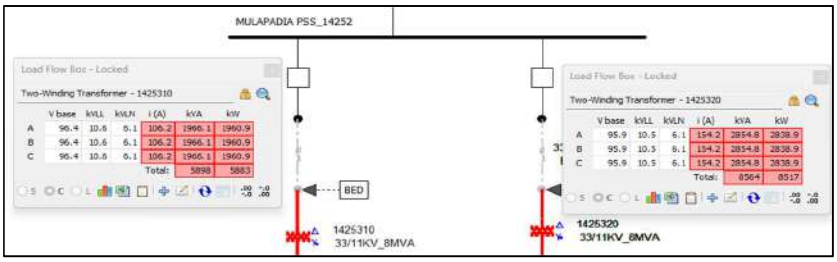
Existing Summer'23 Loading and projected load at Mulapadia PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Mulapadia	PTR-1	8	5.89	74%	70%-90%	8.48	106%	≥100%
2	Mulapadia	PTR-2	8	8.57	107%	≥100%	12.34	154%	≥100%

Existing SLD of MULAPADIA 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

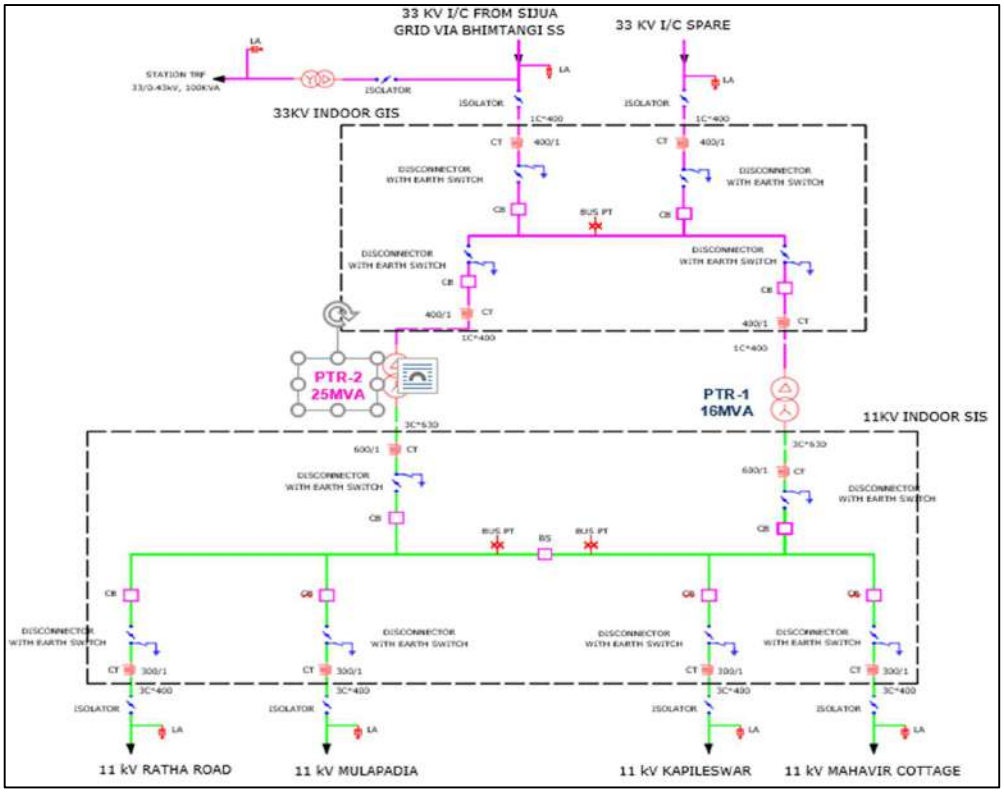


Proposed Scenario:

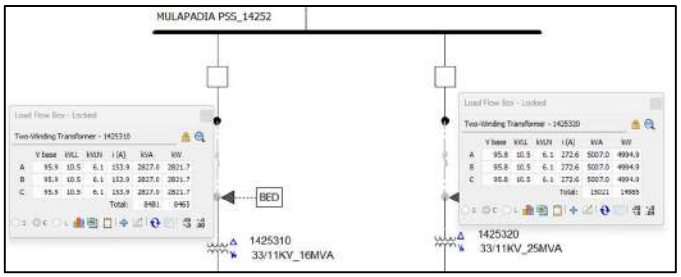
- Augmentation of PTR-1 from 8MVA to 12.5/16MVA is under progress (CAPEX FY: 2023-24).
- 11kV Switch panel board along with new Control Room with the proposed augmented PTR is proposed to be installed.
- It is proposed to divert load from 11kV Lingaraj feeder (2.7MVA, PTR-1, Badagada PSS) to Mulapadia PSS. This proposal will mitigate the overloading of Badagada PSS, PTR-1.
- Augmentation of PTR-2 from 8 MVA to 25MVA at Mulapadia PSS is proposed to meet the full load of Sainik School PSS along with PTR-2 at peak load condition after 2years load growth.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Mulapadia	PTR-1	16	8.48	53%	50%-70%
2	Mulapadia	PTR-2	25	15	60%	50%-70%

Proposed SLD of MULAPADIA 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-2):

Name of the Division :-	**BED**
Name of the Sub-Division : -	Temple
Name of the Section : -	OT3
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Mulapadia 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Mulapadia 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 5.57cr. (For detailed BoQ refer Annexure-12.3).

Benefits:

- To mitigate overloading condition on power transformer PTR-2 of Mulapadia PSS and PR-1 of Badagada PSS.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

4.0 Augmentation of Power Transformer at PANDRA Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 8MVA Power Transformer (PTR-2) to 25MVA at Pandra 33/11kV Substation in BED division of BBSR-1 circle to mitigate overloading condition.

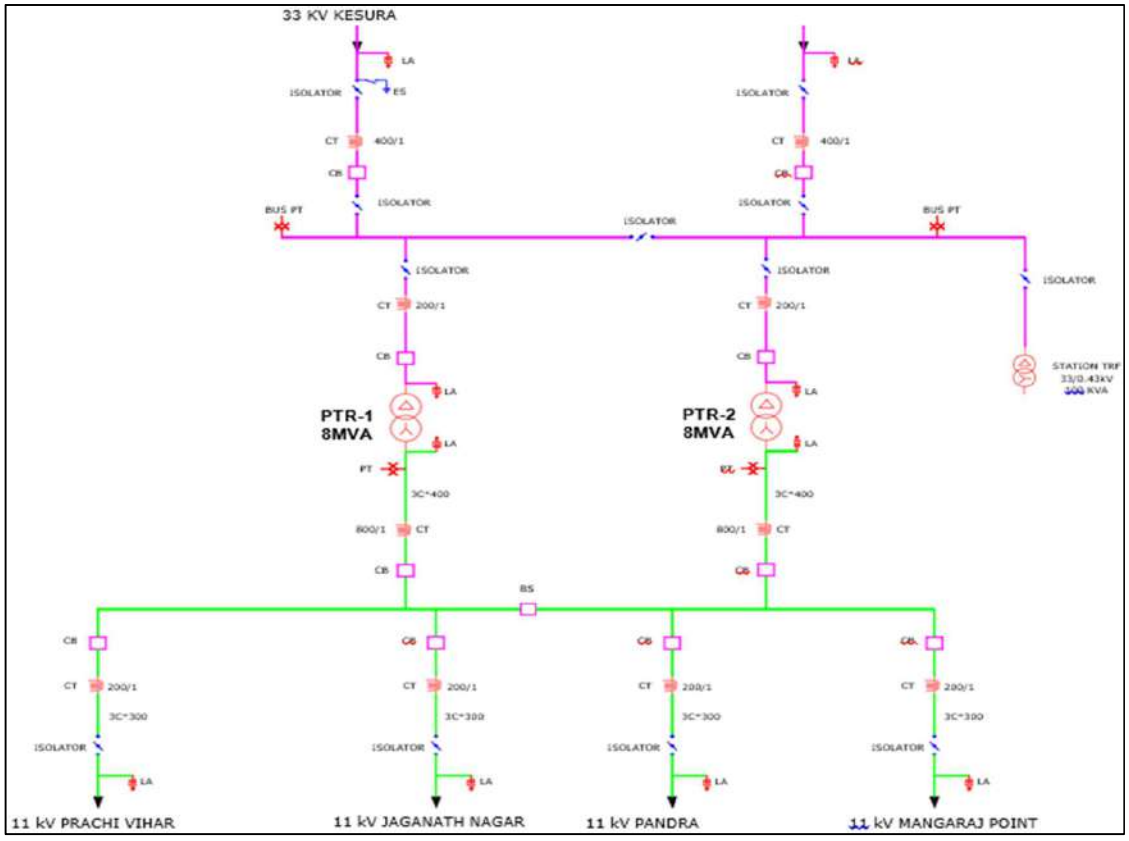
Existing Scenario:

- Loading of 33/11kV Pandra PTR-1 and PTR-2 are 6.4MVA and 6.25MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (20% load growth per year for 2years), the projected loading of Summer'25 for PTR-1 and PTR-2 would be 9.22MVA and 9.54MVA respectively.
- PTR-1 and PTR-2 will be loaded up to 115% and 113% respectively, w.r.t, the existing transformer capacity of 8MVA each in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

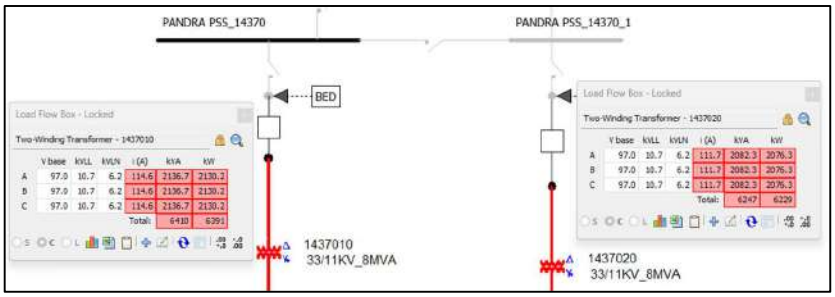
Existing Summer'23 Loading and projected load at Pandra PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Pandra	PTR-1	8	6.4	80%	70%-90%	9.22	115%	≥100%
2	Pandra	PTR-2	8	6.25	78%	70%-90%	9.00	113%	≥100%

Existing SLD of PANDRA 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

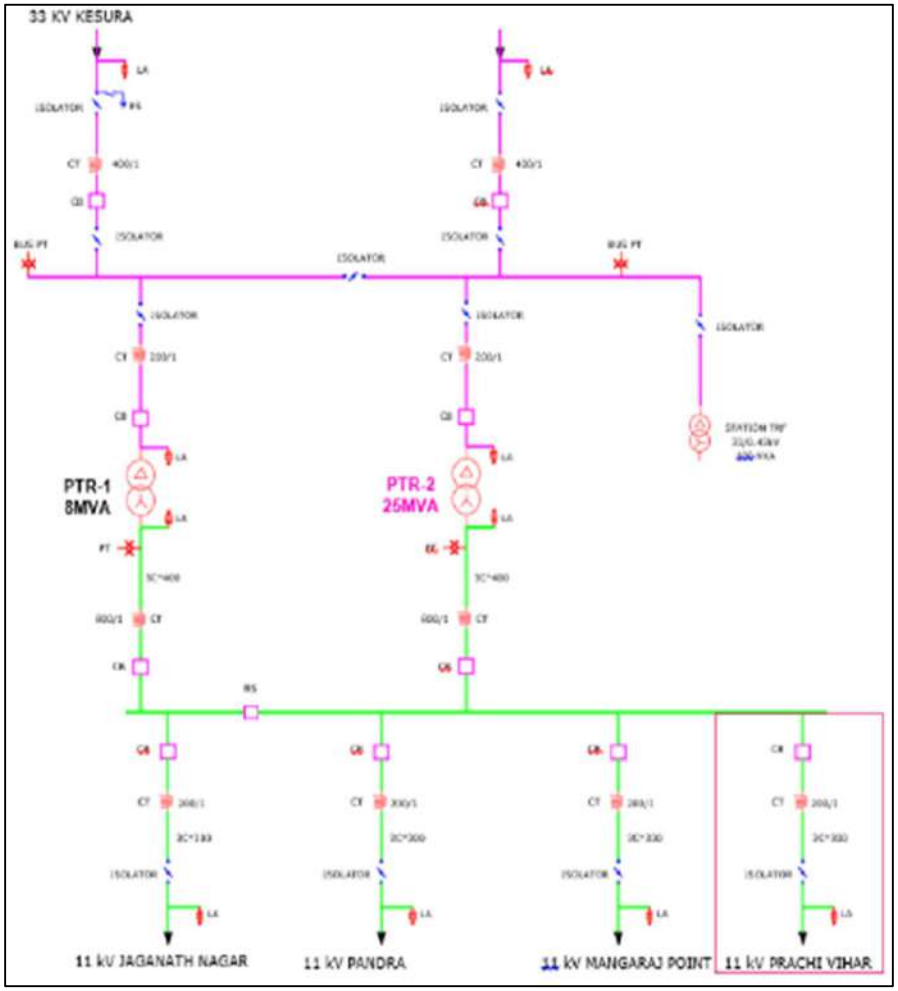


Proposed Scenario:

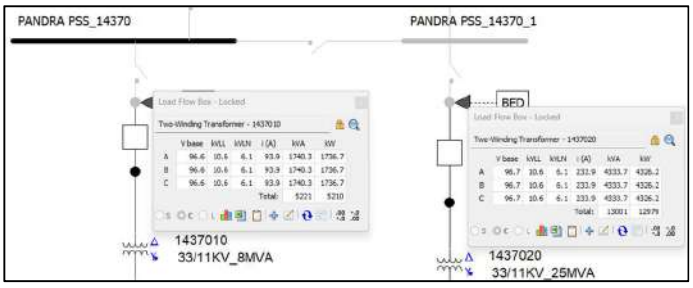
- Augmentation of PTR-2 from 8 MVA to 25MVA at Pandra PSS is proposed to meet the full load of Pandra PSS along with PTR-1 at peak load condition after 2years load growth.
- 11kV Switch panel board along with new Control Room with the proposed augmented PTR is proposed to be installed.
- Subsequently, 11kV feeder shifting of Prachi Vihar feeder (4MVA) from PTR-1 to PTR-2 is proposed in order to mitigate the overloading of PTR-1 and PTR-2 at Summer'25.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Pandra	PTR-1	8	5.22	65%	50%-70%
2	Pandra	PTR-2	25	13.00	52%	50%-70%

Proposed SLD of PANDRA 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-2):

Name of the Division :-	**BED**
Name of the Sub-Division :-	Rasulgarh
Name of the Section : -	Rasulgarh
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Pandra 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Pandra 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 5.57cr. (For detailed BoQ refer Annexure-12.4).

Benefits:

- To mitigate overloading condition on power transformer PTR-2 of Pandra PSS.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

5.0 Augmentation of Power Transformer at PHULNAKHARA Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 5MVA Power Transformer (PTR-1) to 25MVA at Phulnakhara 33/11kV Substation in BED division of BBSR-1 circle to mitigate overloading condition.

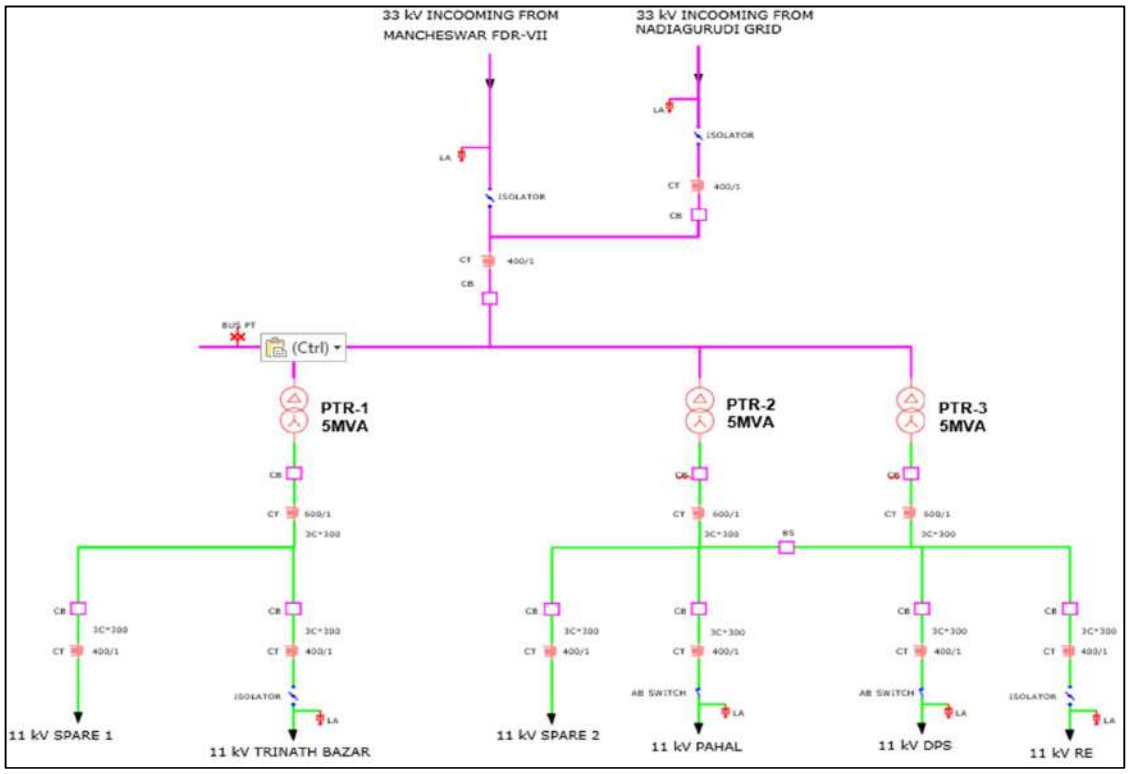
Existing Scenario:

- Loading of 33/11kV Phulnakhara PTR-1, PTR-2 and PTR-3 are 3.98MVA, 4.53MVA and 4MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (20% load growth per year for 2years), the projected loading of Summer'25 for PTR-1, PTR-2 and PTR-3 would be 5.74MVA, 6.53MVA and 5.76MVA.
- PTR-1, PTR-2 and PTR-3 will be loaded up to 115%, 131% and 115% respectively, w.r.t, the existing transformer capacity of 5MVA each in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

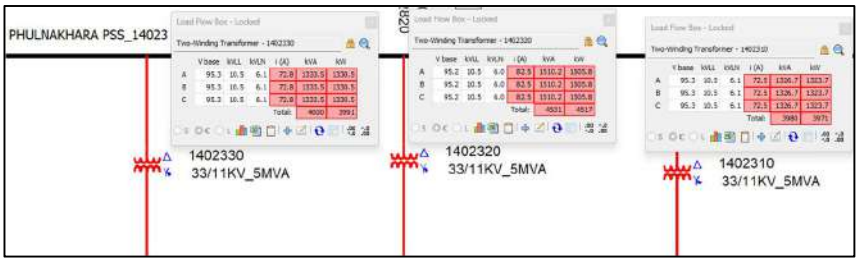
Existing Summer'23 Loading and projected load at Phulnakhara PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Phulnakhara	PTR-1	5	3.98	80%	70%-90%	5.74	115%	≥100%
2	Phulnakhara	PTR-2	5	4.53	91%	90%-100%	6.53	131%	≥100%
3	Phulnakhara	PTR-3	5	4	80%	70%-90%	5.76	115%	≥100%

Existing SLD of PHULNAKHARA 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

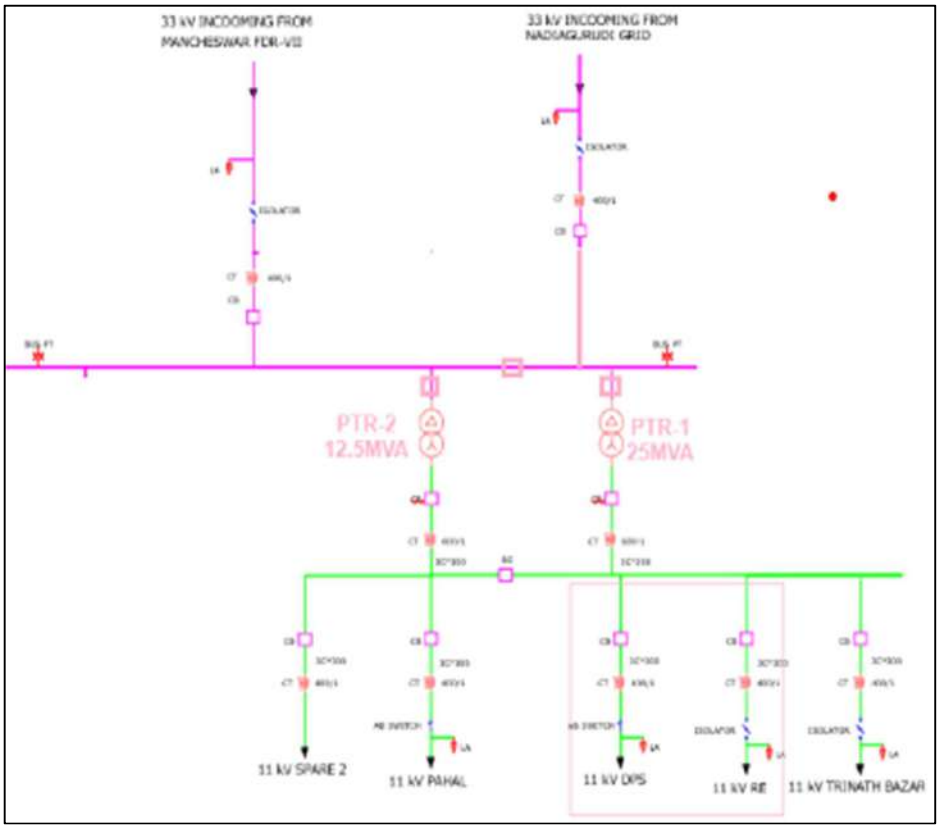


Proposed Scenario:

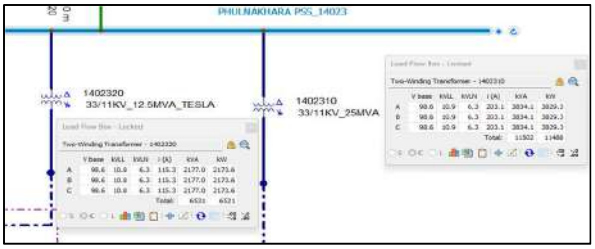
- Augmentation of PTR-1 from 5 MVA to 25MVA at Phulnakhara PSS is proposed to meet the full load of Phulnakhara PSS along with PTR-2 and PTR-3 at peak load condition after 2years load growth.
- 33kV and 11kV Switch panel board along with new Control Room with the proposed augmented PTR is proposed to be installed.
- Further, it is proposed to augment PTR-2 from 5MVA to 12.5MVA under OPEX and subsequent dismantling of PTR-3 (5MVA) and 11kV RE and DPS feeder shifting to PTR-1 in order to mitigate the overloading of PTRs at Summer'25.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Phulnakhara	PTR-1	25	11.50	46%	0-50%
2	Phulnakhara	PTR-2	12.5	6.53	52%	50%-70%

Proposed SLD of PHULNAKHARA 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-1):

Name of the Division :-	**BED**
Name of the Sub-Division : -	Rasulgarh
Name of the Section : -	Phulnakhara
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-1) from 5MVA to 25MVA at Phulnakhara 33/11kV PSS with other civil works along with installation of 33kV and 11kV Switch panel board and construction of new Control Room.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	Augmentation of 01no. Power Transformer (PTR-1) from 5MVA to 25MVA at Phulnakhara 33/11kV PSS with other civil works along with installation of 33kV and 11kV Switch panel board and construction of new Control Room.	6,92,31,804.98
		Total Amount	**₹ 6,92,31,804.98**
		Total Amount (In Cr)	**₹ 6.92**
Total estimated cost is Rs. 6.92 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 6.92cr. (For detailed BoQ refer Annexure-12.5).

Benefits:

- To mitigate overloading condition on power transformer PTR-1 of Phulnakhara PSS.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

6.0 Augmentation of Power Transformer at LINGIPUR Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 8MVA Power Transformers (PTR-2) to 25MVA at Lingipur 33/11kV Substation in BED division of BBSR-1 circle to mitigate overloading condition.

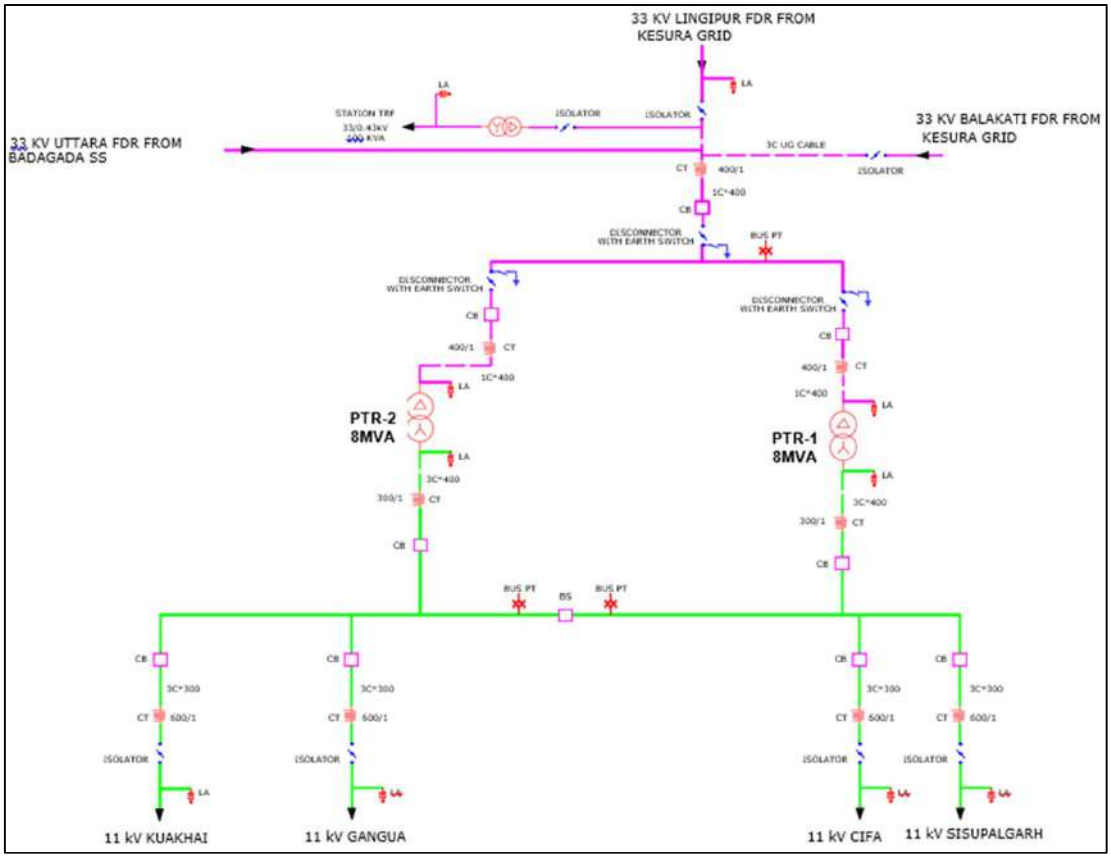
Existing Scenario:

- Loading of 33/11kV Lingipur PTR-1 and PTR-2 are 6.28MVA and 6.36MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (20% load growth per year for 2years), the projected loading of Summer'25 for PTR-1 and PTR-2 would be 9.04MVA and 9.16MVA respectively.
- PTR-1 and PTR-2 will be loaded up to 113% and 114% respectively, w.r.t, the existing transformer capacity of 8MVA each in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

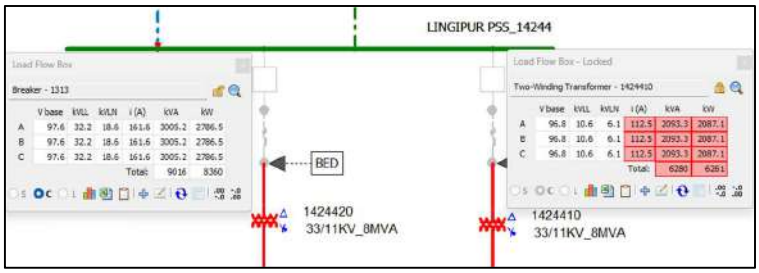
Existing Summer'23 Loading and projected load at Lingipur PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Lingipur	PTR-1	8	6.28	78%	70%-90%	9.04	113%	≥100%
2	Lingipur	PTR-2	8	6.36	79%	70%-90%	9.16	114%	≥100%

Existing SLD of LINGIPUR 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

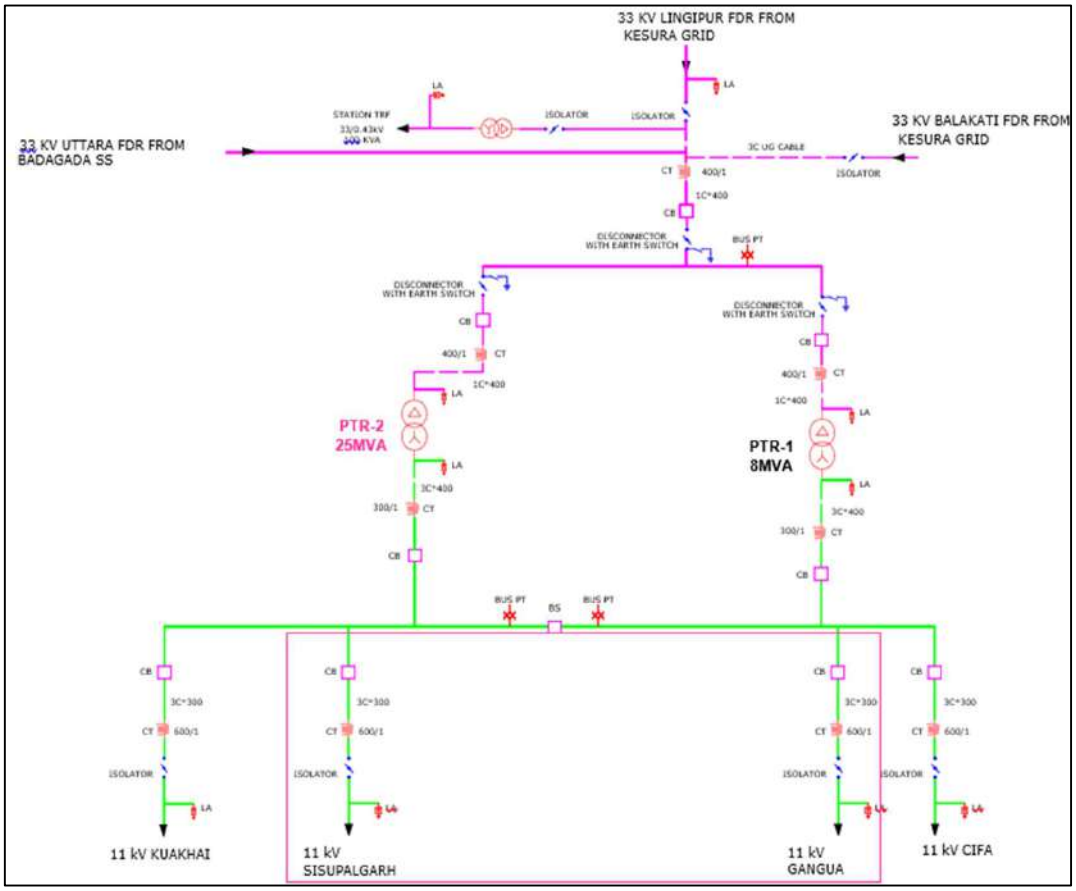


Proposed Scenario:

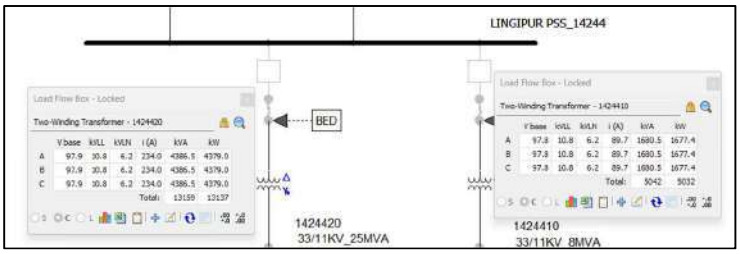
- Augmentation of PTR-2 from 8 MVA to 25MVA at Lingipur PSS is proposed to meet the full load of Lingipur PSS along with PTR-1 at peak load condition after 2years load growth.
- 11kV Switch panel board along with new Control Room with the proposed augmented PTR is proposed to be installed.
- Further, 11kV feeder swapping of 11kV Sishupalgarh feeder from PTR-1 to PTR-2 and 11kV Gangua feeder from PTR-2 to PTR-1 is proposed in order to mitigate the overloading of PTRs at Summer'25.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @20%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Lingipur	PTR-1	8	5.04	63%	50%-70%
2	Lingipur	PTR-2	25	13.16	53%	50%-70%

Proposed SLD of LINGIPUR 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-2):

Name of the Division :-	**BED**
Name of the Sub-Division :-	Temple
Name of the Section : -	OT-1
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Lingipur 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Lingipur 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 5.57cr. (For detailed BoQ refer Annexure-12.6).

Benefits:

- To mitigate overloading condition on power transformer.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

7.0 Augmentation of Power Transformer at KALINGA Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 12.5MVA Power Transformer (PTR-3) to 25MVA at Kalinga 33/11kV Substation in CDD-1 division of CUTTACK circle to mitigate overloading condition.

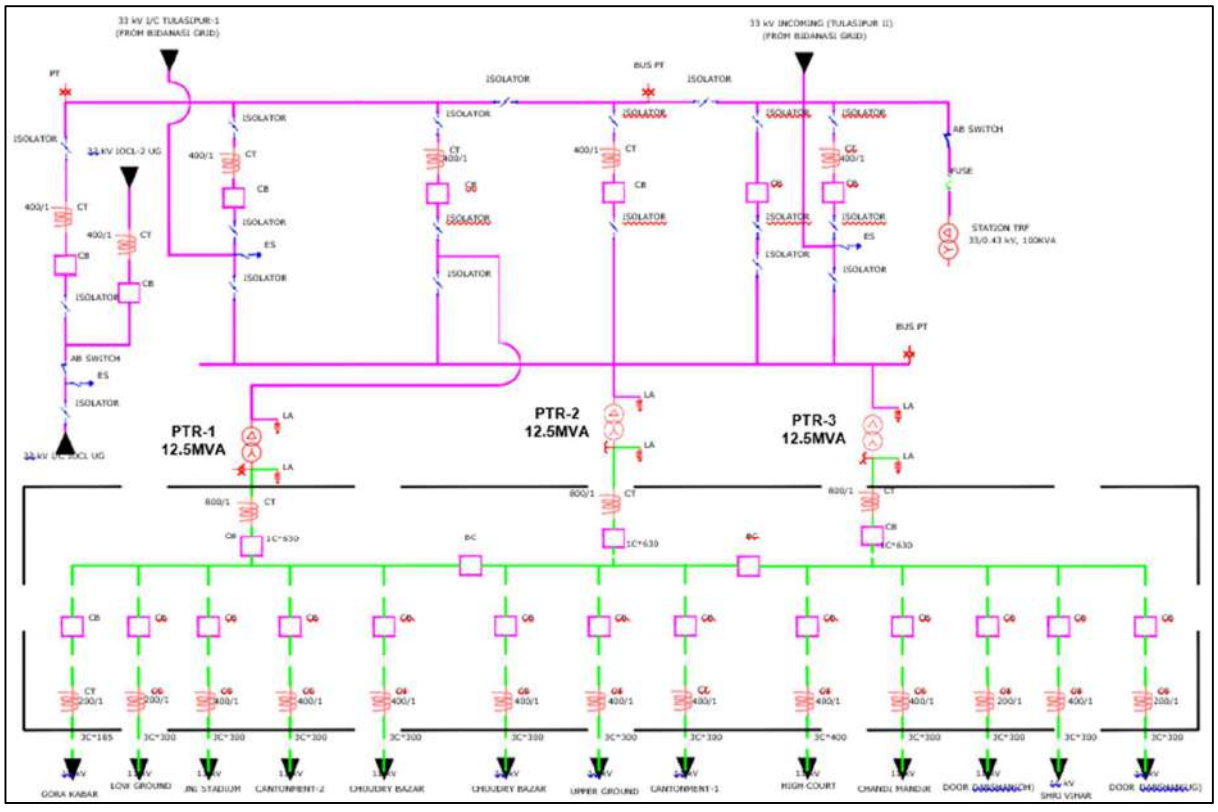
Existing Scenario:

- Loading of 33/11kV Kalinga PTR-1, PTR-2 and PTR-3 are 8.82MVA, 7.16MVA and 8.9MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (13% load growth per year for 2years), the projected loading of Summer'25 for PTR-1, PTR-2 and PTR-3 would be 11.27MVA, 9.15MVA and 11.36MVA respectively.
- PTR-1, PTR-2 and PTR-3 will be loaded up to 90.1%, 73% and 91% respectively, w.r.t, the existing transformer capacity of 12.5MVA each in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

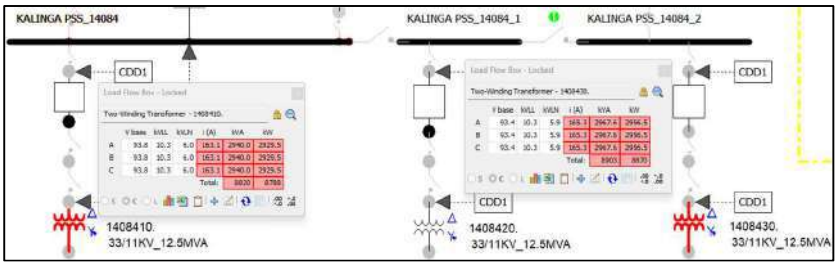
Existing Summer'23 Loading and projected load at Kalinga PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @13%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Kalinga	PTR-1	12.5	8.82	71%	70%-90%	11.27	90.1%	90%-100%
2	Kalinga	PTR-2	12.5	7.16	57%	50%-70%	9.15	73%	70%-90%
3	Kalinga	PTR-3	12.5	8.9	71%	70%-90%	11.36	91%	90%-100%

Existing SLD of KALINGA 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

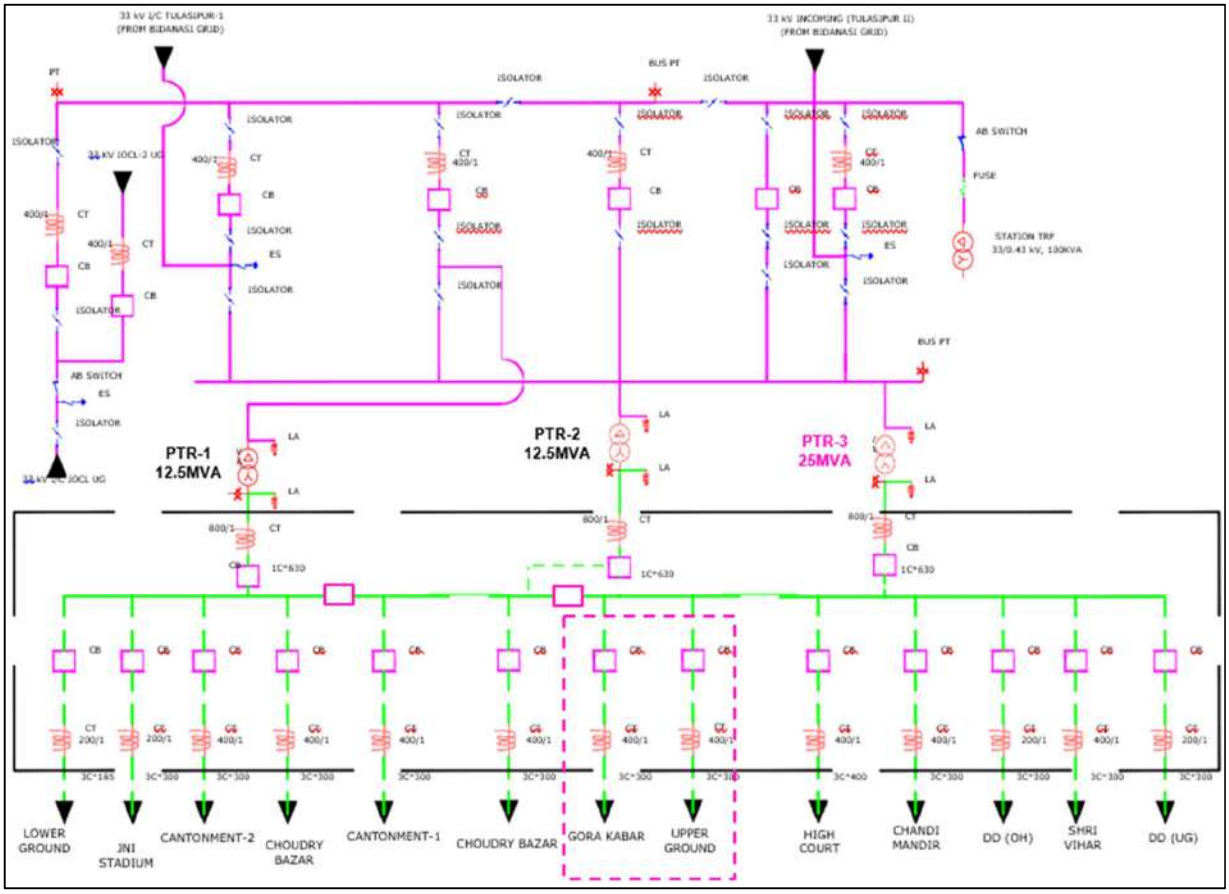


Proposed Scenario:

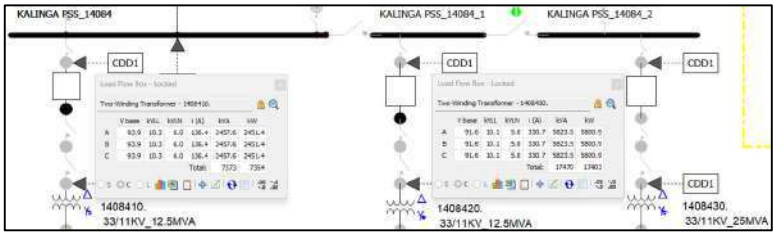
- Augmentation of PTR-3 from 12.5MVA to 25MVA at Kalinga PSS is proposed to meet the full load of Kalinga PSS along with PTR-1 and PTR-2 at peak load condition after 2years load growth.
- 11kV Switch panel board along with new Control Room with the proposed augmented PTR is proposed to be installed.
- It is proposed for 11kV feeder load diversion from Choudhury-1 feeder (PTR-1, 1.3MVA) to Buxi Bazar feeder of Matamatha PSS, 11kV feeder shifting of Gorakabar feeder (2.6MVA) from PTR-1 to PTR-3 and 11kV feeder shifting of Upper Ground feeder (1.16MVA) from PTR-2 to PTR-3 in order to mitigate the overloading of PTRs at Summer'25.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @13%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Kalinga	PTR-1	12.5	7.37	59%	50%-70%
2	Kalinga	PTR-2	12.5	7.99	64%	50%-70%
3	Kalinga	PTR-3	25	17.47	69.9%	50%-70%

Proposed SLD of KALINGA 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-3):

Name of the Division :-	**CDD-1**
Name of the Sub-Division : -	Kalinga
Name of the Section : -	Cantonment
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-3) from 12.5MVA to 25MVA at Kalinga 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount

1	A	Augmentation of 01no. Power Transformer (PTR-3) from 12.5MVA to 25MVA at Kalinga 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 5.57cr. (For detailed BoQ refer Annexure-12.7).

Benefits:

- To mitigate overloading condition on power transformer.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

8.0 Augmentation of Power Transformer at OGP Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 8MVA Power Transformer (PTR-2) to 16MVA at OGP 33/11kV Substation in CDD-2 division of CUTTACK circle to mitigate overloading condition.

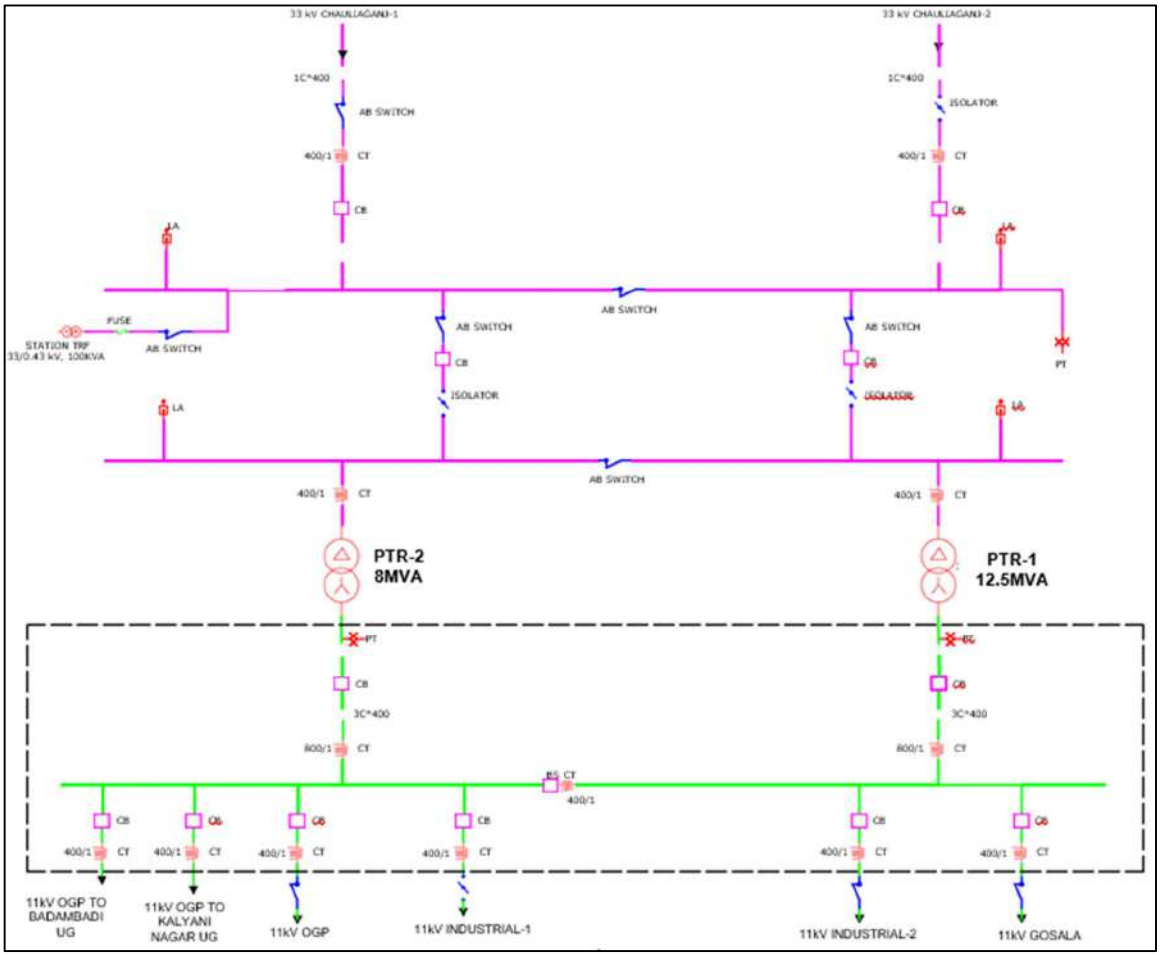
Existing Scenario:

- Loading of 33/11kV OGP PTR-1 and PTR-2 are 6.61MVA and 6.1MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (13% load growth per year for 2years), the projected loading of Summer'25 for PTR-1 and PTR-2 would be 8.43MVA and 7.78MVA respectively.
- PTR-2 will be loaded up to 97%, w.r.t, the existing transformer capacity of 8MVA in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

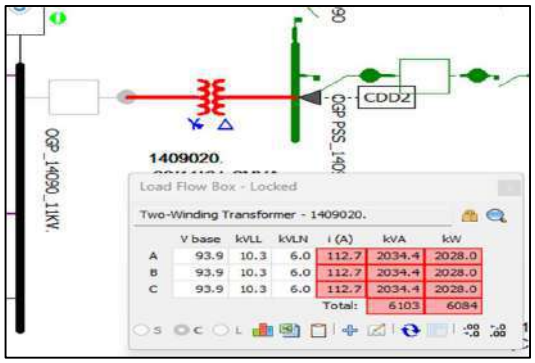
Existing Summer'23 Loading and projected load at OGP PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @13%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	OGP	PTR-1	12.5	6.61	53%	50%-70%	8.43	67%	50%-70%
2	OGP	PTR-2	8	6.1	76%	70%-90%	7.78	97%	90%-100%

Existing SLD of OGP 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

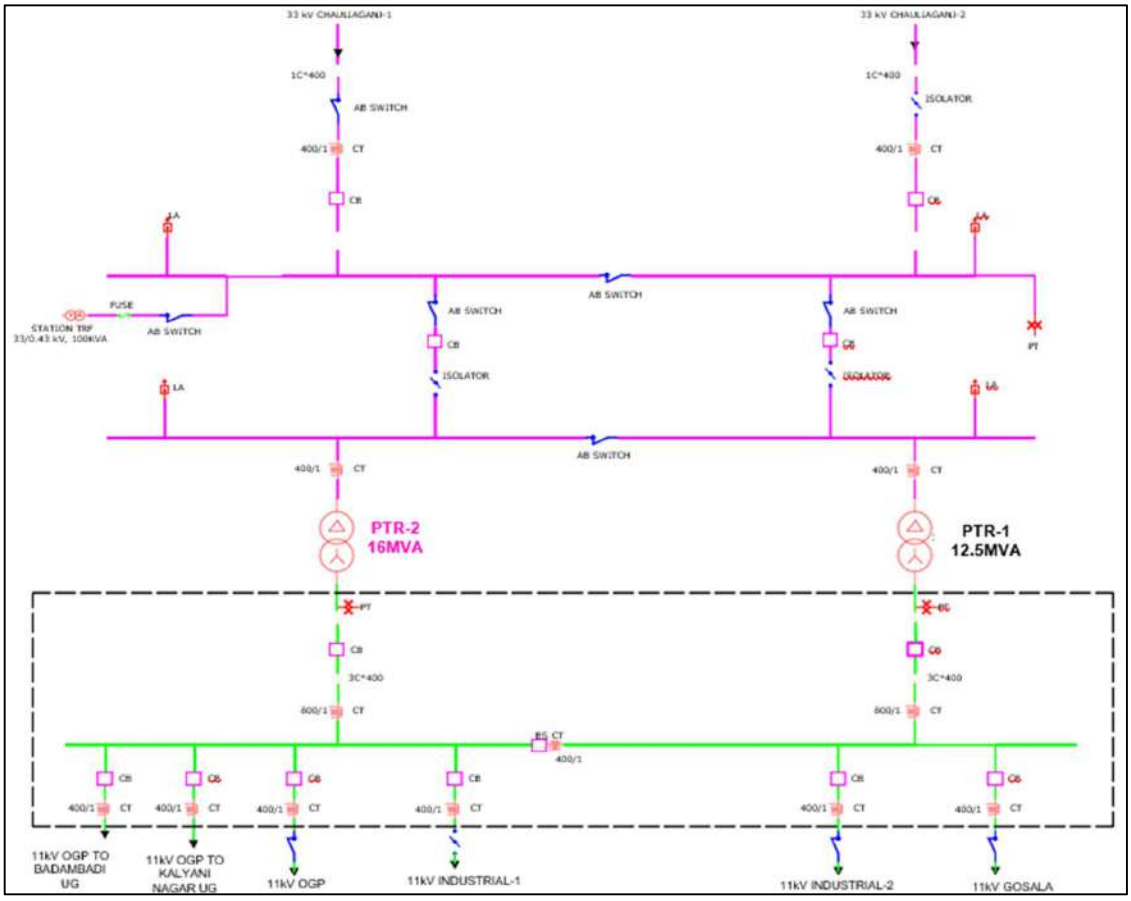


Proposed Scenario:

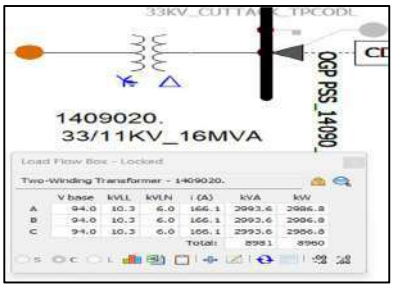
- Augmentation of PTR-2 from 8 MVA to 16MVA at OGP PSS is proposed to meet the full load of OGP PSS along with PTR-2 at peak load condition after 2years load growth.
- It is proposed for 11kV load diversion of Gosala feeder (1.2MVA, PTR-2) to Industrial-1 feeder (PTR-1) in order to mitigate the overloading of PTR-2 at Summer'25.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @13%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	OGP	PTR-1	12.5	7.23	58%	50%-70%
2	OGP	PTR-2	16	8.98	56%	50%-70%

Proposed SLD of OGP 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-2):

Name of the Division :-	**CDD-2**
Name of the Sub-Division : -	Badambadi
Name of the Section : -	Khapuria (IE)
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at OGP 33/11kV PSS with other civil works.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at 33/11kV OGP PSS with other civil works.	₹ 2,31,71,218.71
		Total Amount	**₹ 2,31,71,218.71**
		Total Amount (In Cr)	**₹ 2.32**
Total estimated cost is Rs. 2.32 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 2.32cr. (For detailed BoQ refer Annexure-12.8).

Benefits:

- To mitigate overloading condition on power transformer.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

9.0 Augmentation of Power Transformer at CHOUDWAR Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 8MVA Power Transformer (PTR-2) to 16MVA at Choudwar 33/11kV Substation in CED division of CUTTACK circle to mitigate overloading condition.

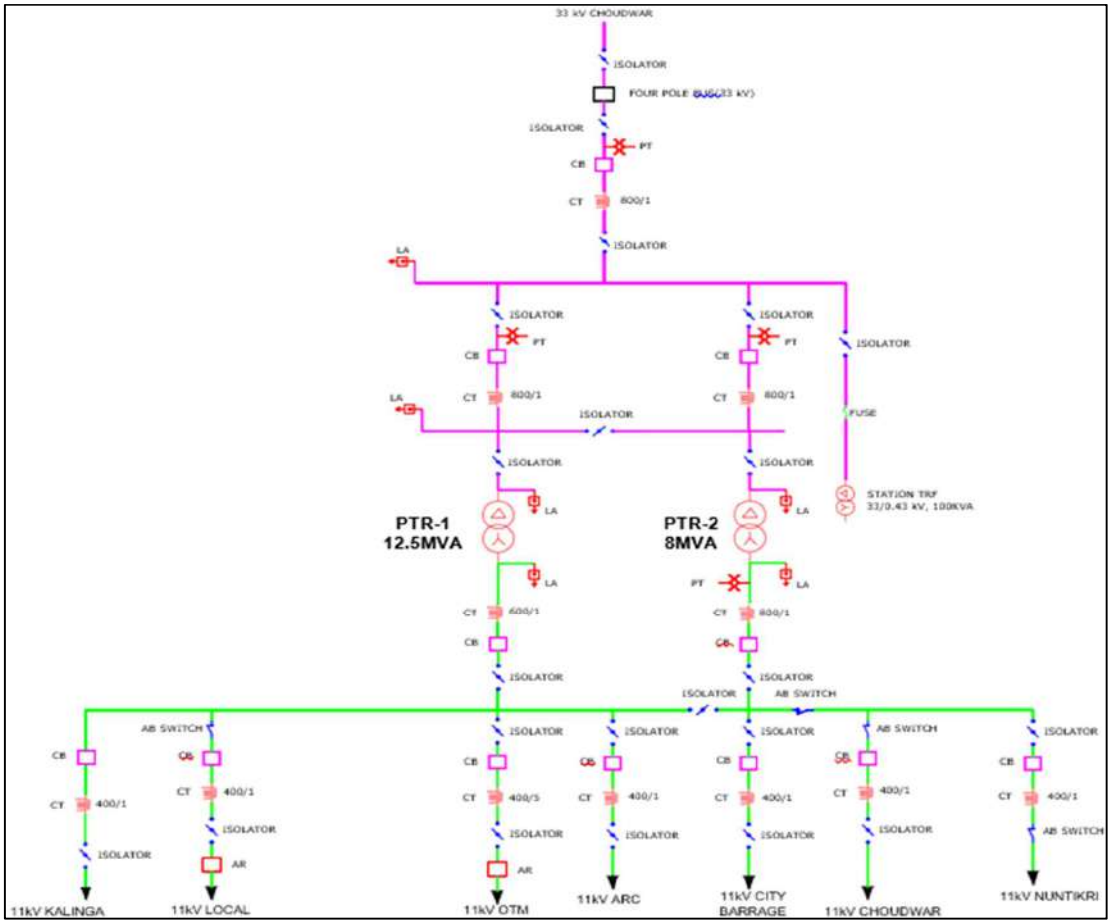
Existing Scenario:

- Loading of 33/11kV Choudwar PTR-1 and PTR-2 are 9.66MVA and 5.2MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (10% load growth per year for 2years), the projected loading of Summer'25 for PTR-1 and PTR-2 would be 11.69MVA and 6.29MVA.
- PTR-1 and PTR-2 will be loaded up to 93% and 79% respectively, w.r.t, the existing transformer capacity of 12.5MVA and 8MVA respectively in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

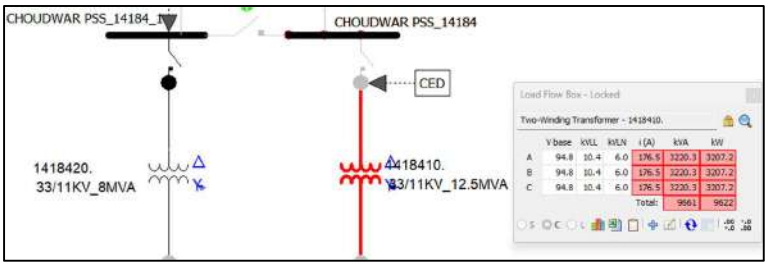
Existing Summer'23 Loading and projected load at Choudwar PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @10%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Choudwar	PTR-1	12.5	9.66	77%	70%-90%	11.69	93%	90%-100%
2	Choudwar	PTR-2	8	5.2	65%	50%-70%	6.29	79%	70%-90%

Existing SLD of CHOUDWAR 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

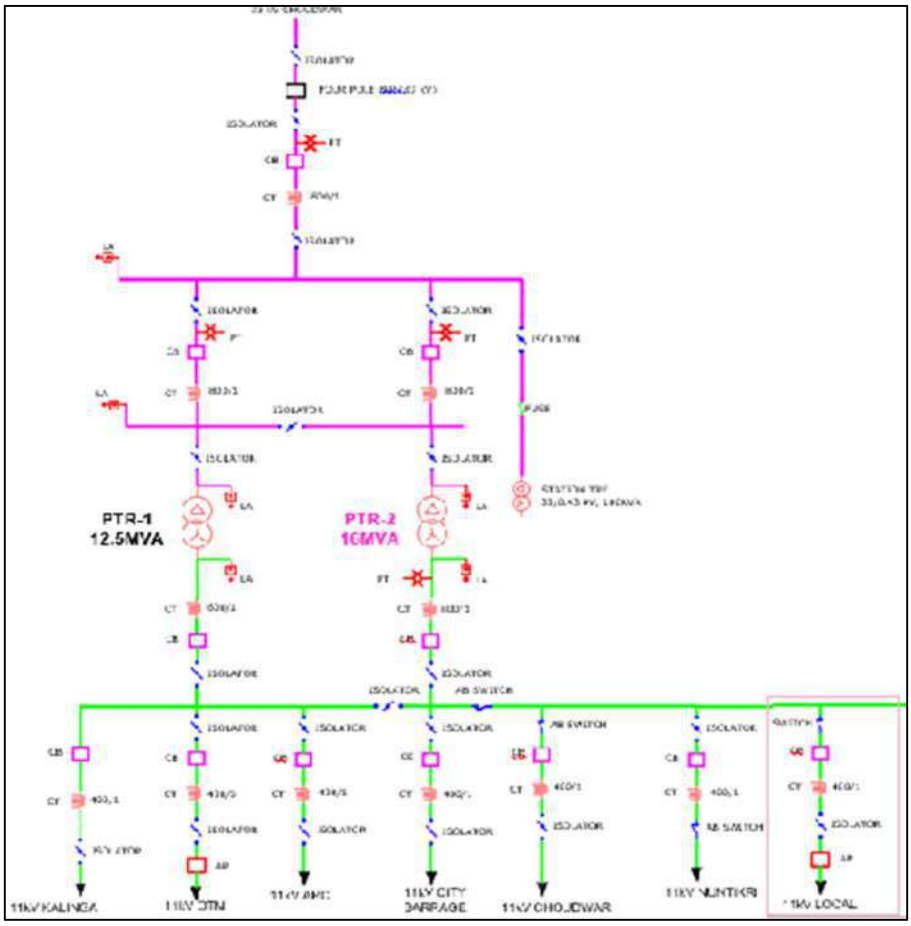


Proposed Scenario:

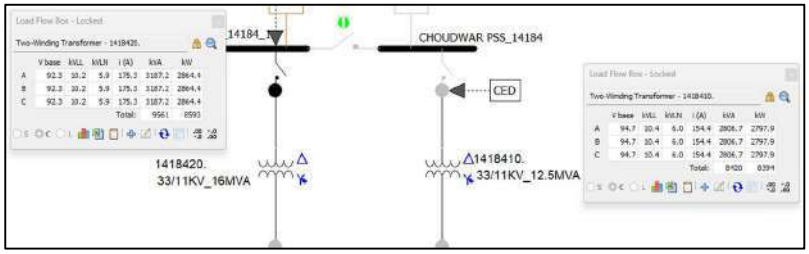
- Augmentation of PTR-2 from 8 MVA to 16MVA at Choudwar PSS is proposed to meet the full load of Choudwar PSS along with PTR-1 at peak load condition after 2years load growth.
- It is proposed for 11kV Feeder shifting of Local feeder (3.27MVA) load from PTR-1 to PTR-2 in order to mitigate the overloading of PTRs at Summer'25.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @10%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Choudwar	PTR-1	12.5	8.42	67%	50%-70%
2	Choudwar	PTR-2	16	9.56	60%	50%-70%

Proposed SLD of CHOUDWAR 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-2):

Name of the Division :-	**CED**
Name of the Sub-Division : -	Choudwar
Name of the Section : -	Choudwar
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at Choudwar 33/11kV PSS with other civil works.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at 33/11kV Choudwar PSS with other civil works.	2,31,71,218.71
		Total Amount	**₹ 2,31,71,218.71**
		Total Amount (In Cr)	**₹ 2.32**
Total estimated cost is Rs. 2.32 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 2.32cr. (For detailed BoQ refer Annexure-12.9).

Benefits:

- To mitigate overloading condition on power transformer.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

10.0 Augmentation of Power Transformer at KHORDHA TOWN/ 10-POLE Substation

Proposal:

Augmentation of existing 1no. 33/11kV, 8MVA Power Transformer (PTR-1) to 16MVA at Khordha Town/ 10-Pole 33/11kV Substation in KHD division of BBSR-2 circle to mitigate overloading condition.

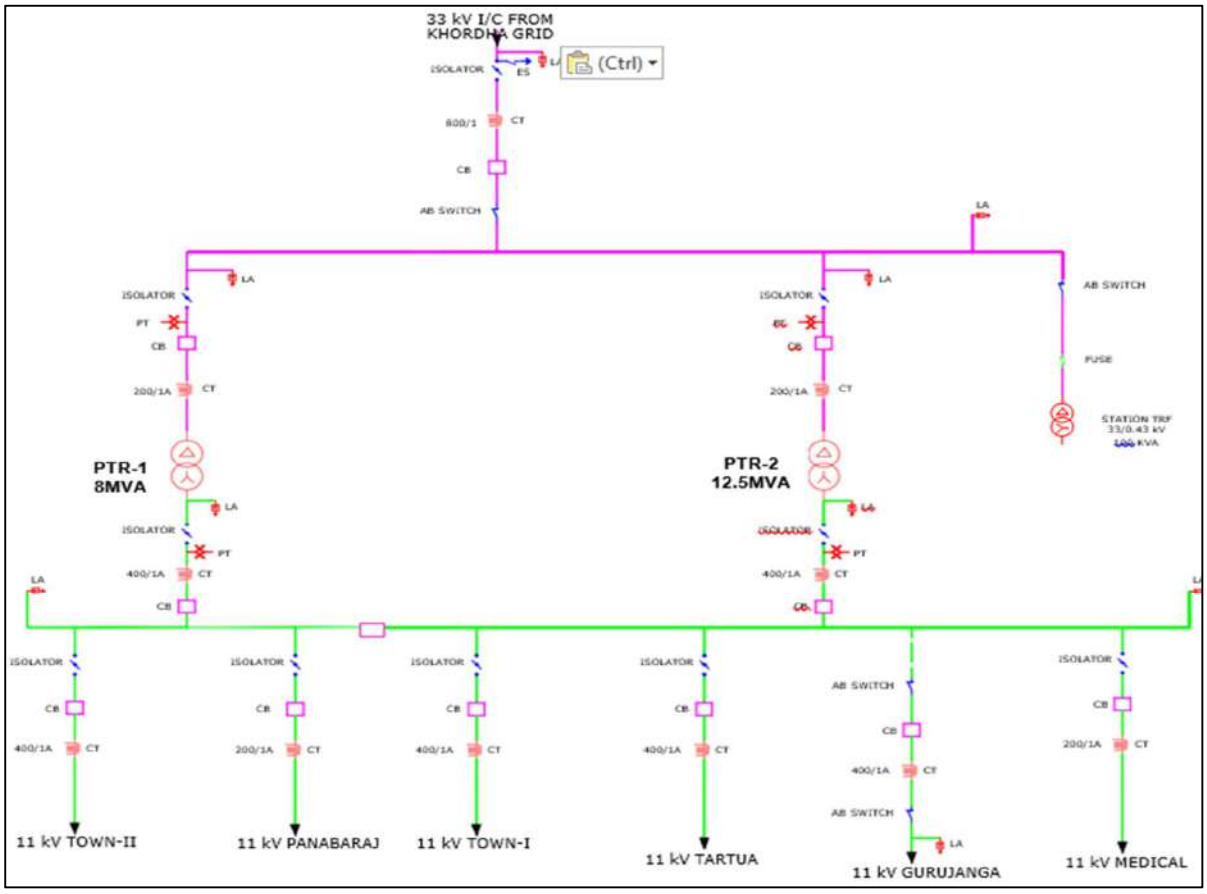
Existing Scenario:

- Loading of 33/11kV Khordha Town/ 10-Pole PTR-1 and PTR-2 are 7.85MVA and 8.98MVA respectively at peak load condition of Summer'23. Considering load growth for 2years (10% load growth per year for 2years), the projected loading of Summer'25 for PTR-1 and PTR-2 would be 9.50MVA and 10.87MVA respectively.
- PTR-1 and PTR-2 will be loaded 119% and 87% respectively, w.r.t, the existing transformer capacity of 8MVA and 12.5MVA respectively in Summer'25 which is greater than the permissible limit of 70% loading resulting in overloading of the PTR.

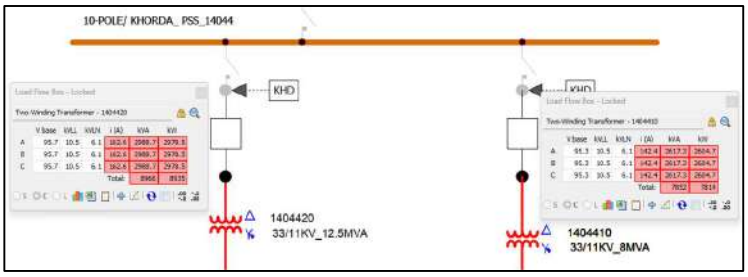
Existing Summer'23 Loading and projected load at Khordha Town/ 10-Pole PTRs:

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	AS IS (Summer'23)			Projected Load (2yrs. Load Growth @10%) Summer'25		
				Peak Load	%Loading	%Loading Range	Peak Load	%Loading	%Loading Range
1	Khordha Town/ 10-Pole	PTR-1	8	7.85	98%	90%-100%	9.50	119%	≥100%
2	Khordha Town/ 10-Pole	PTR-2	12.5	8.98	72%	70%-90%	10.87	87%	70%-90%

Existing SLD of KHORDHA TOWN/ 10-POLE 33/11kV PSS:



Load Flow Study of existing scenario in Cyme Software:

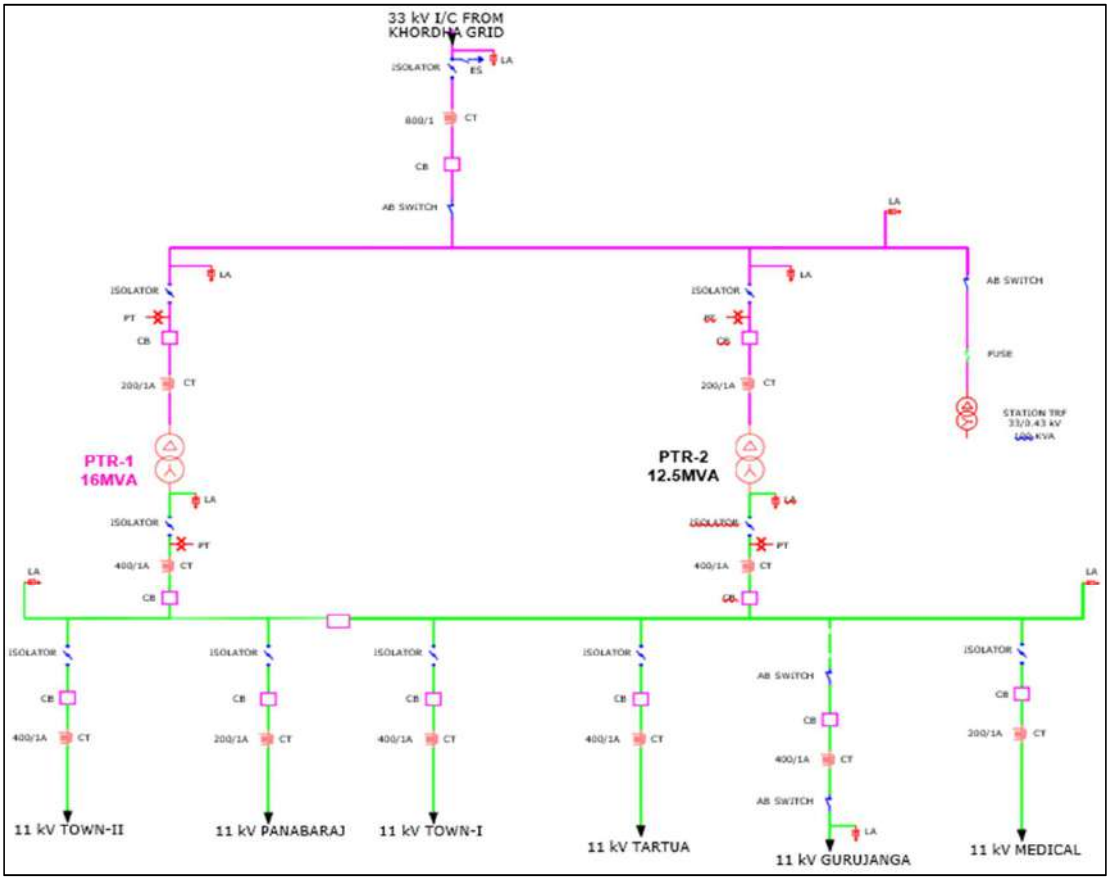


Proposed Scenario:

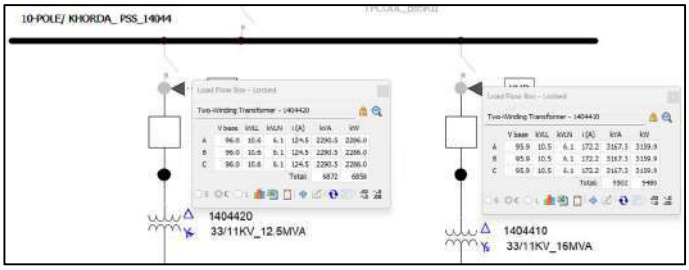
- Augmentation of PTR-1 from 8 MVA to 16MVA at Khordha Town/ 10-Pole PSS is proposed to meet the full load of Khordha Town/ 10-Pole PSS along with PTR-2 at peak load condition after 2years load growth.
- Subsequently, 11kV Gurujanga feeder load (4MVA) proposed to be diverted from PTR-2 of Khordha Town/ 10-Pole PSS to Gurujanga PSS, PTR-2 in order to mitigate the overloading of PTRs at Summer'25.

Sl. No.	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Projected Load (2yrs. Load Growth @10%) Summer'25		
				Peak Load	%Loading	%Loading Range
1	Khordha Town/ 10-Pole	PTR-1	16	9.50	59%	50%-70%
2	Khordha Town/ 10-Pole	PTR-2	12.5	6.87	55%	50%-70%

Proposed SLD of KHORDHA TOWN/ 10-POLE 33/11kV PSS:



Load Flow Study of proposed scenario in Cyme Software:



BoQ for PTR Augmentation (PTR-1):

Name of the Division :-	**KHD**
Name of the Sub-Division : -	Khordha
Name of the Section : -	Section-I
Name of the Work :-	Mitigation of 33/11kV PTR Overloading
Scope:-	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 16MVA at Khordha Town/ 10-Pole 33/11kV PSS with other civil works.
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount

1	A	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 16MVA at 33/11kV Khordha Town/ 10-Pole PSS with other civil works.	2,31,71,218.71
		Total Amount	**₹ 2,31,71,218.71**
		Total Amount (In Cr)	**₹ 2.32**
Total estimated cost is Rs. 2.32 Crore. (On TPCODL CAPEX Scheme)			

Cost Estimate: ₹ 2.32cr. (For detailed BoQ refer Annexure-12.10).

Benefits:

- To mitigate overloading condition on power transformer.
- To cater future load growth of the consumer.
- To ensure reliable power supply to the consumers.

ANNEXURE-12.1			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**BCDD-2**		
Name of the Sub-Division : -	Nayapalli		
Name of the Section : -	Nayapalli		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 12.5MVA to 25MVA at Nayapalli 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 12.5MVA to 25MVA at Nayapalli 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	₹ 5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.1

Augmentation of 1no. 12.5MVA PTR with 25MVA With Switchgear Panel
PTR-2 (33/11kV Nayapalli PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,35,88,983.00	1	2,35,88,983.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	200.00	19,500.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	100.00	10,140.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.18	1,84,129.20
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	4,901.00	6	29,406.00
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	376.5	36,708.75
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (9nos. Panels- 1 incomer, 7 outgoing, 1 Bus Coupler)	No.	81,85,107.00	1	81,85,107.00
A				**Total Cost of materials**	**3,20,90,882.95**
B				Stock, Storage & Insurance i.e 3% of A	9,62,726.49
C				**Sub Total (A+B)**	**3,30,53,609.44**
D				Contigency @ 3% of C	9,91,608.28
E				Tools & Plants @ 2% of C	6,61,072.19
F				Transportation @ 7.5% of C	24,79,020.71
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	16,36,365.64
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	7,536.90
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**3,88,29,213.15**
	Civil and Services Works (As per Technical Specification)				
Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00

ANNEXURE-12.1

Augmentation of 1no. 12.5MVA PTR with 25MVA With Switchgear Panel
PTR-2 (33/11kV Nayapalli PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00

ANNEXURE-12.1

Augmentation of 1no. 12.5MVA PTR with 25MVA With Switchgear Panel
PTR-2 (33/11kV Nayapalli PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
34	Modification and extension of Control Room along with other civil works	Cum	65,00,000.00	1	65,00,000.00
K				**Total Civil & Services**	**79,05,763.43**
L				**Total (J+K)**	**4,67,34,976.58**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**4,67,34,976.58**
O				Total GST @ 18% of (N)	84,12,295.78
P				CESS 1% of N	4,67,349.77
Q				**Gross Total Material +Services (N+O+P)**	**5,56,14,622.13**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	1,27,500.00
c				Inspection Fee of Breaker	1,500.00
R				**Total Inspection Fees (a+b+c)**	**1,29,750.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**5,57,44,372.13**
T				**Total (in cr.)**	**5.57**

ANNEXURE-12.2			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**BCDD-2**		
Name of the Sub-Division : -	Periphery		
Name of the Section : -	Kanan Vihar		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 25MVA at Kanan Vihar 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 25MVA at Kanan Vihar 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.2

Augmentation of 1no. 12.5MVA PTR with 25MVA With Switchgear Panel
PTR-1 (Kanan Vihar PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,35,88,983.00	1	2,35,88,983.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	200.00	19,500.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	100.00	10,140.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.18	1,84,129.20
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	4,901.00	6	29,406.00
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	376.5	36,708.75
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (9nos. Panels- 1 incomer, 7 outgoing, 1 Bus Coupler)	No.	81,85,107.00	1	81,85,107.00
A				**Total Cost of materials**	**3,20,90,882.95**
B				Stock, Storage & Insurance i.e 3% of A	9,62,726.49
C				**Sub Total (A+B)**	**3,30,53,609.44**
D				Contigency @ 3% of C	9,91,608.28
E				Tools & Plants @ 2% of C	6,61,072.19
F				Transportation @ 7.5% of C	24,79,020.71
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	16,36,365.64
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	7,536.90
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**3,88,29,213.15**
	Civil and Services Works (As per Technical Specification)				
Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00

ANNEXURE-12.2

Augmentation of 1no. 12.5MVA PTR with 25MVA With Switchgear Panel
PTR-1 (Kanan Vihar PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00

ANNEXURE-12.2

Augmentation of 1no. 12.5MVA PTR with 25MVA With Switchgear Panel
PTR-1 (Kanan Vihar PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
34	Modification and extension of Control Room along with other civil works	Cum	65,00,000.00	1	65,00,000.00
K				**Total Civil & Services**	**79,05,763.43**
L				**Total (J+K)**	**4,67,34,976.58**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**4,67,34,976.58**
O				Total GST @ 18% of (N)	84,12,295.78
P				CESS 1% of N	4,67,349.77
Q				**Gross Total Material +Services (N+O+P)**	**5,56,14,622.13**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	1,27,500.00
c				Inspection Fee of Breaker	1,500.00
R				**Total Inspection Fees (a+b+c)**	**1,29,750.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**5,57,44,372.13**
T				**Total (in cr.)**	**5.57**

ANNEXURE-12.3			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**BED**		
Name of the Sub-Division : -	Temple		
Name of the Section : -	OT3		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Mulapadia 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Mulapadia 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.3

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Mulapadia PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,35,88,983.00	1	2,35,88,983.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	200.00	19,500.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	100.00	10,140.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.18	1,84,129.20
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	4,901.00	6	29,406.00
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	376.5	36,708.75
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (9nos. Panels- 1 incomer, 7 outgoing, 1 Bus Coupler)	No.	81,85,107.00	1	81,85,107.00
A				**Total Cost of materials**	**3,20,90,882.95**
B				Stock, Storage & Insurance i.e 3% of A	9,62,726.49
C				**Sub Total (A+B)**	**3,30,53,609.44**
D				Contigency @ 3% of C	9,91,608.28
E				Tools & Plants @ 2% of C	6,61,072.19
F				Transportation @ 7.5% of C	24,79,020.71
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	16,36,365.64
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	7,536.90
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**3,88,29,213.15**
	Civil and Services Works (As per Technical Specification)				
Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00

ANNEXURE-12.3

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Mulapadia PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00

ANNEXURE-12.3

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Mulapadia PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
34	Modification and extension of Control Room along with other civil works	Cum	65,00,000.00	1	65,00,000.00
K				**Total Civil & Services**	**79,05,763.43**
L				**Total (J+K)**	**4,67,34,976.58**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**4,67,34,976.58**
O				Total GST @ 18% of (N)	84,12,295.78
P				CESS 1% of N	4,67,349.77
Q				**Gross Total Material +Services (N+O+P)**	**5,56,14,622.13**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	1,27,500.00
c				Inspection Fee of Breaker	1,500.00
R				**Total Inspection Fees (a+b+c)**	**1,29,750.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**5,57,44,372.13**
T				**Total (in cr.)**	**5.57**

ANNEXURE-12.4			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**BED**		
Name of the Sub-Division : -	Rasulgarh		
Name of the Section : -	Rasulgarh		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Pandra 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Pandra 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.4

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Pandra PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,35,88,983.00	1	2,35,88,983.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	200.00	19,500.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	100.00	10,140.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.18	1,84,129.20
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	4,901.00	6	29,406.00
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	376.5	36,708.75
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (9nos. Panels- 1 incomer, 7 outgoing, 1 Bus Coupler)	No.	81,85,107.00	1	81,85,107.00
A				**Total Cost of materials**	**3,20,90,882.95**
B				Stock, Storage & Insurance i.e 3% of A	9,62,726.49
C				**Sub Total (A+B)**	**3,30,53,609.44**
D				Contigency @ 3% of C	9,91,608.28
E				Tools & Plants @ 2% of C	6,61,072.19
F				Transportation @ 7.5% of C	24,79,020.71
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	16,36,365.64
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	7,536.90
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**3,88,29,213.15**
	Civil and Services Works (As per Technical Specification)				
Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00

ANNEXURE-12.4

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Pandra PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00

ANNEXURE-12.4

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Pandra PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
34	Modification and extension of Control Room along with other civil works	Cum	65,00,000.00	1	65,00,000.00
K				**Total Civil & Services**	**79,05,763.43**
L				**Total (J+K)**	**4,67,34,976.58**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**4,67,34,976.58**
O				Total GST @ 18% of (N)	84,12,295.78
P				CESS 1% of N	4,67,349.77
Q				**Gross Total Material +Services (N+O+P)**	**5,56,14,622.13**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	1,27,500.00
c				Inspection Fee of Breaker	1,500.00
R				**Total Inspection Fees (a+b+c)**	**1,29,750.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**5,57,44,372.13**
T				**Total (in cr.)**	**5.57**

ANNEXURE-12.5			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-		**BED**	
Name of the Sub-Division : -		Rasulgarh	
Name of the Section : -		Phulnakhara	
Name of the Work :-		Mitigation of 33/11kV PTR Overloading	
Scope:-		Augmentation of 01no. Power Transformer (PTR-1) from 5MVA to 25MVA at Phulnakhara 33/11kV PSS with other civil works along with installation of 33kV and 11kV Switch panel board and construction of new Control Room.	
Names of Schemes: -		TPCODL CAPEX (FY 2024-25)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-1) from 5MVA to 25MVA at Phulnakhara 33/11kV PSS with other civil works along with installation of 33kV and 11kV Switch panel board and construction of new Control Room.	6,92,31,804.98
		Total Amount	**₹ 6,92,31,804.98**
		Total Amount (In Cr)	**₹ 6.92**
Total estimated cost is Rs. 6.92 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.5

Augmentation of 1no. 5MVA PTR with 25MVA With Switchgear Panel
PTR-1 (Phulnakhara PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,35,88,983.00	1	2,35,88,983.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	200.00	19,500.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	100.00	10,140.00
5	Supply of 33kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	14,95,470.00	0.18	2,69,184.60
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	6,100.00	6.00	36,600.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT U/G Cable kits for 1Core	Set	6,350.00	6.00	38,100.00
8	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.18	1,84,129.20
9	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	5,014.00	6	30,084.00
10	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	4,901.00	6	29,406.00
11	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	376.5	36,708.75
12	33kV Indoor AIS Panel (2nos. Incomer + 1no. Bus Coupler + 2nos. Outgoing + 2nos. Bus PT)	No.	90,00,000.00	1	90,00,000.00
13	SWITCH GEAR PANEL BOARD 11kV I/D VCB (9nos. Panels- 1 incomer, 7 outgoing, 1 Bus Coupler)	No.	81,85,107.00	1	81,85,107.00
A				**Total Cost of materials**	**4,14,34,767.55**
B				Stock, Storage & Insurance i.e 3% of A	12,43,043.03
C				**Sub Total (A+B)**	**4,26,77,810.58**
D				Contigency @ 3% of C	12,80,334.32
E				Tools & Plants @ 2% of C	8,53,556.21
F				Transportation @ 7.5% of C	32,00,835.79
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	20,99,865.64
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	7,536.90
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**5,01,19,939.43**
	Civil and Services Works (As per Technical Specification)				
Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
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**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	2,081.70	6	12,490.20
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	2,081.70	6	12,490.20
4	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
5	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
6	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
7	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
8	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
9	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
10	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00

ANNEXURE-12.5

Augmentation of 1no. 5MVA PTR with 25MVA With Switchgear Panel
PTR-1 (Phulnakhara PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
11	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
12	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
13	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00
14	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
15	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
16	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
17	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
18	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
19	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
20	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
21	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
22	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
23	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
24	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
25	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
26	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
27	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
28	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
29	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00

ANNEXURE-12.5

Augmentation of 1no. 5MVA PTR with 25MVA With Switchgear Panel
PTR-1 (Phulnakhara PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
30	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
31	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
32	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
33	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
34	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
35	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
36	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
37	Modification and extension of Control Room along with other civil works	Cum	65,00,000.00	1	65,00,000.00
K				**Total Civil & Services**	**79,47,753.83**
L				**Total (J+K)**	**5,80,67,693.26**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**5,80,67,693.26**
O				Total GST @ 18% of (N)	1,04,52,184.79
P				CESS 1% of N	5,80,676.93
Q				**Gross Total Material +Services (N+O+P)**	**6,91,00,554.98**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	1,27,500.00
c				Inspection Fee of Breaker	3,000.00
R				**Total Inspection Fees (a+b+c)**	**1,31,250.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**6,92,31,804.98**
T				**Total (in cr.)**	**6.92**

ANNEXURE-12.6			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**BED**		
Name of the Sub-Division : -	Temple		
Name of the Section : -	OT-1		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Lingipur 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 25MVA at Lingipur 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.6

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Lingipur PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,35,88,983.00	1	2,35,88,983.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	200.00	19,500.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	100.00	10,140.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.18	1,84,129.20
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	4,901.00	6	29,406.00
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	376.5	36,708.75
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (9nos. Panels- 1 incomer, 7 outgoing, 1 Bus Coupler)	No.	81,85,107.00	1	81,85,107.00
A				**Total Cost of materials**	**3,20,90,882.95**
B				Stock, Storage & Insurance i.e 3% of A	9,62,726.49
C				**Sub Total (A+B)**	**3,30,53,609.44**
D				Contigency @ 3% of C	9,91,608.28
E				Tools & Plants @ 2% of C	6,61,072.19
F				Transportation @ 7.5% of C	24,79,020.71
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	16,36,365.64
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	7,536.90
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**3,88,29,213.15**
	Civil and Services Works (As per Technical Specification)				
Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00

ANNEXURE-12.6

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Lingipur PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00

ANNEXURE-12.6

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-2 (Lingipur PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
34	Modification and extension of Control Room along with other civil works	Cum	65,00,000.00	1	65,00,000.00
K				**Total Civil & Services**	**79,05,763.43**
L				**Total (J+K)**	**4,67,34,976.58**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**4,67,34,976.58**
O				Total GST @ 18% of (N)	84,12,295.78
P				CESS 1% of N	4,67,349.77
Q				**Gross Total Material +Services (N+O+P)**	**5,56,14,622.13**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	1,27,500.00
c				Inspection Fee of Breaker	1,500.00
R				**Total Inspection Fees (a+b+c)**	**1,29,750.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**5,57,44,372.13**
T				**Total (in cr.)**	**5.57**

ANNEXURE-12.7			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**CDD-1**		
Name of the Sub-Division : -	Kalinga		
Name of the Section : -	Cantonment		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-3) from 12.5MVA to 25MVA at Kalinga 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-3) from 12.5MVA to 25MVA at Kalinga 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of new Control Room.	5,57,44,372.13
		Total Amount	**₹ 5,57,44,372.13**
		Total Amount (In Cr)	**₹ 5.57**
Total estimated cost is Rs. 5.57 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.7

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-3 (Kalinga PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,35,88,983.00	1	2,35,88,983.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	200.00	19,500.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	100.00	10,140.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.18	1,84,129.20
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	4,901.00	6	29,406.00
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	376.5	36,708.75
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (9nos. Panels- 1 incomer, 7 outgoing, 1 Bus Coupler)	No.	81,85,107.00	1	81,85,107.00
A				**Total Cost of materials**	**3,20,90,882.95**
B				Stock, Storage & Insurance i.e 3% of A	9,62,726.49
C				**Sub Total (A+B)**	**3,30,53,609.44**
D				Contigency @ 3% of C	9,91,608.28
E				Tools & Plants @ 2% of C	6,61,072.19
F				Transportation @ 7.5% of C	24,79,020.71
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	16,36,365.64
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	7,536.90
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**3,88,29,213.15**
	Civil and Services Works (As per Technical Specification)				
Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00

ANNEXURE-12.7

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-3 (Kalinga PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00

ANNEXURE-12.7

Augmentation of 1no. 8MVA PTR with 25MVA With Switchgear Panel
PTR-3 (Kalinga PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
34	Modification and extension of Control Room along with other civil works	Cum	65,00,000.00	1	65,00,000.00
K				**Total Civil & Services**	**79,05,763.43**
L				**Total (J+K)**	**4,67,34,976.58**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**4,67,34,976.58**
O				Total GST @ 18% of (N)	84,12,295.78
P				CESS 1% of N	4,67,349.77
Q				**Gross Total Material +Services (N+O+P)**	**5,56,14,622.13**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	1,27,500.00
c				Inspection Fee of Breaker	1,500.00
R				**Total Inspection Fees (a+b+c)**	**1,29,750.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**5,57,44,372.13**
T				**Total (in cr.)**	**5.57**

ANNEXURE-12.8			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**CDD-2**		
Name of the Sub-Division : -	Badambadi		
Name of the Section : -	Khapuria (IE)		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at OGP 33/11kV PSS with other civil works.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at 33/11kV OGP PSS with other civil works.	2,31,71,218.71
		Total Amount	**₹ 2,31,71,218.71**
		Total Amount (In Cr)	**₹ 2.32**
Total estimated cost is Rs. 2.32 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.8

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-2 (33/11kV OGP PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	12.5/16 MVA, 33/11 KV Power Transformer with OLTC	Nos.	1,47,15,890.00	1	1,47,15,890.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	150.00	14,625.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	50.00	5,070.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.072	73,651.68
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable	EA	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable	EA	4,901.00	6	29,406.00
8	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	250	24,375.00
9	SWITCH GEAR PANEL BOARD 11kV I/D VCB	No.	-		-
A				**Total Cost of materials**	**1,48,99,926.68**
B				Stock, Storage & Insurance i.e 3% of A	4,46,997.80
C				**Sub Total (A+B)**	**1,53,46,924.48**
D				Contigency @ 3% of C	4,60,407.73
E				Tools & Plants @ 2% of C	2,95,199.20
F				Transportation @ 7.5% of C	11,51,019.34
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	7,57,868.34
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	4,539.21
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**1,80,15,958.30**

Civil and Services Works
(As per Technical Specification)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.072	6,804.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
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 . BA has to supply of charcoal.etc with brick masanory (1:5), PCC (1:4:8) d with cast iron cover. size of the pit 450mmx450mmx600mm depth as per direction of engineer in charge. Supply of GI Pipe 40mm dia 3Mtr long is in scope of TPCODL.The installation will be done as per TPCODL drawing	No	3,700.00	5	18,500.00
	Demolition Work for Existing PTR				-
5	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
6	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
7	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane , charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
8	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
9	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
10	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00

ANNEXURE-12.8

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-2 (33/11kV OGP PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
11	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00
12	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
13	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
14	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
15	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
16	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
17	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
18	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
19	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
20	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
21	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
22	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
23	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density. Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
24	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
25	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	48	62,640.00
26	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
27	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00

ANNEXURE-12.8

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-2 (33/11kV OGP PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
28	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
29	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
30	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
31	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
32	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
33	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
34	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
K				**Total Civil & Services**	**14,14,057.43**
L				**Total (J+K)**	**1,94,30,015.73**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**1,94,30,015.73**
O				Total GST @ 18% of (N)	34,97,402.83
P				CESS 1% of N	1,94,300.16
Q				**Gross Total Material +Services (N+O+P)**	**2,31,21,718.71**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	48,750.00
c				Inspection Fee of Breaker	-
R				**Total Inspection Fees (a+b+c)**	**49,500.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**2,31,71,218.71**
T				**Total (in cr.)**	**2.32**

ANNEXURE-12.9			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**CED**		
Name of the Sub-Division : -	Choudwar		
Name of the Section : -	Choudwar		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at Choudwar 33/11kV PSS with other civil works.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at 33/11kV Choudwar PSS with other civil works.	2,31,71,218.71
		Total Amount	**₹ 2,31,71,218.71**
		Total Amount (In Cr)	**₹ 2.32**
Total estimated cost is Rs. 2.32 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.9

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-2 (33/11kV Choudwar PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	12.5/16 MVA, 33/11 KV Power Transformer with OLTC	Nos.	1,47,15,890.00	1	1,47,15,890.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	150.00	14,625.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	50.00	5,070.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.072	73,651.68
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable	EA	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable	EA	4,901.00	6	29,406.00
8	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	250	24,375.00
9	SWITCH GEAR PANEL BOARD 11kV I/D VCB	No.	-		-
A				**Total Cost of materials**	**1,48,99,926.68**
B				Stock, Storage & Insurance i.e 3% of A	4,46,997.80
C				**Sub Total (A+B)**	**1,53,46,924.48**
D				Contigency @ 3% of C	4,60,407.73
E				Tools & Plants @ 2% of C	2,95,199.20
F				Transportation @ 7.5% of C	11,51,019.34
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	7,57,868.34
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	4,539.21
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**1,80,15,958.30**

Civil and Services Works
(As per Technical Specification)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.072	6,804.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
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 . BA has to supply of charcoal.etc with brick masanory (1:5), PCC (1:4:8) d with cast iron cover. size of the pit 450mmx450mmx600mm depth as per direction of engineer in charge. Supply of GI Pipe 40mm dia 3Mtr long is in scope of TPCODL.The installation will be done as per TPCODL drawing	No	3,700.00	5	18,500.00
	Demolition Work for Existing PTR				-
5	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
6	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
7	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane , charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
8	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
9	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
10	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00

ANNEXURE-12.9

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-2 (33/11kV Choudwar PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
11	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00
12	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
13	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
14	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
15	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
16	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
17	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
18	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
19	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
20	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
21	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
22	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
23	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density. Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
24	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
25	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	48	62,640.00
26	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
27	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00

ANNEXURE-12.9

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-2 (33/11kV Choudwar PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
28	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
29	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
30	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
31	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
32	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
33	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
34	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
K				**Total Civil & Services**	**14,14,057.43**
L				**Total (J+K)**	**1,94,30,015.73**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**1,94,30,015.73**
O				Total GST @ 18% of (N)	34,97,402.83
P				CESS 1% of N	1,94,300.16
Q				**Gross Total Material +Services (N+O+P)**	**2,31,21,718.71**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	48,750.00
c				Inspection Fee of Breaker	-
R				**Total Inspection Fees (a+b+c)**	**49,500.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**2,31,71,218.71**
T				**Total (in cr.)**	**2.32**

ANNEXURE-12.10			
TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	**KHD**		
Name of the Sub-Division : -	Khordha		
Name of the Section : -	Section-I		
Name of the Work :-	Mitigation of 33/11kV PTR Overloading		
Scope:-	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 16MVA at Khordha Town/ 10-Pole 33/11kV PSS with other civil works.		
Names of Schemes: -	TPCODL CAPEX (FY 2024-25)		
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 16MVA at 33/11kV Khordha Town/ 10-Pole PSS with other civil works.	2,31,71,218.71
		Total Amount	**₹ 2,31,71,218.71**
		Total Amount (In Cr)	**₹ 2.32**
Total estimated cost is Rs. 2.32 Crore. (On TPCODL CAPEX Scheme)			

ANNEXURE-12.10

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-1 (33/11kV Khordha Town/ 10-Pole PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
1	12.5/16 MVA, 33/11 KV Power Transformer with OLTC	Nos.	1,47,15,890.00	1	1,47,15,890.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	97.50	150.00	14,625.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,365.00	5	6,825.00
4	GI Nuts & Bolts of Assorted size	Kg	101.40	50.00	5,070.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,22,940.00	0.072	73,651.68
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable	EA	5,014.00	6	30,084.00
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable	EA	4,901.00	6	29,406.00
8	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	97.50	250	24,375.00
9	SWITCH GEAR PANEL BOARD 11kV I/D VCB	No.	-		-
A				**Total Cost of materials**	**1,48,99,926.68**
B				Stock, Storage & Insurance i.e 3% of A	4,46,997.80
C				**Sub Total (A+B)**	**1,53,46,924.48**
D				Contigency @ 3% of C	4,60,407.73
E				Tools & Plants @ 2% of C	2,95,199.20
F				Transportation @ 7.5% of C	11,51,019.34
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	7,57,868.34
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	4,539.21
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**1,80,15,958.30**

Civil and Services Works
(As per Technical Specification)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.072	6,804.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
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 . BA has to supply of charcoal.etc with brick masanory (1:5), PCC (1:4:8) d with cast iron cover. size of the pit 450mmx450mmx600mm depth as per direction of engineer in charge. Supply of GI Pipe 40mm dia 3Mtr long is in scope of TPCODL.The installation will be done as per TPCODL drawing	No	3,700.00	5	18,500.00
	Demolition Work for Existing PTR				-
5	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
6	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
7	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane , charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
8	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
9	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
10	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00

ANNEXURE-12.10

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-1 (33/11kV Khordha Town/ 10-Pole PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
11	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00
12	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
13	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
14	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
15	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
16	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
17	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
18	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
19	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
20	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
21	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
22	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
23	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density. Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
24	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
25	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	48	62,640.00
26	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
27	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00

ANNEXURE-12.10

Augmentation of 1no. 8MVA PTR with 16MVA Without Switchgear Panel
PTR-1 (33/11kV Khordha Town/ 10-Pole PSS)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount (in Rs.)*
28	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
29	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
30	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
31	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
32	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
33	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
34	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
K				**Total Civil & Services**	**14,14,057.43**
L				**Total (J+K)**	**1,94,30,015.73**
M				Other overheads (Including 6% supervision charges) of L	-
N				**Sub Total (L+M)**	**1,94,30,015.73**
O				Total GST @ 18% of (N)	34,97,402.83
P				CESS 1% of N	1,94,300.16
Q				**Gross Total Material +Services (N+O+P)**	**2,31,21,718.71**
a				Final decision by electrical Inspector	750.00
b				Inspection Fee of PTR	48,750.00
c				Inspection Fee of Breaker	-
R				**Total Inspection Fees (a+b+c)**	**49,500.00**
S				**Gross Total Material, Services and Inspection Fees (Q+R)**	**2,31,71,218.71**
T				**Total (in cr.)**	**2.32**