Refer 6.3.6 of the petition

1. **Mitigation of New Industry Feeder overloading**

Proposal: Mitigation of New Industry Feeder overloading .

1) Augmentation of the existing 11kv OH line length of 0.4 Ckm length from 55 sq. mm to 100 sq.mm AAAC conductor from Shikarchandi to Lingaraj Biscuits .

2) For road crossing UG cable of 3Cx400 sq.mm of 0.07Ckm length to be laid from Lingaraj Biscuits to DLF boundary .

3) Augmentation of existing UG of Infocity feeder of length of 0.3Ckm from 120 sq.mm to 400 sq.mm from Infocity structure to TCS boundary wall.

Objective: To improve the reliability, continuity of power supply and meet the increasing demand by mitigating over loading issue.

Existing Scenario:

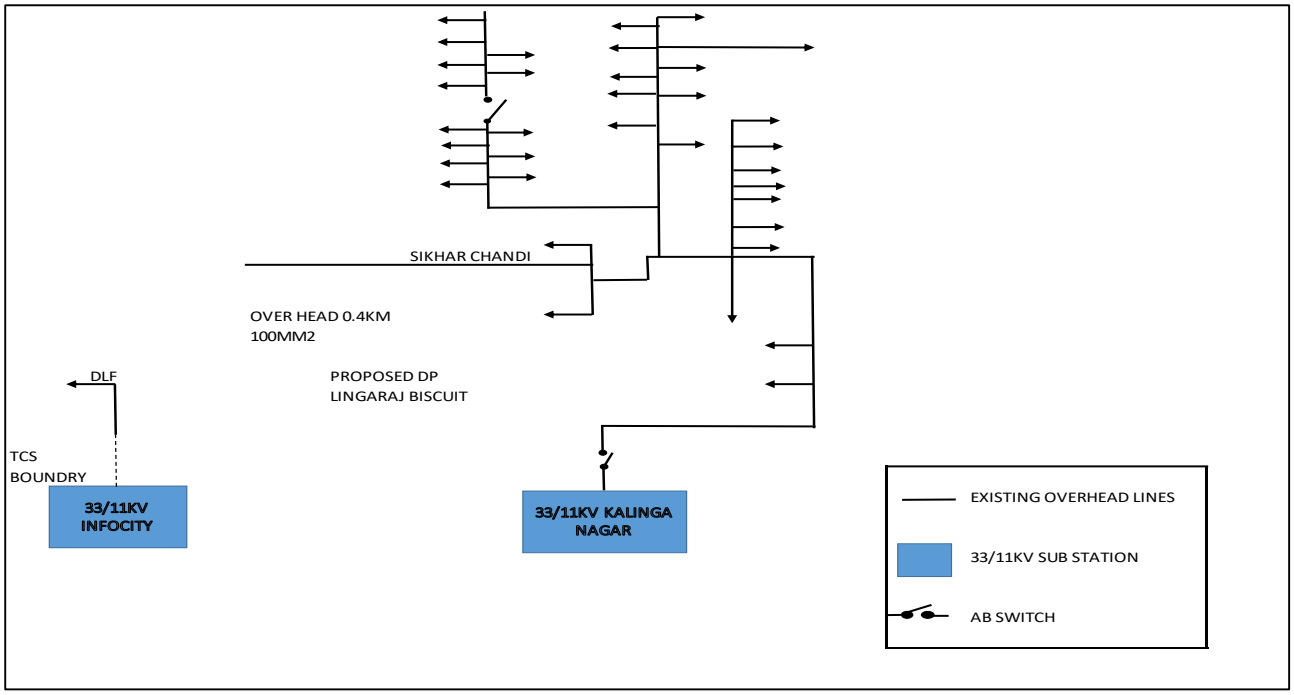
- Loading of New industry feeder of Infocity structure was 250A with respect to feeder capacity 261A (considering derating factor) as per peak loading from April-2018 to Oct-2020.Considering 6.83% load growth, projected loading would be 285A.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor 0.9	Peak Loading in Ampere (A)	Load Growth in %	Projected load in Ampere (A)	Overloading
BCDD-2	Infocity	New Industry feeder	55	189	250	6.83	285	150%

Existing SLD (summer'20):

Refer 6.3.6 of the petition

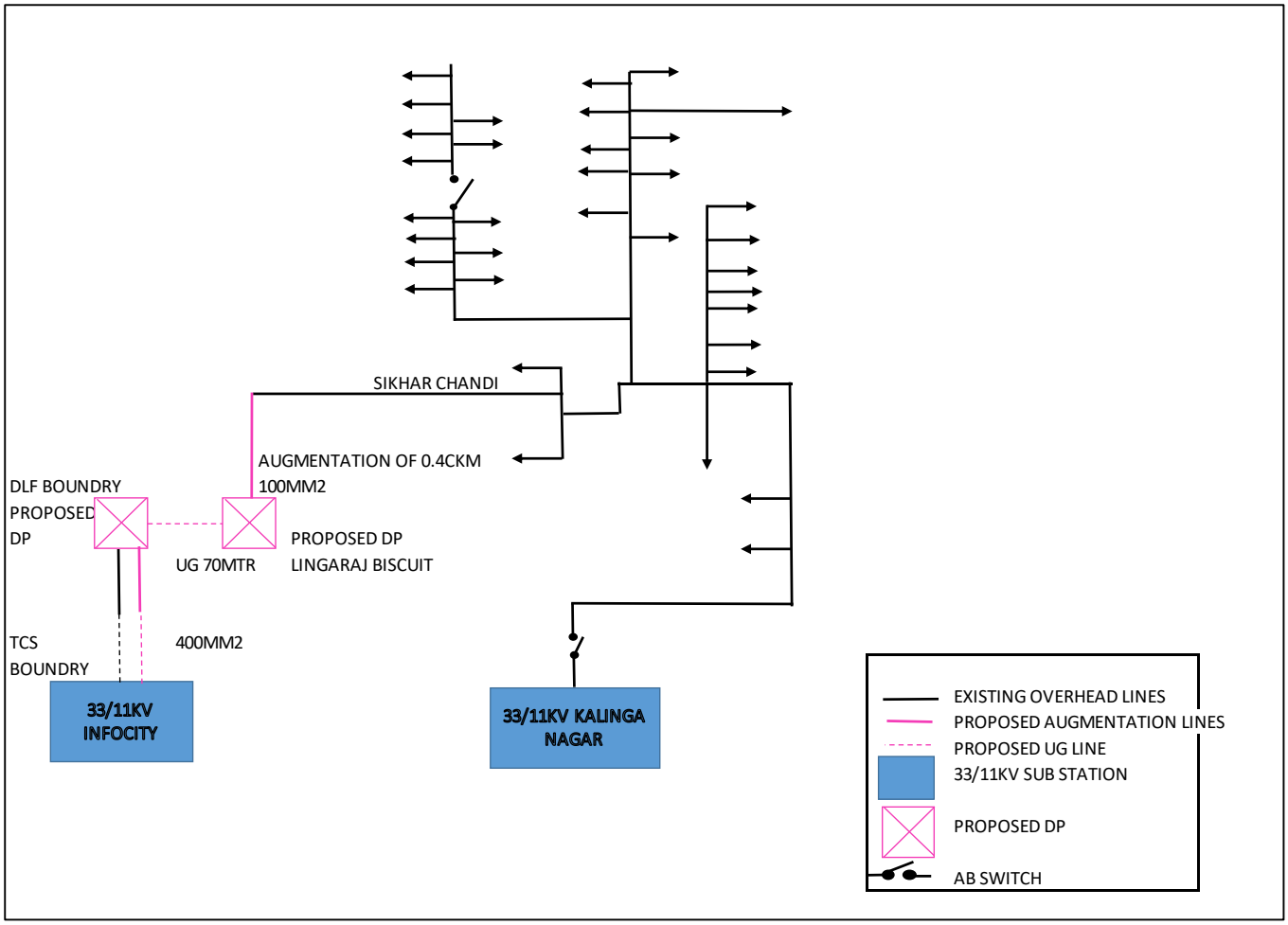


Proposed Scenario: -

- Augmentation of 11kv OH line of new industry-1 feeder from Shikharchandi to near Lingaraj Biscuits of 0.4ckm from 55 sq.mm to 100 sq.mm.
- Construction of new 11 KV UG XLPE cable of 400 sq.mm of 0.07ckm from Lingaraj biscuits office to DLF boundary.
- Augmentation of 11kv UG XLPE cable of 0.3ckm from Infocity structure to near TCS Boundary wall from 120 sq.mm to 400 sq.mm.

Proposed SLD:

Refer 6.3.6 of the petition



Detailed Scope of Work:

- Augmentation of 11kv OH line of new industry-1 feeder from Shikharchandi to near Lingaraj Biscuits of 0.4ckm from 55 sq.mm to 100 sq.mm.
- Construction of new 11 KV UG XLPE cable of 400 sq.mm of 0.07ckm from Lingaraj biscuits office to DLF boundary.
- Augmentation of 11kv UG XLPE cable of 0.3ckm from Infocity structure to near TCS from 120 sq.mm to 400 sq.mm.

BOQ for New Industry-1 Feeder:

Refer 6.3.6 of the petition

Proposal Name-Augmentation of 11kv OH line of 0.4 Ckm length from 55 sq mm to 100 sq.mm AAAC conductor and new Augmentation of 0.4 ckm length from 55 sq.mm to 100 sq.mm						
Sl.No.	**Mtr Code**	**Description of Materials**	**Unit**	**Qty**	**Rate**	**Amount**
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	7	24,739	1,73,173.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	7	810	5,670.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	7	100	700.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	7	150	1,050.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	21	200	4,200.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	5	468	2,340.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	5	1,150	5,750.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	30	75	2,250.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	1.24	55,000	67,980.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	7	703	4,921.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**2,81,891.00**
	B	Stock & Storage @ 3% of A				8456.73
	C	Sub - Total (A+B)				2,90,347.73
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5%				65,328.24
	E	Sub - Total (C+D)				3,55,675.97
	F	Other Overheads including supervision charges @ 6%				21,340.56
	G	Total estimated Capital Cost (E+F)				3,77,016.53
	H	GST 18% of G				67,862.97
	I	CESS 1% of G				3,770.17
	J	**Total Cost**				**4,48,649.67**
ESTIMATE for 11 kv Line DP with AB Switch						

Refer 6.3.6 of the petition

ESTIMATE for 11 kv Line DP with AB Switch

Sl. No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
1	150X150 GI Joist (11Mtr. Long) (34.6kg/meter) (Each 380.6kg.)	No	2	24739.00	49,478.00
2	Pressure Channel 100 x 50 x 6mm GI channel	K.g.	100	75.00	7,500.00
3	S/S DP bressing chhanel 75 x 40 x 6mm GI CHANEL	K.g.	48	75.00	3,600.00
4	AB switch Mounting Channel 100x50x6	K.g.	0	75.00	-
5	S/S DP bracing Angle 50 x 50 x 6 mm - 6 mtr. Long 2 nos.(4.5 K.g. per mtr.) with side angle	K.g.	54	65.00	3,510.00
6	11 K.V. Polymer type Insulator	No.	3	480.00	1,440.00
7	11 K.V DISC Insulator (B & S) 90KN Polymer	No.	6	1150.00	6,900.00
	H.w fitting suitable for 100 sqmm AAAC 3 bolted	No	6	468.00	2,808.00
8	PG Clamp for 100 mm2 Conductor for jumpering	No	3	400.00	1,200.00
9	11KV AB Switch 400Amp 3pole	Set	1	12000.00	12,000.00
10	H.T.stay set (Complete)	Set	2	700.00	1,400.00
11	H.T. Stay Insulator	No.	2	40.00	80.00
12	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	146.25	292.50
13	7/8 SWG Stay Wire	K.g.	24	90.00	2,160.00
14	GI Pipe Earthing 40 Dia Medium gage 3 mtrs. Long	No.	2	1500.00	3,000.00
15	40x6mm GI Flat for earthing	K.g.	40	60.00	2,400.00
16	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size	No.	2	1753.90	3,507.80
17	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5.5'x2'x2' = 22CFT = 0.62Cum	NO	2	2152.95	4,305.90
18	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4	Nos	2	512.40	1,024.80
19	Materials for Massonary work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber	No.	2	1719.90	3,439.80
20	Black Paint	Ltr	0.7	85.00	59.50
21	Ms Nut , Bolt & Washer	K.g.	4	75.00	300.00
22	Sundries for survey , PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing	LS	1	0.00	-
A.	**Total cost of materials for the year 2018-19**				**1,10,406.30**
B.	**Stock,Storage & Insurance = 3% of (A.)**				3,312.19
C	**Sub total (A+B)**				**1,13,718.49**
I.	**T & P charges = 2% of (C)**				2,274.37
II.	**Contigency = 3% of (C.)**				3,411.55
III.	**Transportation Charges = 7.5% of (C.)**				8,528.89
	Erection Charges for PSC Pole @ 20%				0.00
IV.	**Erection Charges for Other Materials @ 10%**				4,122.11
	Errection Charges for TFR, Breaker & Joist Pole @ 5%				2,548.12
D.	**Sub Total**				**1,34,603.53**
E	**Over Head Charges = 6% of (D)**				0.00
F	**Total Estimated Capital Cost (D+E)**				**1,34,603.53**
G	**GST 18% of (D)**				**24,228.64**
H	**GST 18% of (E)**				0.00
I	**CESS = 1% of (F.)**				1346.04
J	**Inspection Fee**				1000.00
K	**Total (F+G+H+I+J)**				**1,61,178.20**

Refer 6.3.6 of the petition

New UG cable for 0.37ckm.					
Sl. No.	Description of Materials	Unit	Quantity	Rate (Rs)	Amount (Rs)
1	3x400mm²	mtr	370	1500	555000
	cable joint kit straight	set	1	25317	25317
2	11KV XLPE cable end	set	2	13904	27808
	chamber (15'x15'x5')				
3	with laterite	Nos	1	26000	26000
4	High presure	Nos	2	5000	10000
5	Placement of	Nos	7	2000	14000
5	Cable laying.	MTR	370	1200	444000
6	Hosting of	Nos	2	5000	10000
7	6" dia PVC pipe for	No/ mtr 4/24	12	250	3000
8	Clamp for	Nos	4	117	468
		Construction of DP=2Nos.			
	13mtr long				
9	150x150 RS	No/Kg 4/1799.2	1799.2	65	116948
10	100x50x6	Kg	206	78	16068
11	75 x 40 x 6	Kg	180	78	14040
12	50 x 50 x 6	Kg	145	78	11310
13	GI Pipe	No.	4	1050	4200
14	No.6 GI	K.g.	40	75	3000
15	40x6mm GI	K.g.	40	75	3000
16	11KV AB	Set	2	12000	24000
17	11KV LA	No	6	3550	21300
18	11KV HG	No	2	11530	23060
	Materials for Machinery				
19	work for	No.	4	2270	9081.08
20	11KV Disc	No	12	1150	13800
21	4 Bolt single	Nos	12	1055	12660
22	HT Stay Set	Set	4	1050	4200
23	HT Stay	No.	4	50	200
24	HT stay	Pair	4	125	500
25	7/10 Stay	Kg	40	75	3000
	concreating of stay set with 0.5Cum cement				
26	concret	No.	4	2315	9260.6
	of support C.C - 1:4:8 using 40mm				
27	BHG metal	No.	4	2841	11363.56
	support section				
28	15"x15"	No.	4	676.4	2705.48
	Materials for Machinery				
29	work for	No.	4	2270	9081.08
30	Al. binding	Kg	20	420	8400
31	Al. Cable	No	24	45	1080
32	Danger	No	4	80	320
33	100mm2	Km	0.08	30000	2400
34	Red Oxide	Ltr	8	150	1200
35	All. Paint	Ltr	8	200	1600
36	Black Paint	Ltr	6	220	1320
37	Ms Nut ,	K.g.	20	71	1420
	Sundries for survey, PVC				
38	tape, Ampire	LS	1	4092	4092
A	Total cost of				1450202.8
B	Stock				43506.084
	Sub Total				1493708.884
C	2% T & P				29874.17768
D	3%				44811.26652
E	7.5%				112028.1663
F	10%				149370.8884
G	Sub total (A				1829793.383
	Other over				
H	head (				109787.603
I	Total				1939580.986
J	GST @ 18%				349124.5775
K	CESS @1%				19395.80986
L	Total				2308101.373
N	Inspection				5575
O	Grand Total				2313676.373
	Total cost for 0.4ckm augmentation and 0.37ckm UG XLPE cable				29,23,504.24

Refer 6.3.6 of the petition

Benefits:

- Over loading issue will be resolved
- Reliability and continuity of Power supply can be maintained.
- Voltage drop will be reduced.

Refer 6.3.6 of the petition

2. Construction of New Line for Load transfer from lingaraj to Rath Road Feeder

Proposal:

- Construction of new 11kv UG XLPE cable of 0.15ckm length of 400 sq.mm of two runs from Kanchi bhoisahi to near Lingaraj temple, for load transfer of (100A) from Badgada lingaraj feeder to Rath Road feeder of Mulapadia structure.

Objective:

- To improve the reliability, continuity of power supply and meet the increasing demand by mitigating over loading issue.

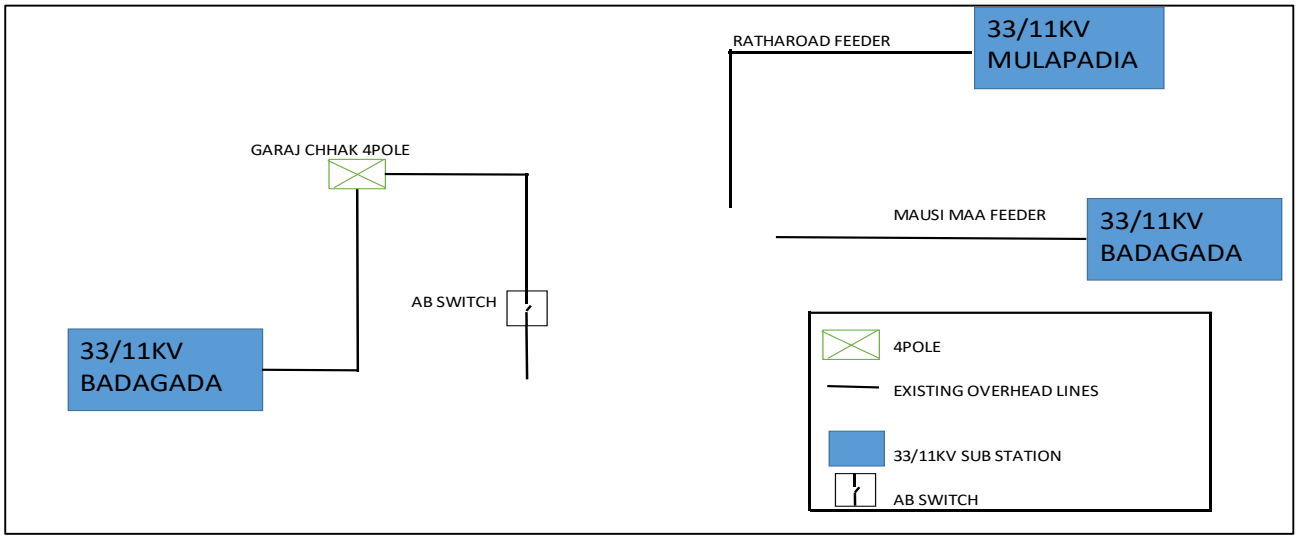
Existing Scenario:

- Loading of Badagada Lingaraj feeder of Badagada structure was 288A with respect to feeder capacity 261A (considering 90% derating factor) as per peak loading from April-2018 to Oct-2020.Considering 5.46% load growth projected loading would be 320A.

Table for Existing load scenario:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Overloading
BED	Badagada	Badagada lingaraj	80	261	288	5.46	320	123%

Existing SLD :



Proposed Scenario: -

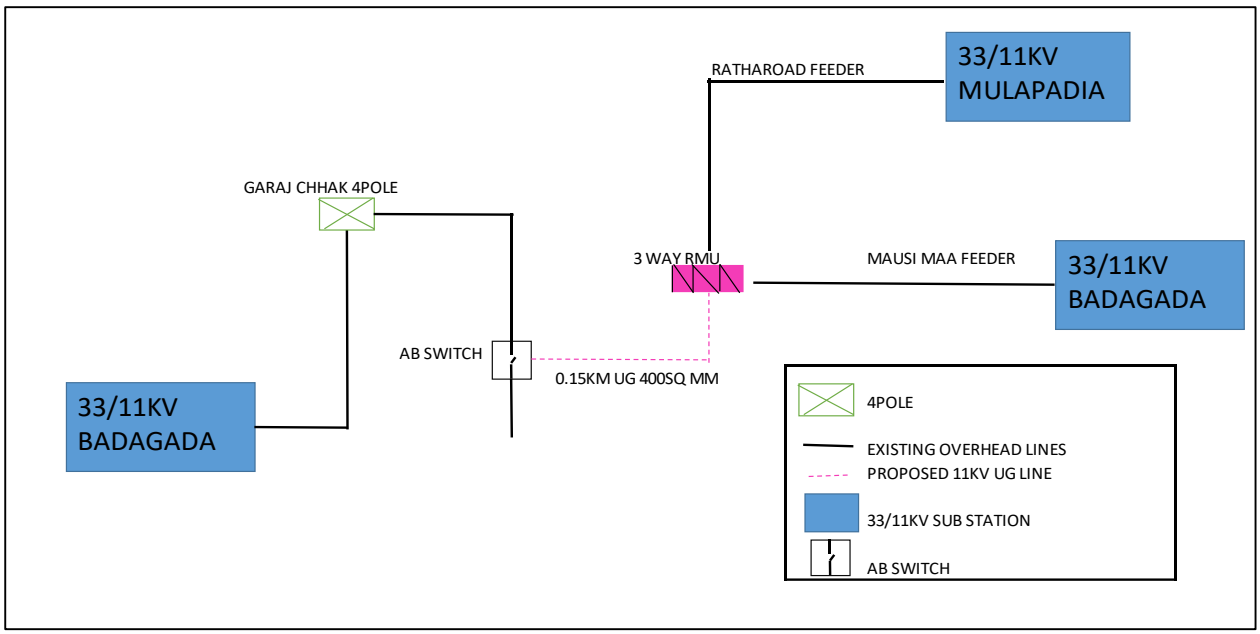
Refer 6.3.6 of the petition

- New 11kv UG of XLPE cable of 400 sq.mm of 0.15ckm length of two runs is proposed.
- In addition, one 11kv 3 way RMU is proposed near north gate of Lingaraj temple where it (Badagada lingaraj feeder) can be linked to Rath Road feeder and Mausima feeder of Mulapadia structure.
- Load of Badagada lingaraj feeder of approx.100A will be transferred to Rath Road feeder of Mulapadia structure which having under load condition. (peak load of Rath road feeder was 111A with respect to feeder capacity 292.5A)

Table-1 for proposed loading scenario:

Division Name	Structure Name	Feeder Name	Feeder capacity considering derating factor of 90%	Peak loading with load growth in Amp(A)	Load in Amp(A) transfer in Rath road feeder of Mulapadia structure	Proposed loading in Amp.	Loading of feeder	Remarks
BCDD-2	Badagada	Badagada lingaraj	261	320	100	220	84%	Under load

Proposed SLD (summer'22):



Detailed Scope of Work:

- 11kv UG of XLPE cable of 400 sq.mm of 0.15ckm of two runs is proposed of 11kv Badagada lingaraj feeder from Kanchi bhoisahi to near north gate of Lingaraj temple.

Refer 6.3.6 of the petition

- One 11 KV 3 way RMU is proposed near north gate of Lingaraj temple where three feeders can be interlinked, namely Badagada lingaraj of Badagada structure, Rath Road feeder and Mausima feeder of Mulapadia Structure.

BOQ for Badagada Lingaraj Feeder:

Refer 6.3.6 of the petition

Proposal:Construction of new 11kv UG XLPE cable of 0.15ckm length of 400 sq.mm of two runs from Kanchi bhoisahi to near lingaraj temple where it can be linked to Rath raod feeder.

Description of Materials for 11kv UG XLPE cable of 0..15ckm lentgh for two runs

Sl. No.	Description of Materials	Unit	Quantity	Rate (Rs)	Amount (Rs)
1	3x400mm² XLPE 11KV U.G. Cable	mtr	300	1500	450000
	cable joint kit straight through type for 3*400 sqmm ug cable	set	0	25317	0
2	3x400mm² 11KV XLPE cable end jointing kit (Out door) heat srinkable (Make Raychem)	set	4	13904	55616
3	Cable loop chamber (15'x15'x5') with laterite Stone with 6" base concrete in the ratio 1:2:4 & filling with sand	Nos	0	26000	0
4	High presure testing of 11KV XLPE Cable	Nos	2	5000	10000
5	Placement of 11KV cable Rootmarker	Nos	3	2000	6000
5	Cable laying, excavation and backfilling	MTR	300	1200	360000
6	Hosting of 11KV Cable	Nos	4	5000	20000
7	6" dia PVC pipe for cable bracing	mtr	24	250	6000
8	Clamp for brassing	Nos	8	117	936
Construction of DP=2Nos.					
9	13mtr long 150x150 RS joist pole	Kg	1799.2	65	116948
10	10x50x6 mm GI channel	Kg	206	78	16068
11	75 x 40 x 6 mm GI. Channel	Kg	180	78	14040
12	50 x 50 x 6 mm GI. Angle	Kg	145	78	11310
13	GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	4	1050	4200
14	No.6 GI Wire	K.g.	40	75	3000
15	40x6mm GI Flat for nutral	K.g.	40	75	3000
16	11KV AB switch 3 Pole (400 Amp.)	Set	2	12000	24000
17	11KV LA	No	6	3550	21300
18	11KVHG fuse	No	2	11530	23060
19	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
20	11KV Disc Insulator (90KN)Polymer	No	12	1150	13800
21	4 Bolt single tension H/W fitting	Nos	12	1055	12660
22	HT Stay Set Complete	Set	4	1050	4200
23	HT Stay insulator	No.	4	50	200
24	HT stay clamp (1.95Kg/ Pair)	Pair	4	125	500
25	7/10 Stay Wire	Kg	40	75	3000
26	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire, stay insulator .	No.	4	2315.15	9260.6
27	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5'x2'x2' = 20CFT = 0.570Cum Padding 900x600x150mm =0.081 0.651Cum @ 3071.25= 1999.38each	No.	4	2840.89	11363.56
28	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	No.	4	676.37	2705.48
29	Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
30	Al. binding wire/tape	Kg	20	420	8400
31	Al. Cable socket diff. size	No	24	45	1080
32	Danger Board	No	4	80	320
33	100mm2 AAAC for jumpering	Km	0.08	30000	2400
34	Red Oxide paint	Ltr	8	150	1200
35	All. Paint	Ltr	8	200	1600
36	Black Paint	Ltr	6	220	1320
37	Ms Nut , Bolt & Washer	K.g.	20	71	1420
38	Sundries for survey, PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Allm. Socket etc	LS	1	4092	4092
A	Total cost of Material as per 2018-19 Cost Data				1243161.8
B	Stock ,Storage &Insurance				37294.854
	Sub Total (A+B)				1280456.654
C	2% T & P charges of (A+B)				25609.13308
D	3% Contigency of (A+B)				38413.69962
E	7.5% Transportation charges of (A+B)				96034.24905
F	10% Errection Charges of (A+B)				128045.6654
G	Sub total (A to F)				1568559.401
H	Other over head (Including 6%) supervision charges of G				94113.56407
I	Total Estimated Capital cost (G+H)				1662672.965
J	GST @ 18% of H				299281.1337
K	CESS @1% of I				16626.72965
L	Total Estimate to be deposited by party (H+J+K)				1978580.829
N	Inspection Fee				5575
O	Grand Total (I+J+K+L+M+N)				1984155.829

Benefits:

Refer 6.3.6 of the petition

- Over loading issue can be mitigated.
- Reliability and continuity of power supply can be maintained.

Refer 6.3.6 of the petition

3. Construction of New Line of Pokhariput-1 feeder for load bifurcation

Proposal:

- Presently pokhariput-1 feeder is feeding extra load of pokhariput-2 feeder (Pokhariput -2 feeder due to network constraint). Construction of 11kv UG of 400 sq.mm cable of 0.15km is required with one 11KV line DP with AB switch to bifurcate the pokhariput-1 feeder of Bhimatangi structure. New bifurcated feeder (pokhariput-2) can take approx.130A to mitigate the overloading.

Objective:

- To improve the reliability, continuity of power supply and meet the increasing demand by mitigating over loading issue.

Existing Scenario:

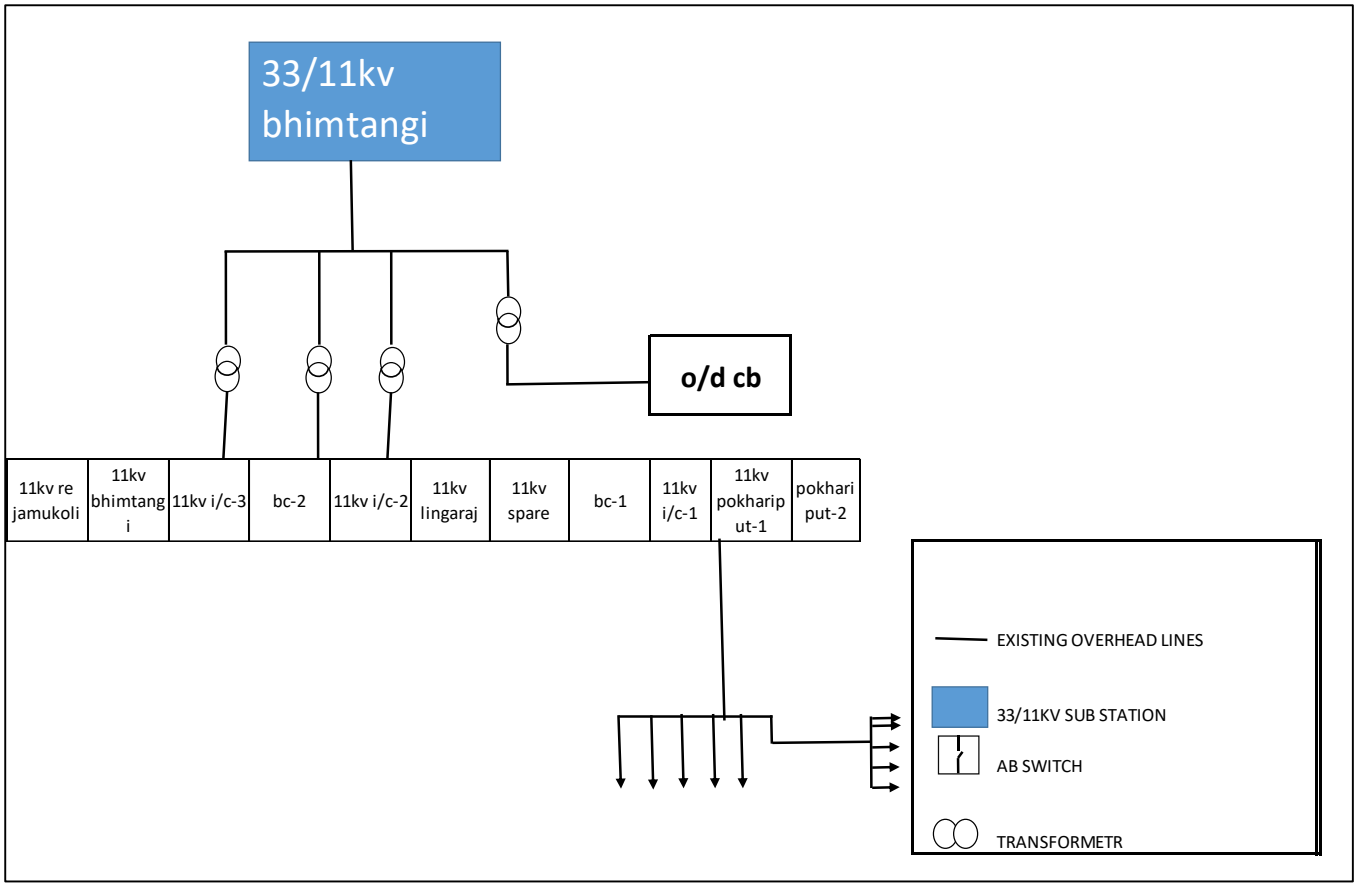
- Loading of 11kv Pokhariput-1 feeder of Bhimatangi structure was 270A with respect to feeder capacity 261A (considering minimum size of trunk conductor with 90% derating factor) as per peak loading from April-2018 to Oct-2020.Considering 5.46% load growth projected loading would be 300A for year 2022.
- Presently Pokhariput-1 feeder is feeding extra load of Pokhariput-2 feeder of Bhimatangi structure due to network constraint ROW issue near structure(Bhimatangi).
- Hence Pokhariput-1 is not able to feed extra load of pokhariput-2 feeder.

TABLE for Existing Loading Scenario:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Overloading
BED	Bhimatangi	Pokhariput-1	80	261	270	5.46	300	114%

Existing SLD:

Refer 6.3.6 of the petition



Proposed Scenario: -

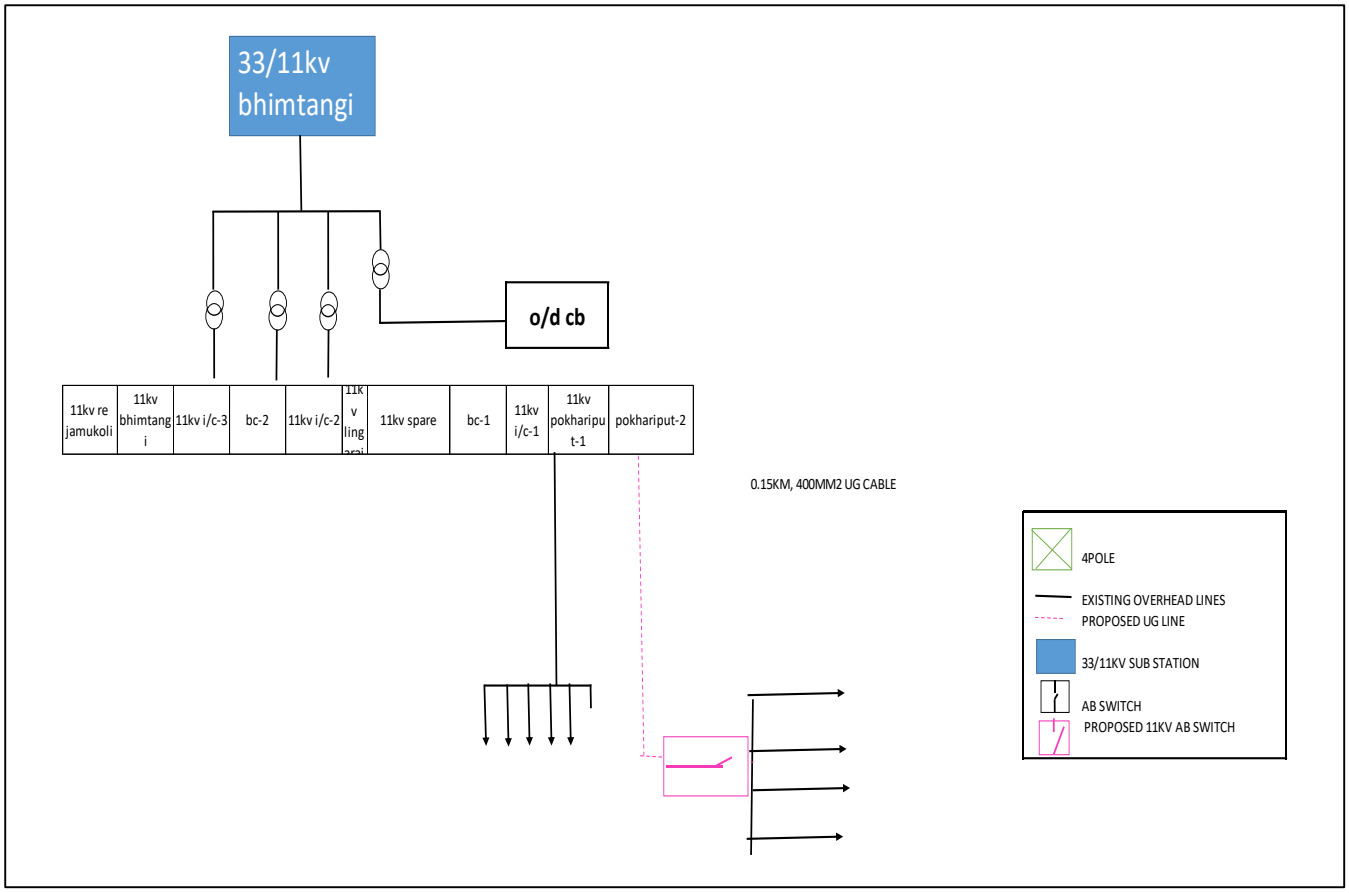
- New 11kv UG XLPE cable is proposed of 0.15ckm length of 400 sq.mm from Bhimatangi structure to existing line DP of pokhariput-1 feeder.
- One 11kv line DP with AB switch is proposed near structure.

Table-1 for Proposed loading scenario:

Division Name	Structure Name	Feeder Name	Feeder capacity	Peak loading with load growth in Amp(A)	Load in Amp(A) transfer to Pokhariput-2 structure	Proposed loading in Amp.	Loading of feeder	Remarks
BED	Bhimatangi	Pokhariput-1	261	300	130	170	56%	Under load

Proposed SLD:

Refer 6.3.6 of the petition



Detailed Scope of Work:

- New 11kv UG of XLPE cable of 0.15ckm is proposed from Bhimatangi structure to existing DP of Pakhariput -1 feeder of Bhimatangi structure.
- One 11kv line DP with AB switch is proposed near Bhimatangi structure.

BOQ for Pokhariput-1 Feeder:

Refer 6.3.6 of the petition

Proposal:Presently pokhariput-1 feeder is feeding extra load of pokhariput-2 feeder (Pokhariput -2 feeder is not available due to cable fault). Construction of 11kv UG of 400 sq.mm cable of 0.15km is required with one line dp with AB switch to bifurcate the pokhariput-1 feeder. New bifurcated feeder (pokhariput-2)can take approx.130A to mitigate the overloading.

Description of Materials(For new UG line of 0.15ckm length of XLPE,400 sq.mm cable)

Sl. No.	Description of Materials	Unit	Quantity	Rate (Rs)	Amount (Rs)
1	3x400mm² XLPE 11KV U.G. Cable	mtr	150	1500	225000
	cable joint kit straight through type for 3*400 sqmm ug cable	set		25317	0
2	3x400mm² 11KV XLPE cable end jointing kit (Out door) heat srinkable (Make Raychem)	set	2	13904	27808
3	Cable loop chamber (15'x15'x5') with laterite Stone with 6" base concrete in the ratio 1:2:4 & filling with sand	Nos		26000	0
4	High presure testing of 11KV XLPE Cable	Nos	1	5000	5000
5	Placement of 11KV cable Rootmarker	Nos	3	2000	6000
5	Cable laying, excavation and backfilling	MTR	150	1200	180000
6	Hosting of 11KV Cable	Nos	2	5000	10000
7	6" dia PVC pipe for cable bracing	›/ mtr 4/:	12	250	3000
8	Clamp for brassing	Nos	4	117	468
Construction of DP=2Nos.					
9	13mtr long 150x150 RS joist pole	Kg 4/17	1799.2	65	116948
10	10x50x6 mm GI channel	Kg	206	78	16068
11	75 x 40 x 6 mm GI. Channel	Kg	180	78	14040
12	50 x 50 x 6 mm GI. Angle	Kg	145	78	11310
13	GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	4	1050	4200
14	No.6 GI Wire	K.g.	40	75	3000
15	40x6mm GI Flat for nutral	K.g.	40	75	3000
16	11KV AB switch 3 Pole (400 Amp.)	Set	2	12000	24000
17	11KV LA	No	6	3550	21300
18	11KVHG fuse	No	2	11530	23060
19	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
20	11KV Disc Insulator (90KN)Polymer	No	12	1150	13800
21	4 Bolt single tension H/W fitting	Nos	12	1055	12660
22	HT Stay Set Complete	Set	4	1050	4200
23	HT Stay insulator	No.	4	50	200
24	HT stay clamp (1.95Kg/ Pair)	Pair	4	125	500
25	7/10 Stay Wire	Kg	40	75	3000
26	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire, stay insulator .	No.	4	2315.15	9260.6
27	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5'x2'x2' = 20CFT = 0.570Cum Padding 900x600x150mm =0.081 0.651Cum @ 3071.25= 1999.38each	No.	4	2840.89	11363.56
28	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	No.	4	676.37	2705.48
29	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
30	Al. binding wire/tape	Kg	20	420	8400
31	Al. Cable socket diff. size	No	24	45	1080
32	Danger Board	No	4	80	320
33	100mm2 AAAC for jumpering	Km	0.08	30000	2400
34	Red Oxide paint	Ltr	8	150	1200
35	All. Paint	Ltr	8	200	1600
36	Black Paint	Ltr	6	220	1320
37	Ms Nut , Bolt & Washer	K.g.	20	71	1420
38	Sundries for survey, PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Allm. Socket etc	LS	1	4092	4092
A	Total cost of Material as per 2018-19 Cost Data				791885.8
B	Stock ,Storage &Insurance				23756.574
	Sub Total (A+B)				815642.374
C	2% T & P charges of (A+B)				16312.84748
D	3% Contigency of (A+B)				24469.27122
E	7.5% Transportation charges of (A+B)				61173.17805
F	10% Errection Charges of (A+B)				81564.2374
G	Sub total (A to F)				999161.9082
H	Other over head (Including 6%) supervision charges of G				59949.71449
I	Total Estimated Capital cost (G+H)				1059111.623
J	GST @ 18% of H				190640.0921
K	CESS @1% of I				10591.11623
L	Total Estimate to be deposited by party (H+J+K)				1260342.831
N	Inspection Fee				5575
O	Grand Total (I+J+K+L+M+N)				1265917.831

Refer 6.3.6 of the petition

Benefits:

- Over loading issue can be mitigated.
- Reliability and Continuity of power supply can be maintained

Refer 6.3.6 of the petition

4. Augmentation of conductor of STPI Feeder

Proposal:

- Augmentation of conductor of STPI feeder is required from 55 sq.mm to 100 sq.mm, AAAC conductor of 0.7 ckm length from Xavier structure to SBI ATM, Fortune tower.

Objective:

- To improve the reliability, continuity of power supply by providing N-1 connectivity.

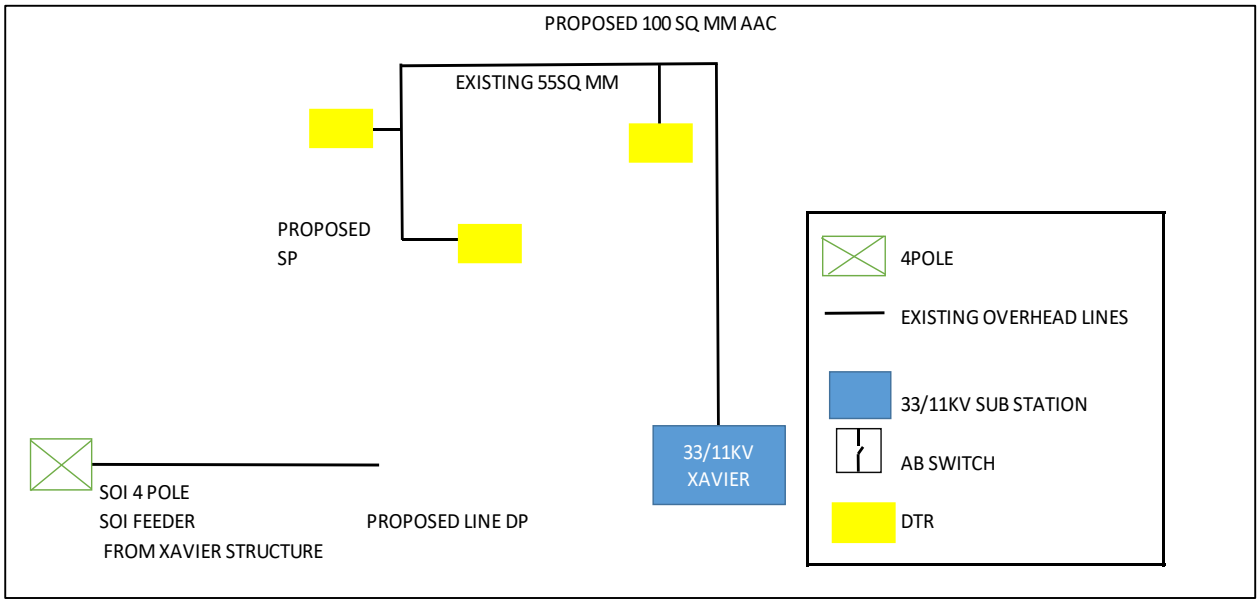
Existing Scenario:

- Loading of STPI feeder of structure was 111A with respect to feeder capacity 189A as per IS:398 (considering derating factor of 0.9) as per peak loading from April-2018 to Oct-2020.Considering 6.83% load growth projected loading would be 126A for the year of 2022.
- In this scenario, if there is any breakdown in existing STPI feeder, hence there is no back feed arrangement to STPI feeder from any nearby feeder. So N-1 connectivity FAIL.

TABLE for Existing Loading Scenario:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A) for	Load Growth in %	Projected load in Ampere (A)	Overloading
BCDD-2	Xavier	STPI	55	189	111	6.83	126	66%

Existing SLD (summer'2020):



Proposed Scenario: -

Refer 6.3.6 of the petition

- Conductor Augmentation is proposed from 55 sq.mm to 100 sq.mm, AAAC conductor of 0.7 ckm from Xavier structure to SBI ATM, Fortune Tower for mitigating N-1 over loading issue.
- Loading of STPI feeder of structure was 111A with respect to feeder capacity 189A as per IS:398 (considering derating factor) as per peak loading from April-2018 to Oct-2020.Considering 6.83% load growth projected loading would be 126A for year 2022.
- Loading of SOI feeder of Xavier structure was 99A with respect to feeder capacity 261A (considering derating factor 90%) as per IS: 398.Considering 6.83% load growth, projected loading would be 110A for year 2022.

Table-1 for Proposed loading scenario for N-1 reliability:

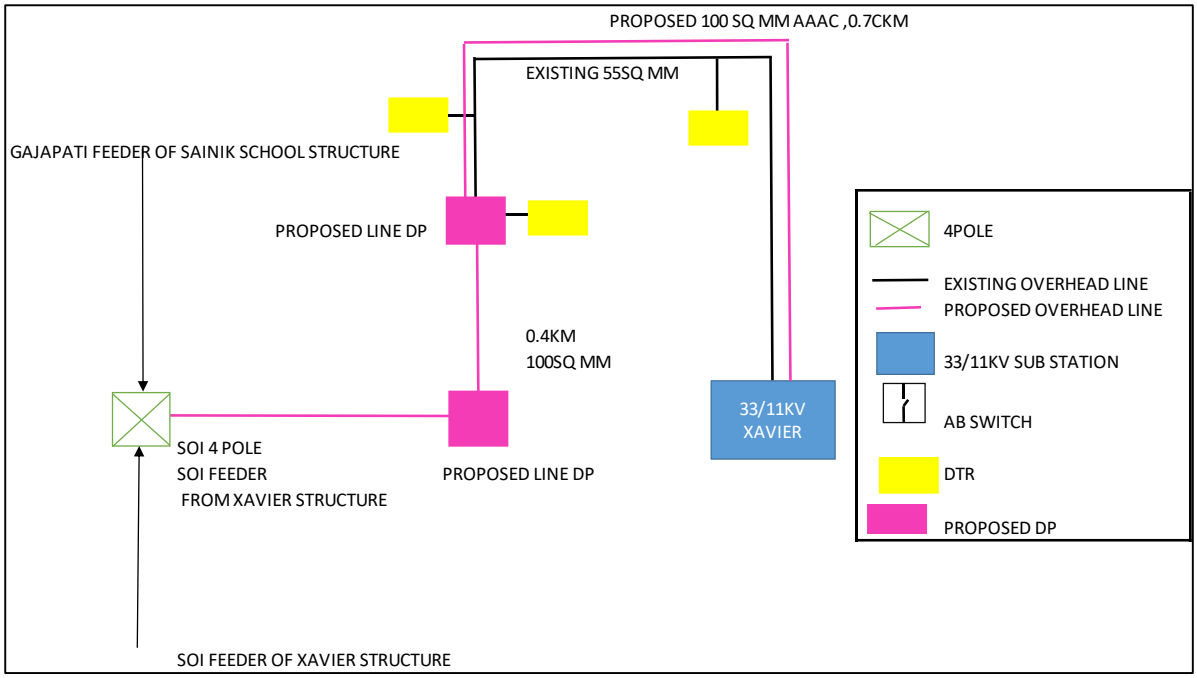
Division Name	Structure Name	Feeder Name	Proposed feeder (SPTI) capacity	Proposed peak loading at N-1 Condition(STPI-SOI feeder)	% N-1 over loading	N-1 Loading and Connectivity status
BCDD-2	Xavier	SPTI	292.5	110+111=221	75%	OK

Table-2 for existing AB switch (off load) and proposed RMU:

SL NO	Quantity	Existing Swith(OFF LOAD)	Location /connectivity deatils	Proposed Switch(ON LOAD)	N-1 Loading	Benefits
BCDD-2	Xavier	AB SWITCH	4 POLE SOI,Near IPS MESS.	11KV 3 WAY RMU	75%(Under load)	• Purpose of increasing reliability under fault conditions, the line to detect the fault and carry out the repair is curtailed. • Reduction in outage costs and quick power restoration.

Proposed SLD:

Refer 6.3.6 of the petition



Detailed Scope of Work:

- New 11kv OH linking line of 0.4ckm length of STPI feeder is proposed from SBI ATM, Fortune Tower to 4 pole SOI feeder.
- And augmentation of conductor of 0.7ckm length of STPI feeder is proposed from 55 sq.mm to 100 sq.mm from Xavier structure to SBI, Fortune Tower.
- And one 11kv 3 way RMU is proposed at 4 pole SAI feeder near IPS mess where it can be linked to three feeders namely STPI feeder of Xavier Structure, Gajapati feeder of Sainik school structure and SOI feeder of Xavier structure.

BOQ for STPI feeder (Augmentation):

Refer 6.3.6 of the petition

Proposal: Conductor augmentation of STPI feeder is required from 55 sq.mm to 100 sq.mm,AAAC conductor of 0.7ckm length from Xavier structure to SBI ATM,Fortune tower.

Description of Materials

Estimate for Augmentation of line of 0.7ckm

Sl.No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	2.163	55,000	1,18,965.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy si	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisa	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,18,050.00**
	B	Stock & Storage @ 3% of A				12541.5
	C	Sub - Total (A+B)				4,30,591.50
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5 % of				96,883.09
	E	Sub - Total (C+D)				5,27,474.59
	F	Other Overheads including supervision charges @ 6% of E				31,648.48
	G	Total estimated Capital Cost (E+F)				5,59,123.06
	H	GST 18% of G				1,00,642.15
	I	CESS 1% of G				5,591.23
	J	**Total Cost for Augmentation of 0.7ckm**				**6,65,356.44**

Benefits:

- N-1 Connectivity can be maintained or provided. Hence, reliability and continuity of power supply can be maintained.
- N-1 Over loading issue can be mitigated.

Refer 6.3.6 of the petition

5. Augmentation of Conductor of Sainik School Feeder

Proposal:

- Augmentation of conductor of length 0.35ckm of Sainik school feeder of Sainik school structure of AAAC conductor from 55 sq.mm to 100 sq.mm from Dasrathi basti to railway high school with requirement interposing poles.

Objective:

- To improve the reliability, continuity of power supply by mitigating N-1 overloading issue.

Existing Scenario:

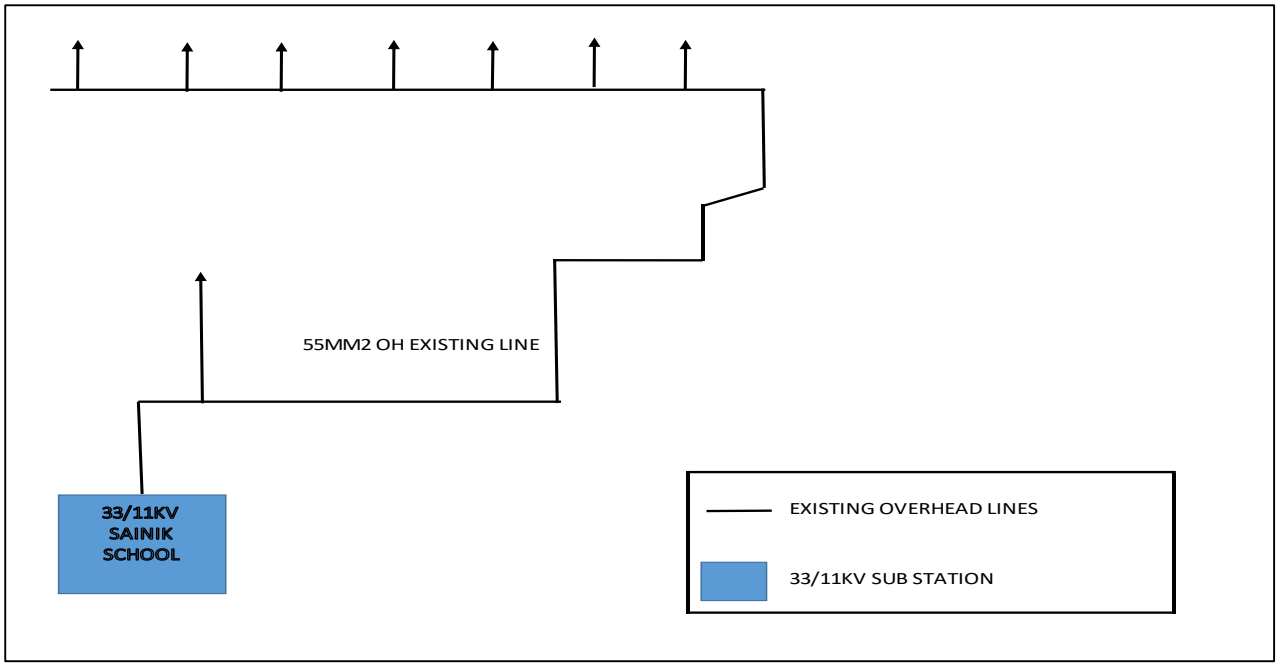
- Loading of Sainik school feeder of Sainik school structure was 110A with respect to feeder capacity 189A (considering derating factor of 0.9) as per peak loading from April-2018 to Oct-2020.Considering 6.83% load growth projected loading would be 126A for the year of 2022.
- Loading of VSS Nagar feeder of Sainik school structure was 80A with respect to feeder capacity 261A (considering derating factor 0f 0.9) as per IS: 398.Considering 6.83% load growth, projected loading would be 91A for year 2022.
- Under N-1 condition, Sainik school feeder will not be able to back feed VSS Nagar feeder for 219A with respect to 189A due to N-1 over loading issue.

Table-1 for Existing N-1 loading scenario:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A) for	Load Growth in %	Projected load in Ampere (A) of Sainik school feeder	Projected load in Ampere (A) of VSS Nagar feeder	Projected load in Ampere (A) at back feed condition	N-1 loading	Remarks
BCDD-2	Sainik School	Sainik school	55	189	111	6.83	126	93	219	116%	Over load

Existing SLD (summer'20):

Refer 6.3.6 of the petition



Proposed Scenario: -

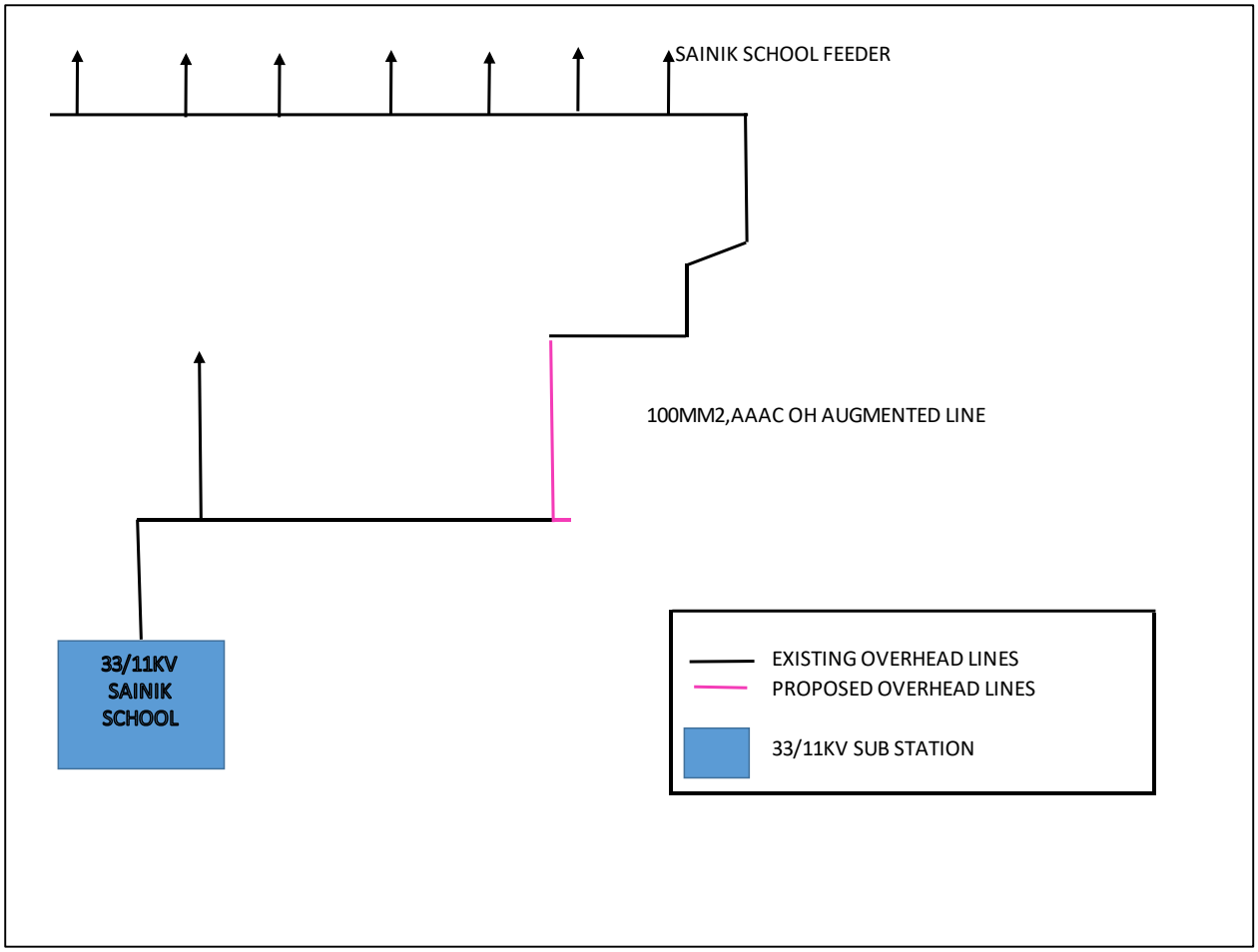
- Augmentation of OH line of 0.35 Ckm length of Sainik School feeder of Sainik school structure is proposed from Dasrathi basti to Railway high school from 55 sq.mm to 100 sq.mm, AAAC conductor for mitigating N-1 over loading condition.
- Under proposed scenario, Sainik school feeder of Sainik school structure will be able to back feed VSS Nagar feeder. And proposed loading would be 219A with respect to feeder capacity 292.5A.

Table-1 for Proposed loading scenario for N-1 reliability:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A) for	Load Growth in %	Projected load in Ampere (A) of Sainik school feeder	Projected load in Ampere (A) of VSS Nagar feeder	Projected load in Ampere (A) at back feed condition	N-1 loading	Remarks
BCDD-2	Sainik School	Sainik school	100	292.5	111	6.83	126	93	219	75%	Under Load

Proposed SLD (summer 22):

Refer 6.3.6 of the petition



Detailed Scope of Work:

- Augmentation of OH line of 0.35ckm length of Sainik school feeder is proposed from Dasarathi basti to Railway high school from 55 sq.mm to 100 sq.mm AAAC, conductor
- And two interposing poles are proposed.

BOQ for 11kV Augmentation of 0.35 ckm:

Refer 6.3.6 of the petition

Augmentation of conductor of 0.35ckm length of sainik school feeder of Sainik school structure of AAAC conductor from 55 sq.mm to 100 sq.mm from dasrathi basti to railway high school with requirement interposing poles.

Description of materials for 11kv Augmentation of OH line of 0.35ckm length)

Sl. No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	5	24,739	1,23,695.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	5	810	4,050.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	5	100	500.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	5	150	750.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	15	200	3,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	3	468	1,404.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	3	1,150	3,450.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	30	75	2,250.00
14	MSGI37	Earthing Coil	No.	5	166	830.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	1.08	55,000	59,482.50
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	5	703	3,515.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	30	65	1,950.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	15	65	975.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	15	78	1,170.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**2,12,696.50**
	B	Stock & Storage @ 3% of A				6380.895
	C	Sub - Total (A+B)				2,19,077.40
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection				49,292.41
	E	Sub - Total (C+D)				2,68,369.81
	F	Other Overheads including supervision charges @ 6% of E				16,102.19
	G	Total estimated Capital Cost (E+F)				2,84,472.00
	H	GST 18% of G				51,204.96
	I	CESS 1% of G				2,844.72
	J	**Total Cost**				**3,38,521.68**

Benefits:

- N-1 Connectivity will be established which will improve reliability and continuity of power supply.
- N-1 Over loading will be resolved.

Refer 6.3.6 of the petition

6. Augmentation of 2Ckm of conductor of Nandan Vihar feeder

Proposal:

- Augmentation of conductor of 02 Ckm length of Nandan vihar feeder of Kalarahanga structure from 55 sq.mm to 100 sq.mm, AAAC conductor from Kalarahanga structure to Mani apartment.

Objective:

- To improve the reliability, continuity of power supply by mitigating N-1 overloading issue.

Existing Scenario:

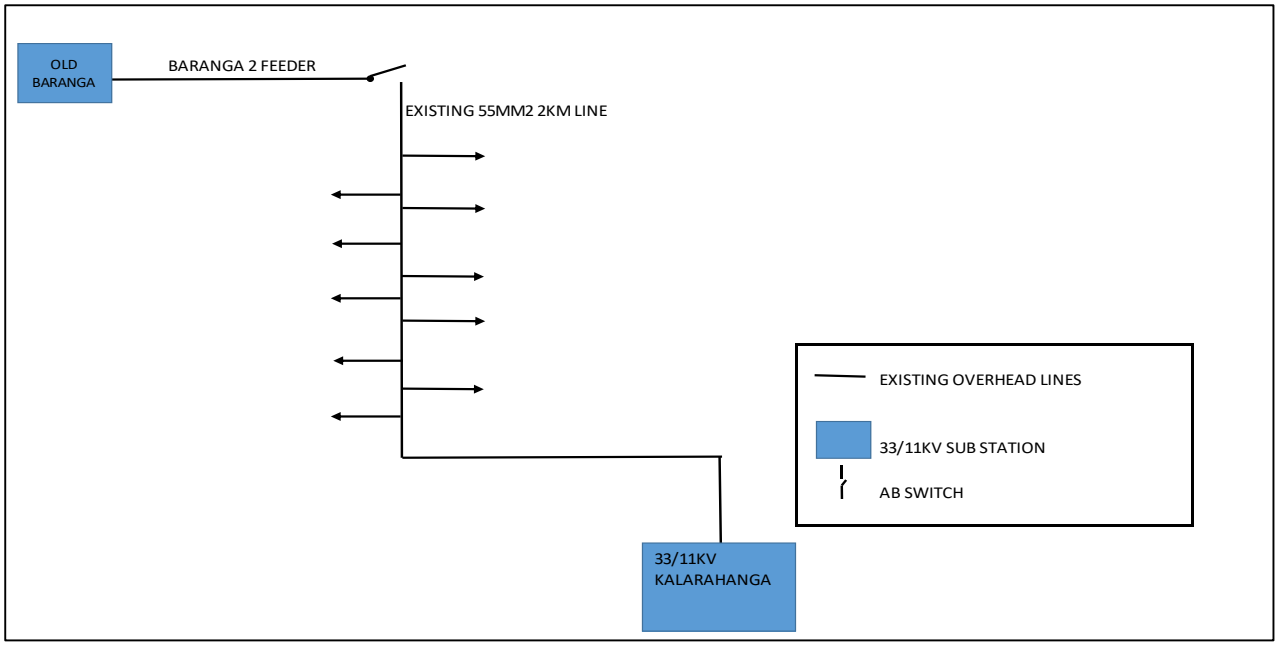
- Loading of Nandan Vihar feeder of Kalarahanga structure was 55A with respect to feeder capacity 189A (considering derating factor) for minimum conductor size 55 sq.mm as per peak loading from April-2018 to Oct-2020.Considering 6.83% load growth projected loading would be 67A for the year of 2022.
- Loading of Baranga-2 feeder of Old Baranga structure was 190A with respect to feeder capacity 292.5A (considering derating factor 90%) as per IS: 398.Considering 6.83% load growth, projected loading would be 216 for year 2022.
- Under N-1 loading condition, Nandan Vihar feeder will not be able to back feed Baranga-2 feeder of Old Baranga structure for 289A with respect to feeder capacity 189A due to N-1 over loading issue.

Table-1 for Existing N-1 loading scenario:

Division Name	Structure Name	Feeder Name	Existing minimum Conductor size of trunk conductor in sq.mm	Feeder/Conductor capacity considering derating factor of 90%	Projected load in Ampere (A) of Nandan Vihar feeder	Projected load in Ampere (A) of Barang-2 feeder	Projected load in Ampere (A) at back feed condition	N-1 loading	Remarks
BCDD-2	Kalarahanga	Nandan Vihar	55	189	67	216	283	150%	Over Load

Existing SLD (summer'20):

Refer 6.3.6 of the petition



Proposed Scenario: -

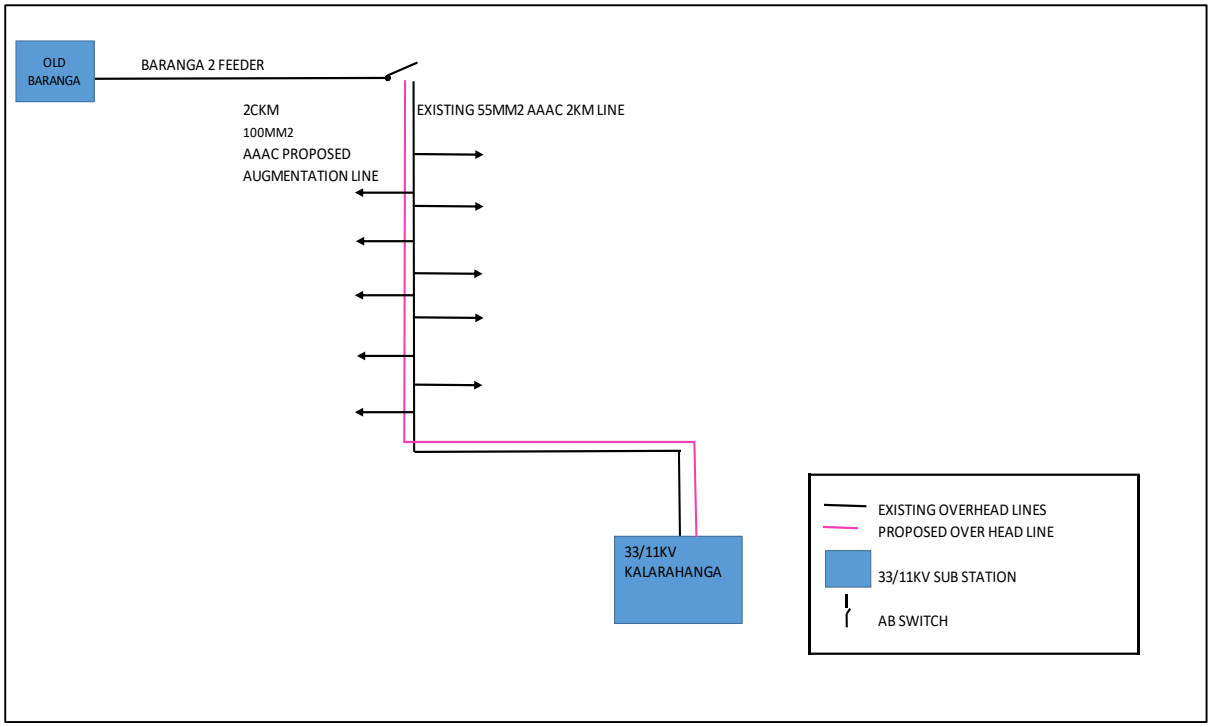
- Augmentation of OH line of 02 Ckm length of Nandan Vihar feeder of Kalarahanga structure is proposed from Xavier structure to Mani apartment from 55 sq.mm to 100 sq.mm, AAAC conductor for mitigating N-1 over loading condition.
- Under proposed scenario, Nandan vihar feeder of Sainik school structure will be able to back feed VSS Nagar feeder. And proposed loading would be 283A with respect to feeder capacity 292.5A.

Table-1 for Proposed N-1 loading scenario:

Division Name	Structure Name	Feeder Name	Proposed minimum Conductor size of trunk conductor in sq.mm	Feeder /Conductor capacity considering derating factor of 90%	Projected load in Ampere (A) of Nandan Vihar feeder	Projected load in Ampere (A) of Barang-2 feeder	Projected load in Ampere (A) at back feed condition	N-1 loading	Remarks
BCDD-2	Kalarahanga	Nandan Vihar	100	292.5	67	216	283	97%	Under Load

Proposed SLD (Summer 22):

Refer 6.3.6 of the petition



Detailed Scope of Work:

- Augmentation of OH line of 02ckm length of Nandan vihar feeder of Kalarahanga structure is proposed from Kalarahanga structure to Mani apartment from 55 sq.mm to 100 sq.mm AAAC, conductor.

BOQ for Augmentation of OH line of 2ckm of Nandan Vihar feeder:

Refer 6.3.6 of the petition

Proposal:Augmentation of AAAC conductor of 2ckm length from 55 sq.mm to 100 sq.mm of nandan vihar feeder from kalarahanga structure to mani apartment.

Description of Materials:(For augmentation of 2 ckm length from 55 sq.mm to 100 sq.mm)

Sl. No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.09	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
26	A	**Total Cost of materials.**				**4,69,035.00**
27	B	Stock & Storage @ 3% of A				14071.05
28	C	Sub - Total (A+B)				4,83,106.05
29	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5				1,08,698.86
30	E	Sub - Total (C+D)				5,91,804.91
31	F	Other Overheads including supervision charges @ 6% of E				35,508.29
32	G	Total estimated Capital Cost (E+F)				6,27,313.21
33	H	GST 18% of G				1,12,916.38
34	I	CESS 1% of G				6,273.13
35	J	**Total Cost**				**7,46,502.72**
36		SubToatal			For 2 ckm	14,93,005.43

Benefits:

- N-1 Connectivity will provide better reliability and continuity of power supply to consumers.
- N-1 Over loading issue will be resolved.
- Voltage Regulation will be improved. Voltage Regulation can be reduced to 1.40% from 2.57%.

Refer 6.3.6 of the petition

7. Augmentation of 4.5Ckm of K-5 Feeder

Proposal:

- Augmentation of conductor of 4.5 Ckm length of K-5 feeder of Kalinga Nagar structure from 55 sq.mm to 100 sq.mm, AAAC conductor from Kalinga Nagar structure to Trident square.

Objective:

- To improve the reliability, continuity of power supply by mitigating N-1 overloading issue.

Existing Scenario:

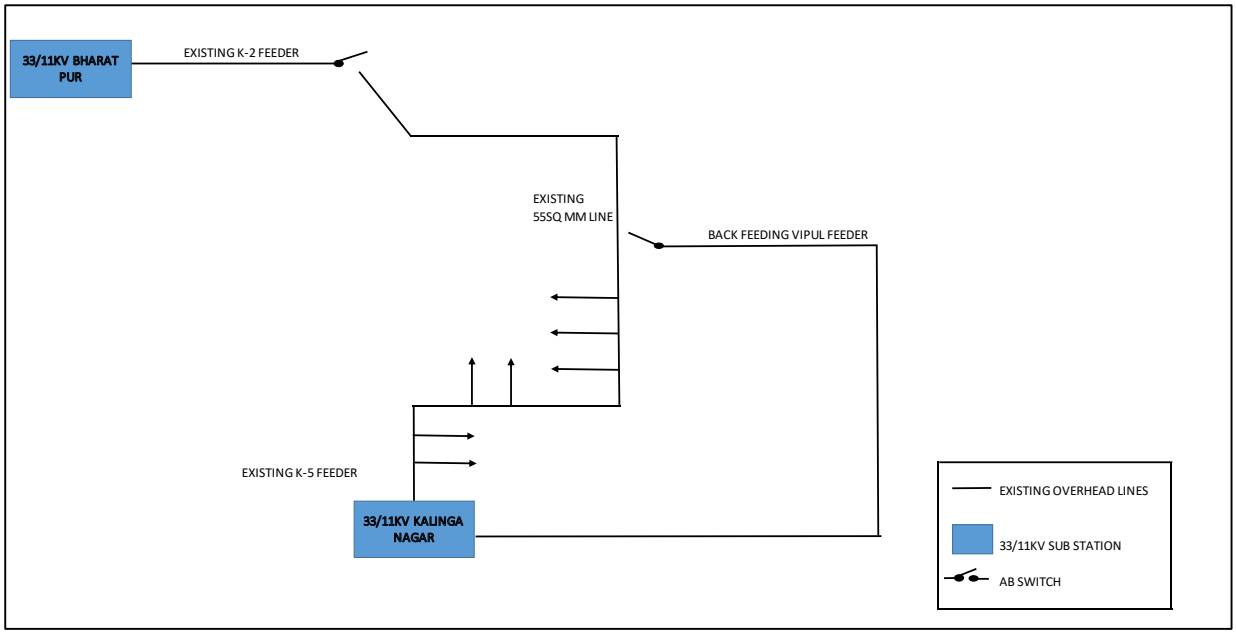
- Loading of K-5 feeder of Kalinga Nagar structure was 204A with respect to feeder capacity 189A (considering derating factor) for minimum conductor size 55 sq.mm as per peak loading from April-2018 to Oct-2020.Considering 6.83% load growth projected loading would be 233A for the year of 2022.
- Loading of Vipul garden feeder of Kalinga Nagar structure was 24A with respect to feeder capacity 261A (considering derating factor 90%) as per IS: 398.Considering 6.83% load growth, projected loading would be 27A for year 2022.
- Under N-1 loading condition, k-5 feeder will not be able to back feed Vipul garden feeder of Kalinga Nagar structure for 260A with respect to feeder capacity 189A due to N-1 over loading issue.

Table-1 for Existing N-1 loading scenario:

Division Name	Structure Name	Feeder Name	Existing minimum Conductor size of trunk conductor in sq.mm	Feeder/Conductor capacity considering derating factor of 90%	Projected load in Ampere (A) of K-5 feeder	Projected load in Ampere (A) of Vipul garden feeder	Projected load in Ampere (A) at back feed condition	N-1 loading	Remarks
BCDD-2	Kalinga Nagar	K-5	55	189	233	27	260	138%	Over Load

Existing SLD:

Refer 6.3.6 of the petition



Proposed Scenario: -

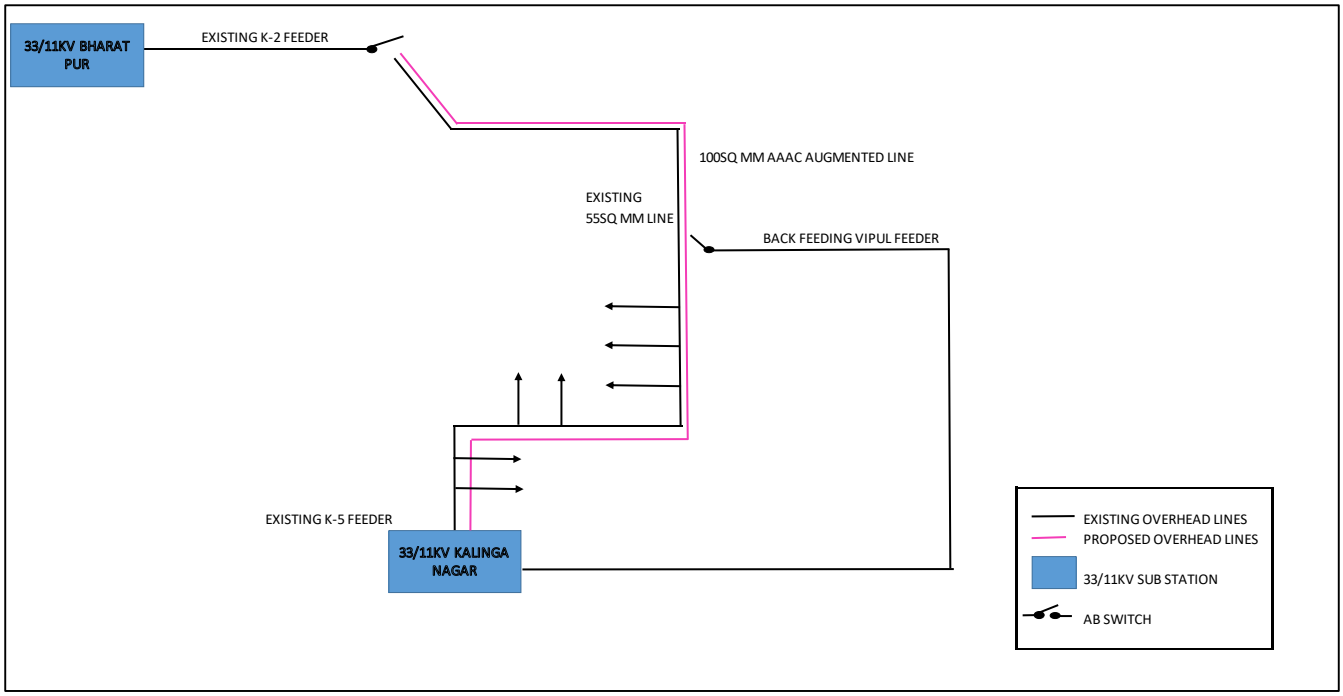
- Augmentation of OH line of 4.5 ckm length of K-5 feeder of Kalinga Nagar structure is proposed from Kalinga Nagar structure to Trident square from 55 sq.mm to 100 sq.mm, AAAC conductor for mitigating N-1 over loading condition.
- Under proposed scenario, K-5 feeder of structure will be able to back feed Vipul garden feeder of Kalinga Nagar structure. And proposed loading would be 260A with respect to feeder capacity 292.5A.

Table-1 for Proposed N-1 loading scenario:

Division Name	Structure Name	Feeder Name	Existing minimum Conductor size of trunk conductor in sq.mm	Feeder/Conductor capacity considering derating factor of 90%	Projected load in Ampere (A) of K-5 feeder	Projected load in Ampere (A) of Vipul garden feeder	Projected load in Ampere (A) at back feed condition	N-1 loading	Remarks
BCDD-2	Kalinga Nagar	K-5	100	292.5	233	27	260	89%	Under Load

Proposed SLD:

Refer 6.3.6 of the petition



Detailed Scope of Work:

- Augmentation of OH line of 4.5ckm length of K-5 feeder of Kalinga Nagar structure is proposed from Kalinga Nagar structure to Trident Square from 55 sq.mm to 100 sq.mm, AAAC conductor.

BOQ for K-5 Feeder:

Refer 6.3.6 of the petition

Proposal:Augmentation of AAAC conductor of 4.5ckm length of k-5 feeder of Kalinga Nagar structure from 55 sq.mm to 100 sq.mm from kalinga nagar structure to trident square.

Description of Materials for Augmentation of 4.5ckm length from 55 sq.mm to 100 sq.mm

Sl. No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.09	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
		For 4.5 ckm augumentation 55 sqmm to 100 sqmm				33,59,262.22

Benefits:

- N-1 Connectivity will improve the reliability and continuity of power supply.
- N-1 Over loading will be resolved
- Voltage Regulation will improve.

Refer 6.3.6 of the petition

8. **Justification for RMU Installation in BBSR City**
9.
10.
11.
12.

Proposal:

- Installation of 7 no's of 11KV RMU at various locations for mitigation of N-1 overloading, feeder over loading and N-1 connectivity.

Objective:

- To improve the reliability, continuity of power supply by implementing 11 KV 3 way RMU.RMU will also help in carrying out On load operation the network & quick power restoration

Proposed 11 KV 3 way RMU Summary:

SL NO	DIVISION NAME	33/11 KV STRUCTURE NAME	11 KV FEEDER NAME	ISSUES	11 KV RMU-3 WAY	LOCATION
1	BCCD-2	KANAN BIHAR	KIIT	OVERLOAD	2	Sikharchandi and Sishu vihar
2	BCCD-2	KANAN BIHAR	PATIA	OVERLOAD	2	1) Regal Dove Apartment 2) Patia square
3	BED	BADAGADA	BADAGADA LINGARAJ	OVERLOAD	1	North gate of lingaraj temple
4	BCCD-2	CS PUR-2/SAISHREE VIHAR	CSPUR BDA - 2	N-1 CONNECTIVITY FAIL	1	Harihar college
5	BCCD-2	VANIVIHAR ODSSP	INCOME TAX FEEDER	JUMPERING	1	In front of Vani vihar Primary substation
TOTAL					7	Nos.

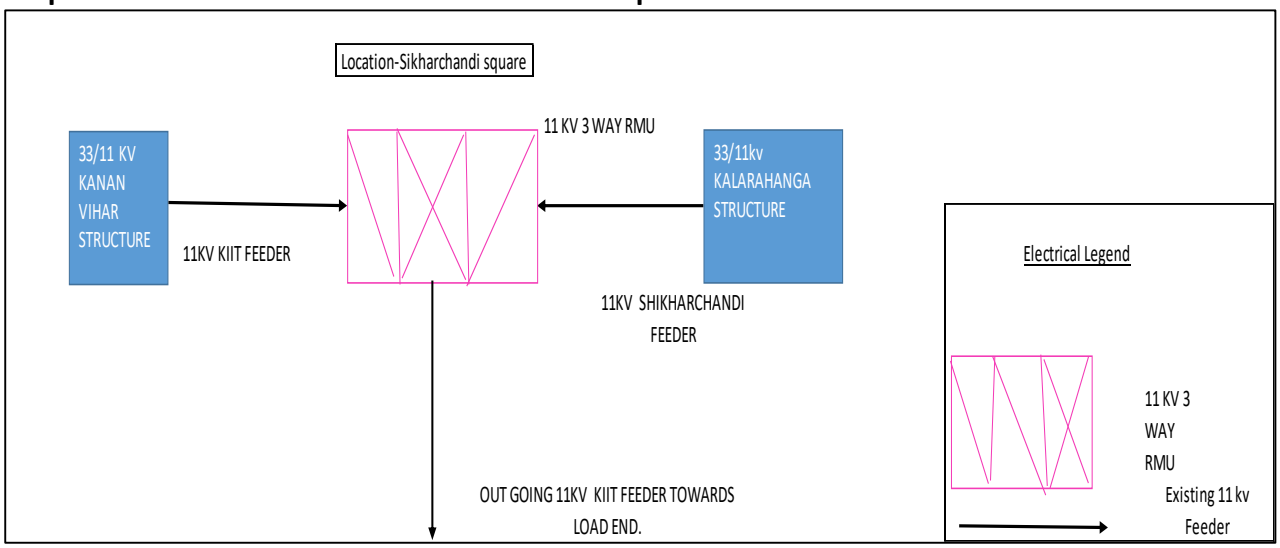
1.

(a)Installation one 11kv 3 way RMU is required at Shikharchandi Square to link Sikharchandi feeder, Kiit feeder and outgoing Shikharchandi feeder towards load end.

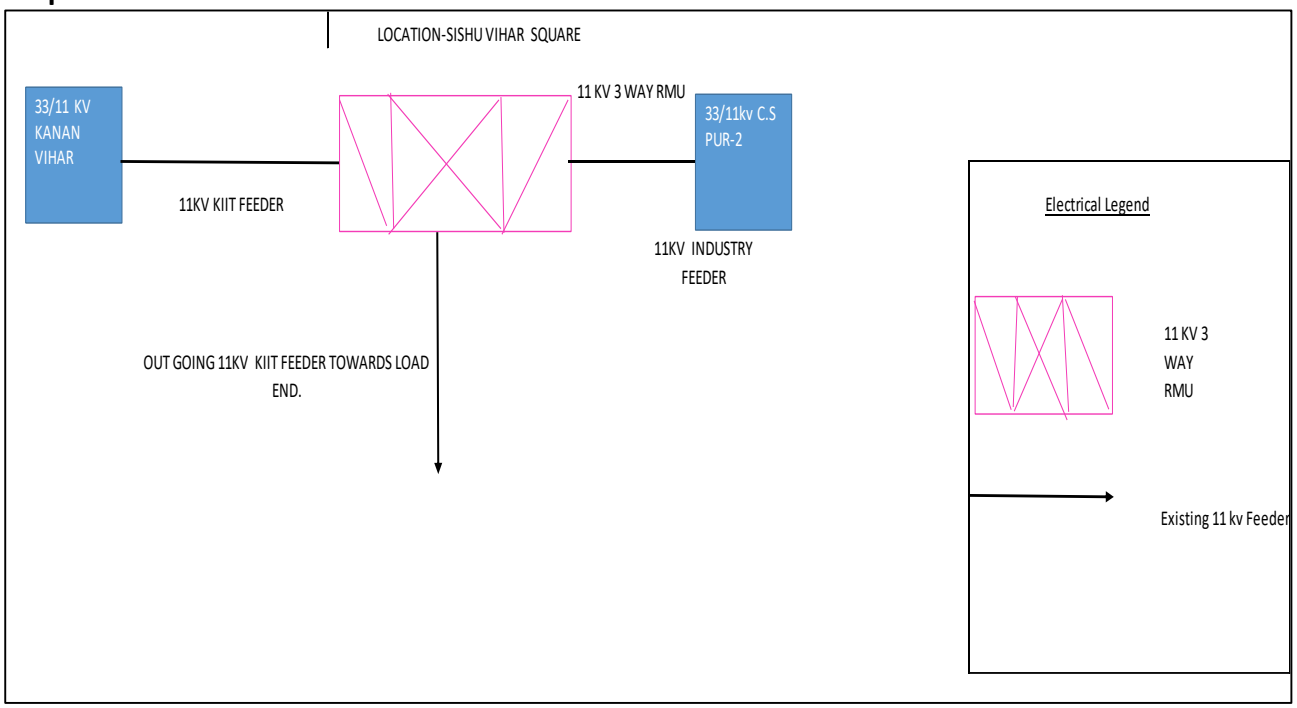
(b) Installation of one 11KV 3 way RMU is required at Sishu vihar square where Industry feeder (C.S Pur-2 str), Kiit feeder and Sishu Vihar load can be linked.

Refer 6.3.6 of the petition

Proposed SLD for 11kv RMU at Shikharchandi Square:



Proposed SLD for 11kv RMU at Sishu Vihar:



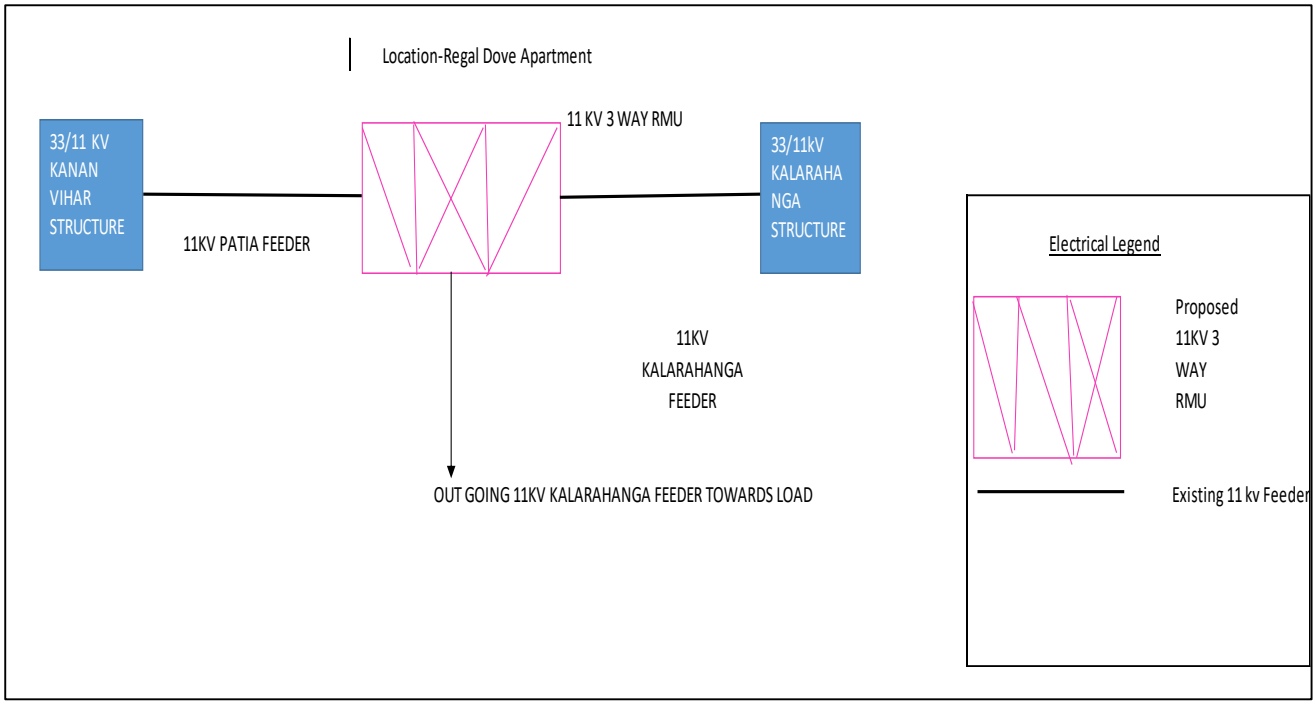
2.

a) Installation of one 11kv 3 way RMU is required near Regal Dove Apartment where it can be linked with Kalarahanga feeder of Kanan Vihar structure. Hence a part load of Patia feeder will be transferred to 11kv Kalarahanga feeder of Kanan Vihar structure.

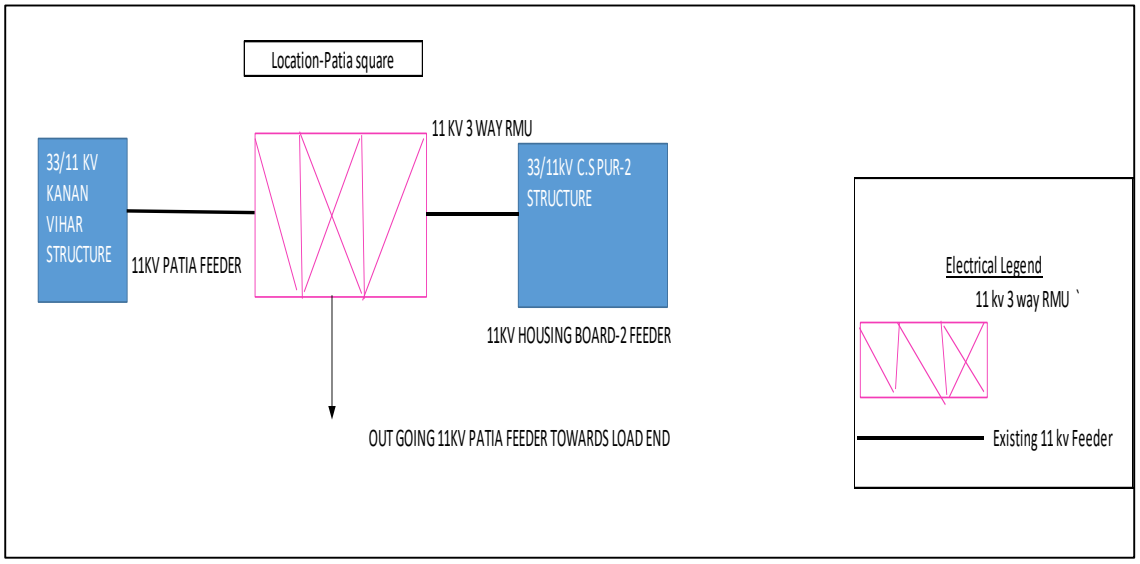
b) Installation of one 11kv 3 way RMU is required to install near Patia 4 pole square where Patia feeder, housing board -2 feeder and outgoing Kalarahanga feeder towards load end can be interlinked.

Proposed SLD for 11kv RMU at Regal Dove Apartment:

Refer 6.3.6 of the petition



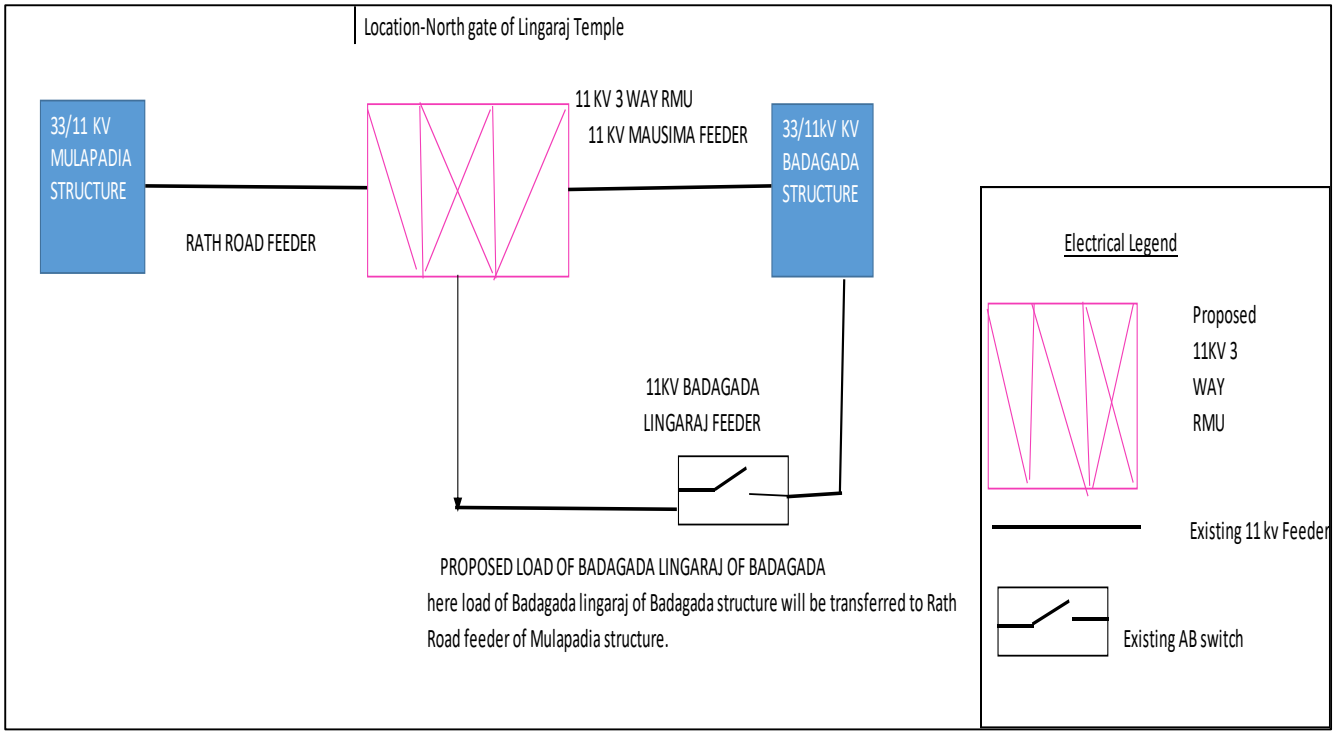
Proposed SLD for 11kv RMU at Patia Square:



3. Installation of One 11kv 3 way RMU is required near North gate of Lingaraj temple to divert a major part of load of (100A) Badgada Lingaraj feeder to Rath Road feeder where Rath Road feeder of Mulapadia structure, Badagada Lingaraj feeder and Mausima feeder of Badagada structure can be interlinked.

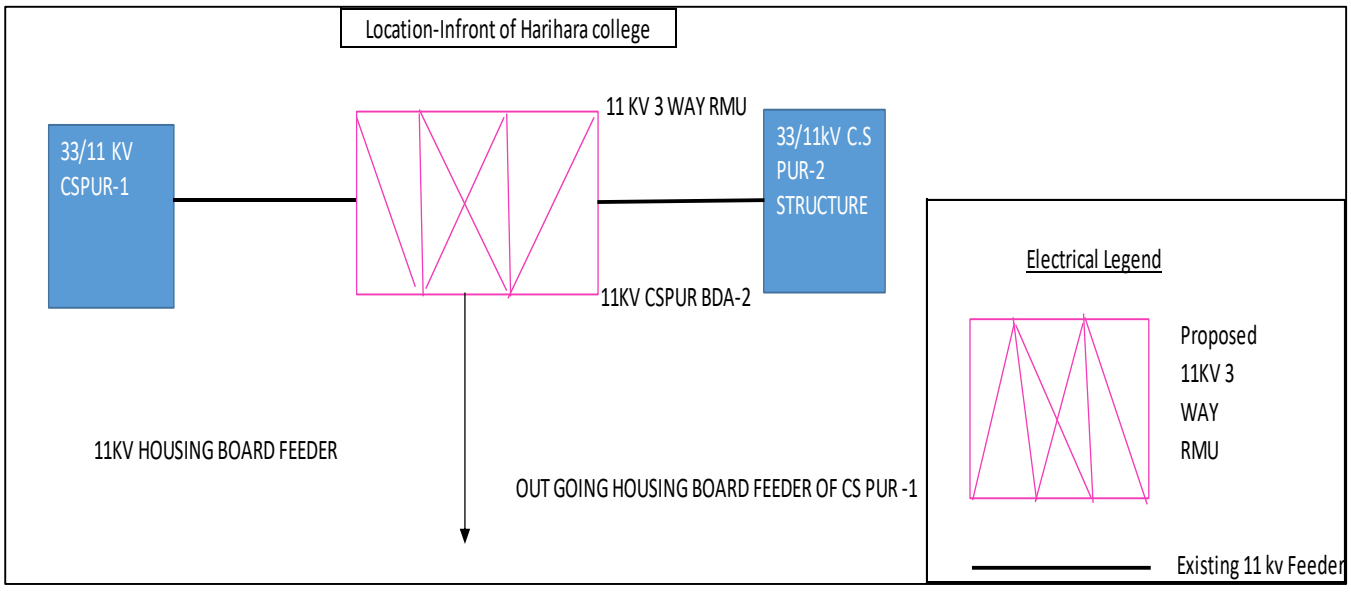
Proposed SLD for 11kv RMU near North gate of Lingaraj Temple:

Refer 6.3.6 of the petition



4. Installation of 11KV 3 way RMU is required in front of Harihara college where it can be linked to BDA -2 feeder of C.S pur-2 structure, Housing board and outgoing Housing board feeder towards load end of C.S PUR-1 structure.

Proposed SLD for 11kv RMU in front of Harihara college:

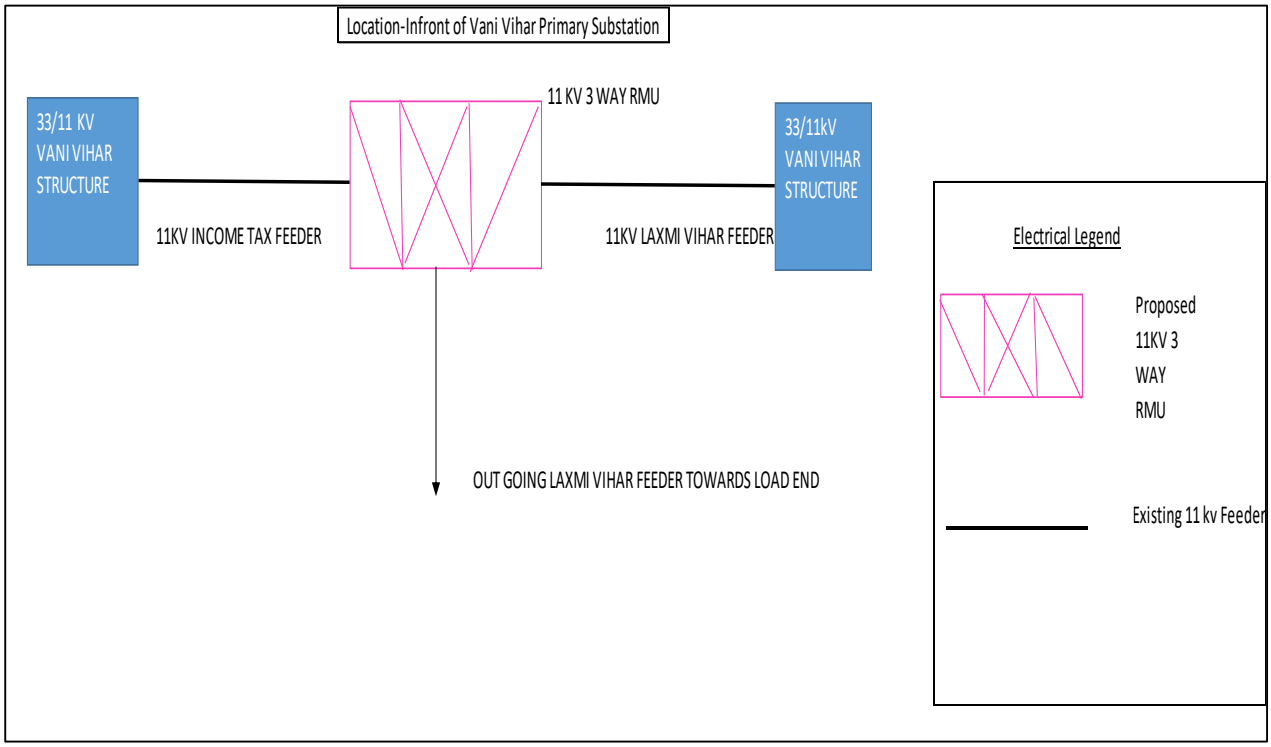


5. Installation of 11kv 3way RMU is required near Baramunda structure where Baramunda RE, Baramunda delta and khandagiri load section can be interlinked.

Refer 6.3.6 of the petition

6. Installation of 11kv RMU of 3 way is required in front of Vani vihar primary substation where it can be linked to Income tax feeder and laxmi vihar feeder in front of Vani vihar primary substation.

Proposed SLD for 11kv RMU in front of Vani Vihar Primary substation:



BOQ for 7 nos. of 11 KV 3 WAY RMU:

Refer 6.3.6 of the petition

Proposal:Installation of 11KV 3 way RMU at 7No's different loactions in BBSR City				
Description of Materials:				
Estimated cost for installation of 1 nos. of 11 KV 3 way RMU				
DESCRIPTION	UOM	QTY	Cost	Aount
11KV, 3 WAY RMU with connecting UG cable & termination	EA	1	4,50,000.00	4,50,000.00
Design & constraction of Rcc foundation structure	EA	1	30,083.86	30,083.86
40mm dia GI pipe earthing device 3 mtr. Long(1050*3)	KG	3	1,050.00	3,150.00
50X6 FLAT	KG	50	75.00	3,750.00
Design & providing Galvenised fencing around RMUs to prevent public coming in contact with compact substation	EA	1	40,000.00	40,000.00
Total Estimated Capital cost				5,26,983.86
Stock ,Storage &Insurance				15,809.52
Sub Total (A+B)				5,42,793.38
2% T & P charges of (A+B)				10,855.87
3% Contigency of (A+B)				16,283.80
7.5% Transportation charges of (A+B)				40,709.50
10% Errection Charges of (A+B)				54,279.34
Sub total (A to F)				6,64,921.89
Other over head (Including 6%) supervision charges of G				39,895.31
Total Estimated Capital cost (G+H)				7,04,817.20
GST @ 18% of H				1,26,867.10
CESS @1% of I				7,048.17
Inspection Fee				5575
Grand Total (I+J+K+L+M+N)				8,44,307.47
Total cost for installation of 7 nos. of 11 KV 3 way RMU				**59,10,152.26**

Benefits:

.

- Quick fault isolations and power restoration with minimum shutdown time.
- Continuity of power supply and reliability will be maintained.

Refer 6.3.6 of the petition

13. Augmentation of 25Ckm of Haripur Feeder

Proposal:
Augmentation of 11KV overhead AAAC conductor of 25 km circuit length from 34/55 sq. mm to 100 sq.mm of Haripur Feeder (Tangi Structure).

Objective:
To improve the reliability, continuity of power supply and meet the increasing demand by mitigating over loading issue of the feeder

Existing Scenario:

- Haripur area load is feeding through Haripur feeder under Tangi structure. This feeder has a minimum overhead conductor size of 34 sq. mm. having current carrying capacity of 140 A.

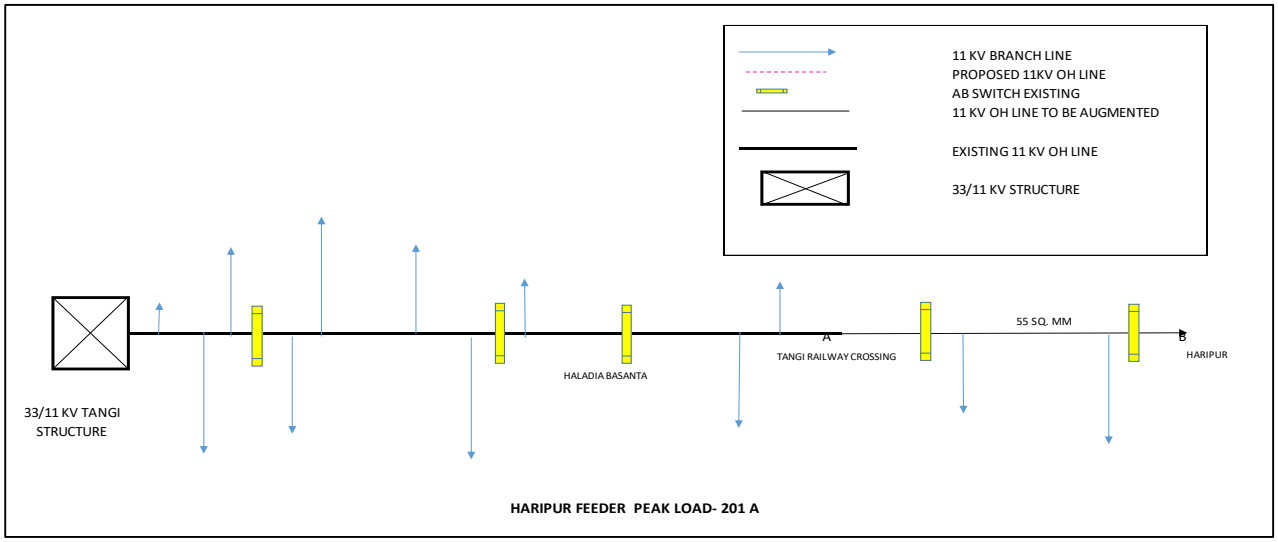
- Loading of Haripur feeder was 190A, as per peak load data collected from site from April-2018 to Oct-2020.

- Considering 2.83% load growth, projected loading for this feeder would be 201 A for the year of 2022. In this scenario, the feeder will not be able to carry the future load.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading %ge
CED	TANGI	HARIPUR	34	140	190	2.83	201	144**(Overloaded)**

Existing SLD (summer'20):



Refer 6.3.6 of the petition

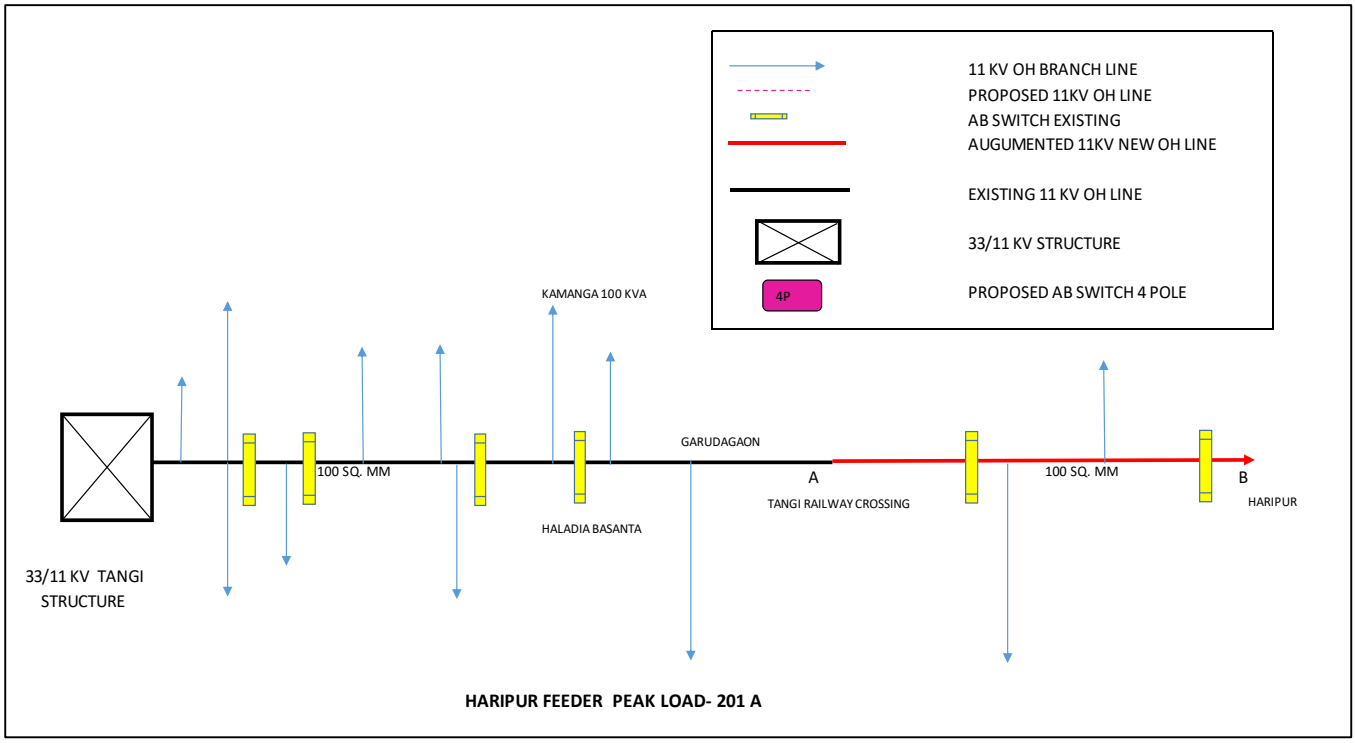
Proposed Scenario: -

- Proposed overhead AAAC conductor augmentation from 34/55 sq.mm to 100 sq.mm for 25 km circuit length from Tangi railway crossing to Haripur area to handle the future load growth

Proposed Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading %ge
CED	TANGI	HARIPUR	100	293	190	2.83	201	**69(Underloaded)**

Proposed SLD (summer'22):



Detailed Scope of Work:

- **<u>Propose O/H line augmentation:</u>**
  Proposed 25 KM circuit length Overhead line conductor of 100sq mm from Tangi railway crossing to Haripur to handle the future load growth.

BOQ for Haripur Feeder:

Refer 6.3.6 of the petition

Augmentation of Conductor size from 55 TO 100 sqmm of 25 km(Tangi Electric office to Haripur)

A.COST ESTIMATE FOR CONDUCTOR AUGMENTATION FROM 55 SQMM TO 100 SQMM(25 CKM)

Sl. No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.1	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
		A.TOTAL COST FOR AUGMENTION OF 25 CKM		**25**	**746502.7151**	**1,86,62,567.88**

Refer 6.3.6 of the petition

Benefits:

- Voltage regulation will be improved.
- Distribution losses will be reduced.
- Reliability & continuity of power supply can be maintenance.

Refer 6.3.6 of the petition

14. <u>Strengthening of Manguli Feeder</u>

15.

Proposal:

- For strengthening N-1 connectivity of 11 kV Manguli feeder of Tangi structure , there is requirement to lay Double circuit 11 kV XLPE 3C X 400 sq mm UG cable of 0.12 km along with two AB switchs with one 4 pole at Manguli. It is also required to construct new 11KV over head 100 sq.mm AAAC (0.5KM) line to link this feeder with Nuntikri feeder of Choudwar structure
- Augmentation of 11KV Overhead AAAC conductor of 15 KM circuit length from 55 sq. mm to 100 sq.mm of Manguli Feeder of Tangi structure.

Objective:

To improve the reliability of power supply and meet the increasing demand by mitigating over loading issue.

Existing Scenario:

- Manguli area load is feeding through Manguli feeder of Tangi structure. Manguli feeder has a minimum overhead conductor size of 55 sq. mm. having current carrying capacity of 189 A. As recorded, Peak load of this feeder was 200A.
- Loading of Manguli feeder was 200A, as per peak load data collected from site from April-2018 to Oct-2020. Considering 2.83% load growth, projected loading for this feeder would be 211.48 A for the year of 2022. In this scenario, this feeder will not be able to meet the future load.
- If there is any breakdown in Manguli feeder, then presently no other backup source is there for back feeding. In this scenario, N-1 connectivity fails in this feeder and remains in single connectivity condition.

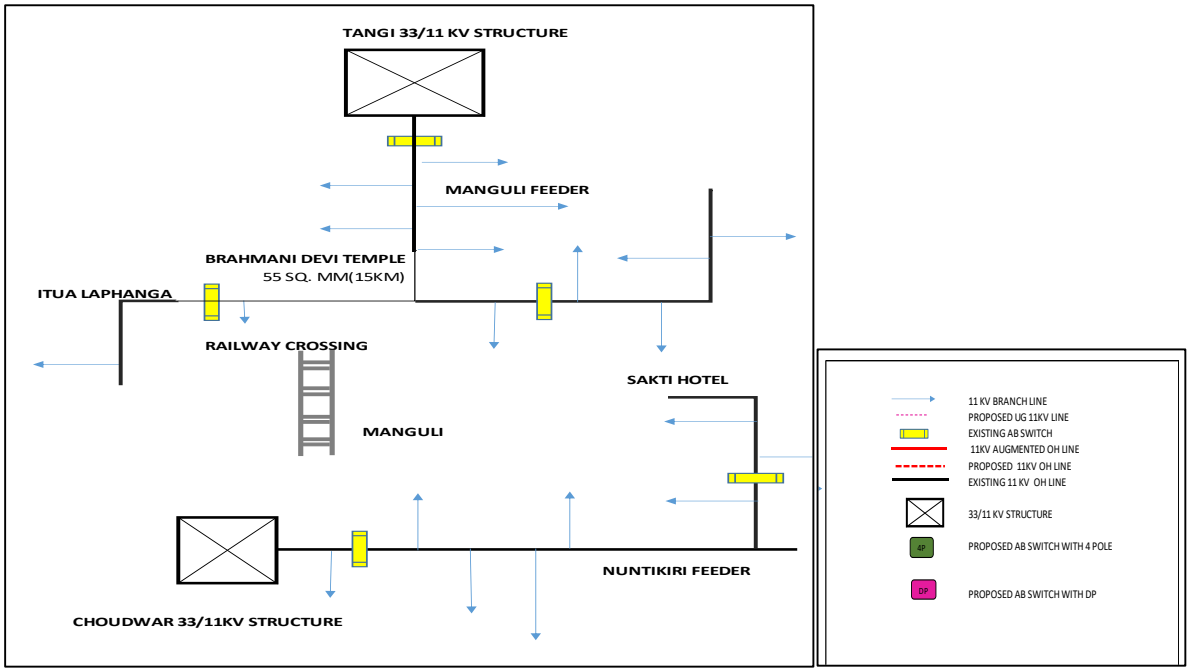
- Nuntikiri feeder, which is nearer to Manguli feeder, emerges from 33/11kv Choudwar structure has conductor size 80 sq.mm O/H line having Current carrying capacity of 261 A. As recorded, Peak load of this feeder was 25 A.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	% Loading
CED	TANGI	Manguli	55	189	200	2.83	211.48	111.89%(Overloaded)

Existing SLD (summer'20):

Refer 6.3.6 of the petition



Proposed Scenario: -

- Required construction of new 11KV UG 3C X 400 sq.mm cable double circuit of 0.12 km for back feeding to Manguli feeder from Nuntikri feeder.

- Required two AB Switchs with one 4 pole at Manguli for back feeding to Manguli feeder from Nuntikri feeder of Choudwar structure.

- Required construction of new 11KV over head 100 sq.mm AAAC (0.5KM) line to link Manguli feeder with Nuntikri feeder of Choudwar structure.

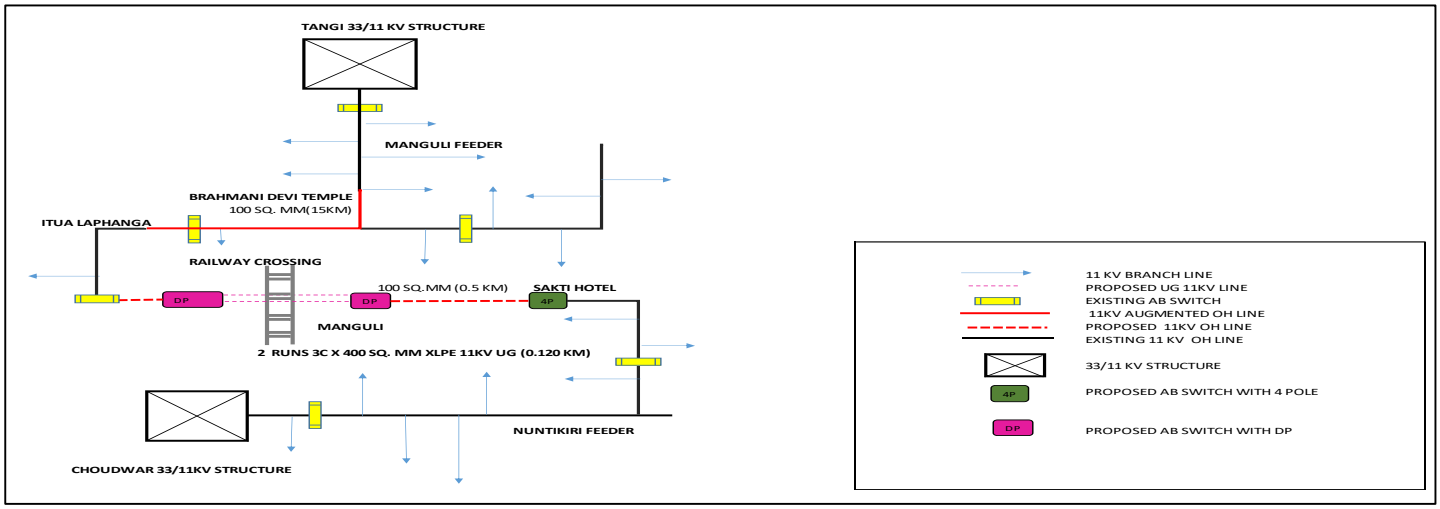
- Proposed overhead conductor augmentation from 55 sq.mm to 100 sq.mm for 15 km from Brahmani Devi temple to Itua (Laphanga) to cater the future load growth.

Proposed Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder(Proposed)	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	% Loading
CED	TANGI	Manguli	100	293	200	2.83	211.48	72.18%(Underloaded)

Refer 6.3.6 of the petition

Proposed SLD (summer'22):



Detailed Scope of Work:

- **<u>Proposed AB switch:</u>**
  Proposed two AB switch with one 4 pole at Manguli.

- **<u>Proposed UG line:</u>**
  Proposed double circuit 11KV UG 3C X 400 sq.mm cable 0.12 km for link Manguli feeder with Nuntikri feeder of Choudwar structure.

- **<u>Proposed 11KV Overhead line:</u>**
  Proposed new 11KV overhead 0.5 km for link Manguli feeder with Nuntikri feeder of Choudwar structure.

- **<u>Proposed 11 KV overhead line augmentation:</u>**
  Proposed 15 km circuit length 11 kV Overhead line conductor augmentation from 55 sq mm to 100sq mm of Manguli feeder from Brahmani Devi temple to Itua,Laphanga to handle the future load growth.

BOQ for Manguli Feeder Augmentation:

Refer 6.3.6 of the petition

Augmentation of Conductor size from 55 TO 100 sqmm of 15 km(Brahmani Devi temple to Itua,Laphanga)						
A. COST ESTIMATE FOR CONDUCTOR AUGMENTATION FROM 55 SQMM TO 100 SQMM(15 CKM)						
Sl. No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.09	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
		A.TOTAL COST FOR AUGMENTION OF 15 CKM		**15**	**746502.7151**	**1,11,97,540.73**

BOQ for Manduli feeder New Line:

Refer 6.3.6 of the petition

B.COST ESTIMATE FOR CONSTRUCTION OF 11 KV NEW LINE OF 100SQ MM(0.5 C KM HAVING 11MTR RS JOIST POLE)

11 KV LINE BY 11 METER R JOIST POLE WITH 3 NOS DP AND 23 NOS SINGLE POLE WITH 40

Sl. No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
		2	3	4	5	6
	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	28	24,739	6,92,692.00
	MSG I11	11KV V cross arm (10.2 Kg each)	No.	22	810	17,820.00
	MSG I39	Top bracket 75x40mm MS channel (1.3kg each)/	No	22	100	2,200.00
	MSG I36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	22	150	3,300.00
	INS31	11KV G I pin	No.		80	-
	INS4	11KV pin insulator polymer	No.	75	200	15,000.00
	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	12	468	5,616.00
	INS12	Disc insulator (B&S) 70KN Polymer	No.	12	1,150	13,800.00
	MSG I20	Stay Set 18mm	No	8	1,050	8,400.00
	INS17	HT stay insulator(140x85 mm)	No.	8	50	400.00
	MSG I43	HT Stay Clamp (1.9Kg / Pair)	Pair	8	125	1,000.00
	MSG I18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	80	75	6,000.00
	MSG I37	Earthing Coil	No.	19	166	3,154.00
	AAA C4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	2.781	55,000	1,52,955.00
	MSG I25	Barbed wire/Anticlimbing device with ddugjy sign board	set	22	703	15,466.00
	MSG I8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	120	65	7,800.00
	MSG I5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	50	65	3,250.00
	MSG I46	Nuts & Bolts of Assorted size	Kg..	80	78	6,240.00
		Design & providing Galvenised fencing around DP to prevent public coming in contact with DP	NO	3	30,000.00	90,000.00
		50x6 flat	kg	60	75	4,500.00
		GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	6	1,050.00	6,300.00
		No.6 GI Wire	K.g.	40	75.00	3,000.00
		40x6mm GI Flat for nutral	K.g.	50	75.00	3,750.00
		No-6 G I wire(Dia 4.8mm)	Kg	75	29	2,160.00
		No-8 G I wire(Dia 4.6 mm)	Kg	75	9	687.75
		33KV AB switch 3 Pole (400 Amp.)	Set	3	12,000	36,000.00
		Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	3	2270.27	6,810.81
		50x50x6 mm M.S Angle (4.50Kg. / Mtr)	KG	85	65	5,525.00
	ACS 19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**11,15,826.56**
	B	Stock & Storage @ 3% of A				33474.7968
	C	Sub - Total (A+B)				11,49,301.36
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5 % of C				2,58,592.81
	E	Sub - Total (C+D)				14,07,894.16
	F	Other Overheads including supervision charges @ 6% of E				84,473.65
	G	Total estimated Capital Cost (E+F)				14,92,367.81
	H	GST 18% of G				2,68,626.21
	I	CESS 1% of G				14,923.68
	J	**Total Cost**				**17,75,917.70**
	K	Inspection fee				
		B.COST ESTIMATE FOR CONSTRUCTION OF 11 KV NEW LINE OF 100SQ MM(0.5 C KM HAVING 11MTR RS JOIST POLE)		**0.5**	**17,75,917.70**	**8,87,958.85**

Refer 6.3.6 of the petition

C. ESTIMATE FOR NEW LAYOUT OF 11 KV UG CABLE(2 RUNS OF 0.120 CKM)					
Sl. No.	Description of Materials	Unit	Quantity	Rate (Rs)	Amount (Rs)
1	3x400mm² XLPE 11KV U.G. Cable	mtr	1000	1500	1500000
	cable joint kit straight through type for 3*400 sqmm ug cable	set	3	25317	75951
2	3x400mm² 11KV XLPE cable end jointing kit (Out door) heat srinkable (Make Raychem)	set	2	13904	27808
3	Cable loop chamber (15'x15'x5') with laterite Stone with 6" base concrete in the ratio 1:2:4 & filling with sand	Nos	3	26000	78000
4	High presure testing of 11KV XLPE Cable	Nos	1	5000	5000
5	Placement of 11KV cable Rootmarker	Nos	15	2000	30000
5	Cable laying, excavation and backfilling	MTR	1000	1200	1200000
6	Hosting of 11KV Cable	Nos	2	5000	10000
7	6" dia PVC pipe for cable bracing	No/ mtr 4/24	12	250	3000
8	Clamp for brassing	Nos	4	117	468
	Construction of DP=2Nos.				
9	13mtr long 150x150 RS joist pole	No/Kg 4/1799.2	1799.2	65	116948
10	10x50x6 mm GI channel	Kg	206	78	16068
11	75 x 40 x 6 mm GI. Channel	Kg	180	78	14040
12	50 x 50 x 6 mm GI. Angle	Kg	145	78	11310
13	GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	4	1050	4200
14	No.6 GI Wire	K.g.	40	75	3000
15	40x6mm GI Flat for nutral	K.g.	40	75	3000
16	11KV AB switch 3 Pole (400 Amp.)	Set	2	12000	24000
17	11KV LA	No	6	3550	21300
18	11KVHG fuse	No	2	11530	23060
19	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
20	11KV Disc Insulator (90KN)Polymer	No	12	1150	13800
21	4 Bolt single tension H/W fitting	Nos	12	1055	12660
22	HT Stay Set Complete	Set	4	1050	4200
23	HT Stay insulator	No.	4	50	200
24	HT stay clamp (1.95Kg/ Pair)	Pair	4	125	500
25	7/10 Stay Wire	Kg	40	75	3000
26	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire, stay insulator .	No.	4	2315.15	9260.6
27	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5'x2'x2' = 20CFT = 0.570Cum Padding 900x600x150mm =0.081 0.651Cum @ 3071.25= 1999.38each	No.	4	2840.89	11363.56
28	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	No.	4	676.37	2705.48
29	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
30	Al. binding wire/tape	Kg	20	420	8400
31	Al. Cable socket diff. size	No	24	45	1080
32	Danger Board	No	4	80	320
33	100mm2 AAAC for jumpering	Km	0.08	30000	2400
34	Red Oxide paint	Ltr	8	150	1200
35	All. Paint	Ltr	8	200	1600
36	Black Paint	Ltr	6	220	1320
37	Ms Nut , Bolt & Washer	K.g.	20	71	1420
38	Sundries for survey, PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Allm. Socket etc	LS	1	4092	4092

Refer 6.3.6 of the petition

A	Total cost of Material as per 2018-19 Cost Data			3264836.8
B	Stock ,Storage &Insurance			97945.104
	Sub Total (A+B)			3362781.904
C	2% T & P charges of (A+B)			67255.63808
D	3% Contigency of (A+B)			100883.4571
E	7.5% Transportation charges of (A+B)			252208.6428
F	10% Errection Charges of (A+B)			336278.1904
G	Sub total (A to F)			4119407.832
H	Other over head (Including 6%) supervision charges of G			247164.4699
I	Total Estimated Capital cost (G+H)			4366572.302
J	GST @ 18% of H			785983.0144
K	CESS @1% of I			43665.72302
L	Total Estimate to be deposited by party (H+J+K)			5196221.04
N	Inspection Fee			5575
O	Grand Total (I+J+K+L+M+N)			5201796.04
	C.TOTAL COST FOR LAYOUT OF NEW 11 KV UG CABLE FOR 2 RUNS OF 0.12 CKM	0.24	5201796.04	**12,48,431.05**

D. COST ESTIMATE FOR 2 NOS OF 11 KV AB SWITCH WITH 4 POLE

Sl. No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
1	150X150 GI Joist (11Mtr. Long) (34.6kg/meter) (Each 380.6kg.)	NO	2	24739.00	49,478.00
2	Pressure Channel 100 x 50 x 6mm GI channel	K.g.	100	75.00	7,500.00
3	S/S DP bressing chhanel 75 x 40 x 6mm GI CHANEL	K.g.	48	75.00	3,600.00
4	AB switch Mounting Channel 100x50x6	K.g.	0	75.00	-
5	S/S DP bracing Angle 50 x 50 x 6 mm - 6 mtr. Long 2 nos.(4.5 K.g. per mtr.) with side angle	K.g.	54	65.00	3,510.00
6	11 K.V. Polymer type Insulator	No.	3	480.00	1,440.00
7	11 K.V DISC Insulator (B & S) 90KN Polymer	No.	6	1150.00	6,900.00
8	H.w fitting suitable for 100 sqmm AAAC 3 bolted	NO	6	468.00	2,808.00
9	PG Clamp for 100 mm2 Conductor for jumpering	No	3	400.00	1,200.00
10	11KV AB Switch 400Amp 3pole	Set	1	12000.00	12,000.00
10	H.T.stay set (Complete)	Set	2	700.00	1,400.00
11	H.T. Stay Insulator	No.	2	40.00	80.00
12	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	146.25	292.50
13	7/8 SWG Stay Wire	K.g.	24	90.00	2,160.00
14	GI Pipe Earthing 40 Dia Medium gage 3 mtrs. Long	No.	2	1500.00	3,000.00
15	40x6mm GI Flat for earthing	K.g.	40	60.00	2,400.00

Refer 6.3.6 of the petition

16	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire , stay insulator .	No.	2	1753.90	3,507.80
17	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5.5'x2'x2' = 22CFT = 0.62Cum Padding 900x600x150mm = 0.081 0.701Cum @ 3071.25= 2152.95 each	NO	2	2152.95	4,305.90
18	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	Nos	2	512.40	1,024.80
19	Materials for Massonary work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	1719.90	3,439.80
20	Black Paint	Ltr	0.7	85.00	59.50
21	Ms Nut , Bolt & Washer	K.g.	4	75.00	300.00
22	Sundries for survey , PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Alm. Socket etc	LS	1	0.00	-
A.	**Total cost of materials for the year 2018-19**				**1,10,406.30**
B.	**Stock,Storage & Insurance = 3% of (A.)**				3,312.19
C	**Sub total (A+B)**				**1,13,718.49**
I.	**T & P charges = 2% of (C)**				2,274.37
II.	**Contigency = 3% of (C.)**				3,411.55
III.	**Transportation Charges = 7.5% of (C.)**				8,528.89
IV.	**Erection Charges for PSC Pole @ 20%**				0.00
	Erection Charges for Other Materials @ 10%				4,122.11
	Errection Charges for TFR, Breaker & Joist Pole @ 5%				2,548.12
D.	**Sub Total**				**1,34,603.53**
E	**Over Head Charges = 6% of (D.)**				0.00
F	**Total Estimated Capital Cost (D+E)**				**1,34,603.53**
G	**GST 18% of (D)**				**24,228.64**
H	**GST 18% of (E)**				0.00
I	**CESS = 1% of (F.)**				1346.04
J	**Inspection Fee**				1000.00
K	**Total (F+G+H+I+J)**				**1,61,178.20**
D.TOTAL COST ESTIMATE FOR TOTAL 2 NOS OF 11 KV AB SWITCH WITH FOUR			2	1,61,178.20	**3,22,356.40**
	TOTAL COST ESTIMATE(B+C+D)				**24,58,746.30**

Benefits:

The reliability & continuity of power supply will be maintained in this feeder.

Refer 6.3.6 of the petition

16. <u>Augmentation of 16Ckm of 42- Mouza Feeder</u>

Proposal:

Augmentation of 11KV Overhead AAAC conductor of 16 KM circuit length from 55 sq. mm to 100 sq.mm of 42-Mouza Feeder of Gopalpur (Balikuda) structure

Objective:

To improve the reliability, continuity of power supply and meet the increasing demand by mitigating over loading issue of the feeder

Existing Scenario:

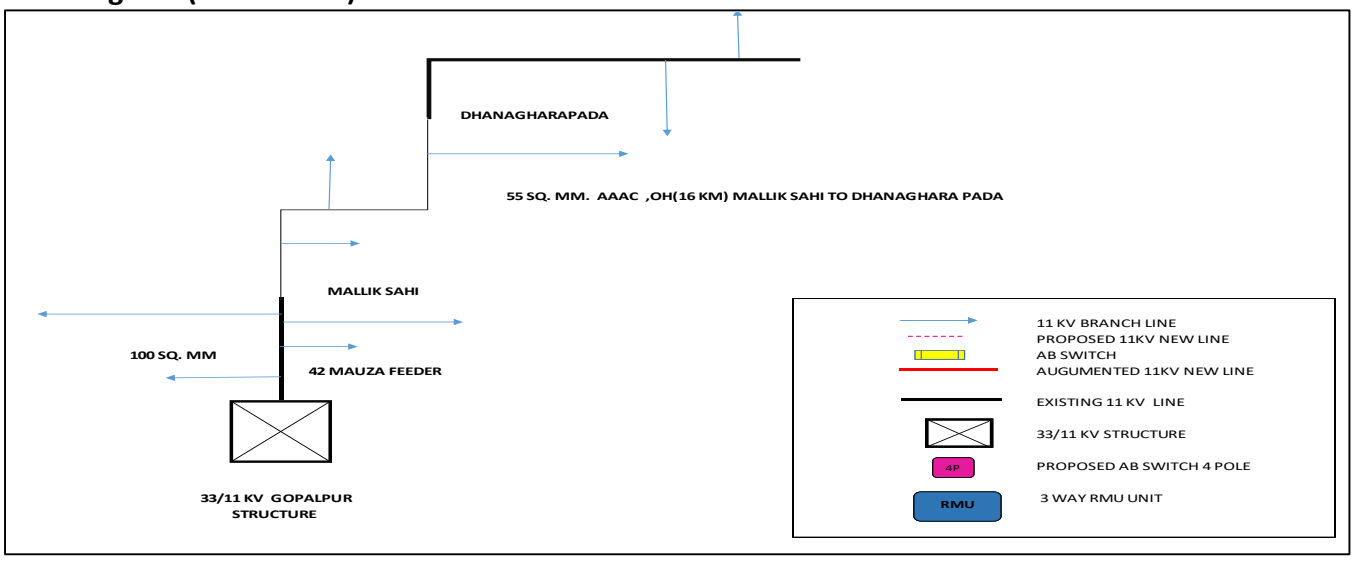
- 42-Mouza area is feeding through 42-Mouza feeder of Gopalpur (Balikuda) structure. This feeder has a minimum overhead conductor size of 55 sq. mm. having current carrying capacity of 189 A.

- Loading of 42-Mouza feeder was 200A. As per peak load data collected from site from April-2018 to Oct-2020 and considering 2.83% load growth, projected loading for this feeder would be 211 A for the year of 2022. In this scenario, this feeder will not be able to meet the future load.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading %ge
CED	GOPALPUR	42 MAUZA	55	189	200	2.83	211.4802	112**(Overloaded)**

Existing SLD (summer'20):



Refer 6.3.6 of the petition

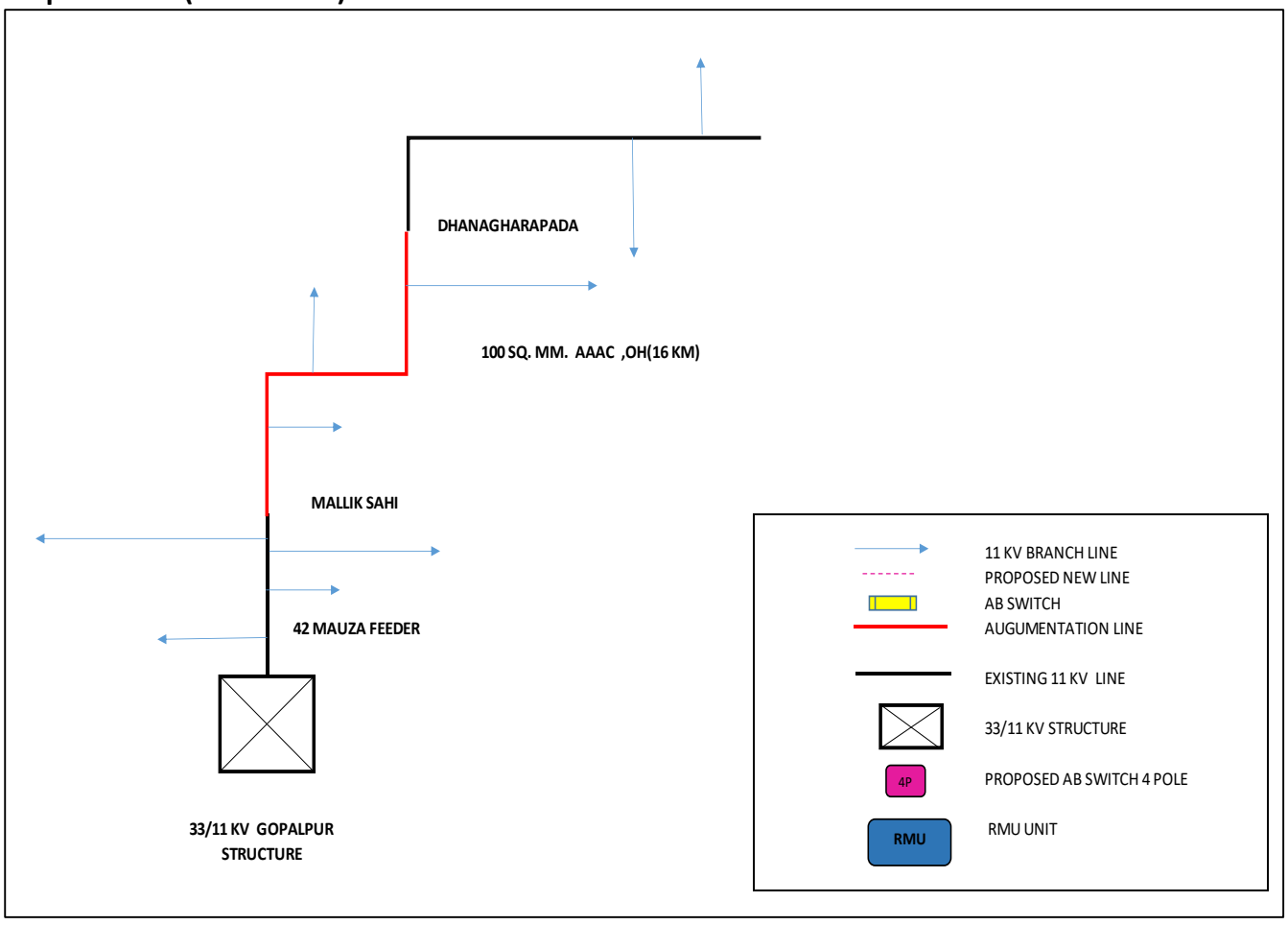
Proposed Scenario: -

- Proposed overhead conductor augmentation from 55 sq.mm to 100 sq.mm for 16 km from Orali Mallik Sahi to Dhanagharapada to handle the future load growth and mitigate overloading scenario.

Proposed Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder(Proposed)	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading(%ge)
CED	GOPALPUR	42 MAUZA	100	293	200	2.83	211.4802	68.26%**(Underloaded)**

Proposed SLD (summer'22):



Detailed Scope of Work:

- **<u>Proposed 11 KV overhead line augmentation:</u>**
  Proposed 16 km circuit length 11 kV Overhead line conductor augmentation from 55 sq mm to 100sq mm from from Orali Mallik Sahi to Dhanagharapada along the feeder to handle the future load growth.

Refer 6.3.6 of the petition

BOQ for 42 MOUZA Feeder:

Refer 6.3.6 of the petition

Augmentation of 11KV OH conductor size from 55 sqmm to 100 sqmm of 16 km from Orali Mallik Sahi to Dhanagharapada.

A. ESTIMATE FOR CONDUCTOR AUGMENTATION FROM 55 SQMM TO 100 SQMM(16 CKM)

Sl. No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.1	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
		TOTAL COST FOR AUGMENTION OF 16 CKM		**16**	**746502.7151**	**1,19,44,043.44**

Benefits:

- Voltage regulation will be improved.
- Distribution losses will reduce.
- Reliability & continuity of power supply can be maintained.

Refer 6.3.6 of the petition

17. <u>Augmentation of 12 km Baranga Feeder</u>

18.

Proposal:

- Augmentation of 11kV Overhead AAAC conductor of 12 KM circuit length from 55 sq. mm to 100 sq.mm of Baranga feeder of Gopalpur structure.
- For strengthening N-1 connectivity of this feeder, there is requirement of two AB switches with DP at Paikraipur cut off point and also two runs of 11KV XLPE 400 SQ MM UG cable of 0.5 km near Paikraypur cutoff point for railway crossing.

Objective:

To improve the reliability of power supply and meet the increasing demand by mitigating over loading issue of the feeder

Existing Scenario:

- At present, Baranga area is feeding through Baranga feeder of Gopalpur structure. Baranga feeder has a minimum overhead conductor size of 55 sq. mm. having current carrying capacity of 189 A.

- Loading of Baranga feeder was 330A, as per peak load data collected from site from April-2018 to Oct-2020. Considering 2.83% load growth, projected loading for this feeder would be 348.9 A for the year of 2022. In this scenario, the feeder will not be able to carry the future load.

- If there is any outage in Baranga feeder, then presently no other backup source is there for back feeding. In this scenario, N-1 connectivity fails in this feeder and remains in single connectivity condition.

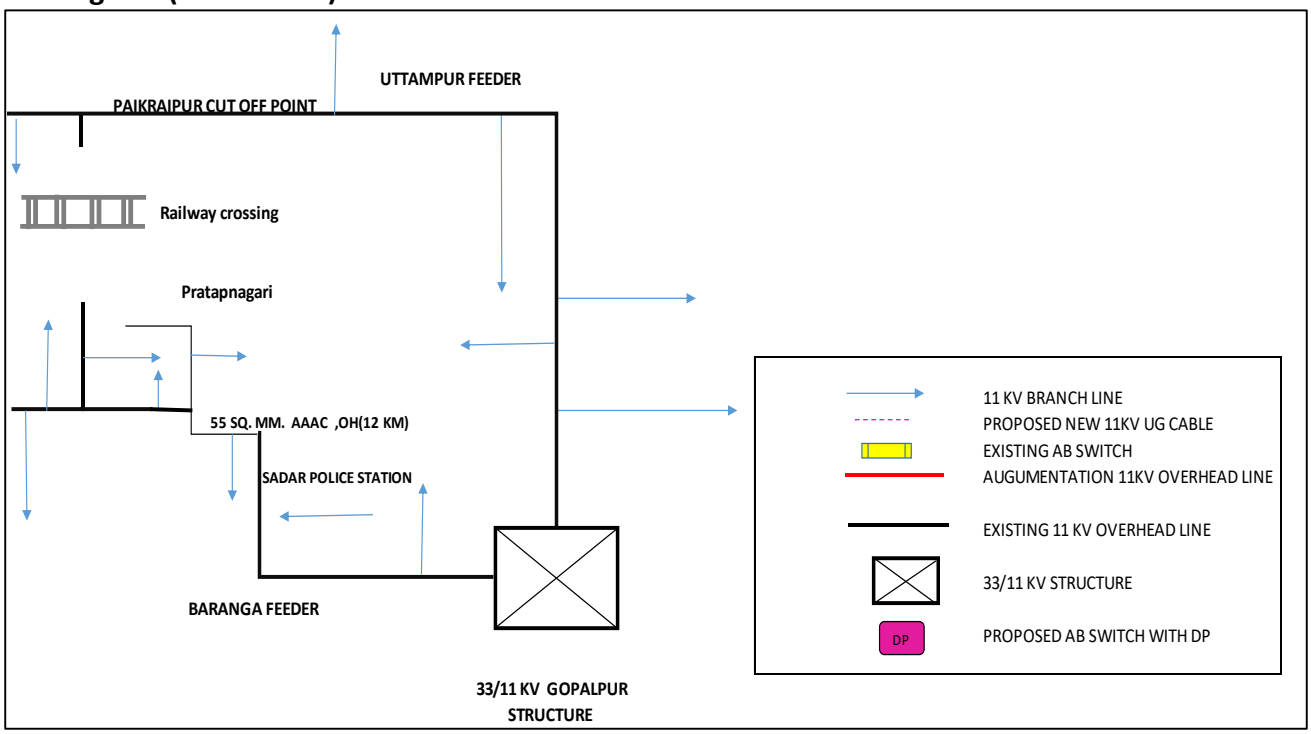
- Uttampur feeder, which is nearer to Baranga feeder, emerges from Gopalpur structure has minimum conductor size of 55 sq.mm overhead line having Current carrying capacity of 189 A. Also, the overhead conductor of this feeder has been augmented from 55 sq mm to 100 sq mm. As recorded, Peak load of this feeder was 96 A. So, this feeder would be an alternate supply to Baranga feeder.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	% Loading
CED	GOPALPUR	BARANGA	55	189	330	2.83	349	184.63%

Refer 6.3.6 of the petition

Existing SLD (summer'20):



Proposed Scenario: -

- Proposed 11 kv overhead conductor augmentation from 55 sq.mm to 100 sq.mm for 12 km from Sadar police station to Pratapnagari mahadev sahi via SCODA.
- Bifurcation of this feeder is required in future as after conductor augmentation still the feeder is overloaded. So, some load has to be shifted to another 11kv feeder. It is possible only after charging of new 33/11kv Pratapnagari structure to handle the future load growth.

- Required two AB Switches with two nos. DP at both side of railway crossing near Paikraypur cut off point for back feeding to Baranga feeder from Uttampur feeder of Gopalpur structure.

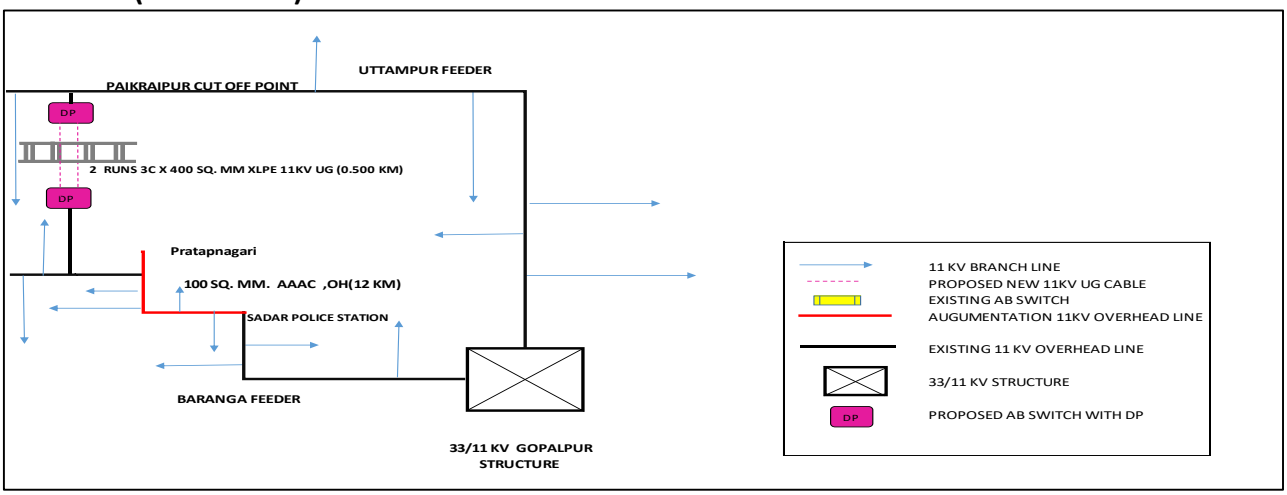
- Required construction of new 2 runs of 0.5 km 11 Kv XLPE UG 3C X 400 sq.mm cable at Railway crossing for back feeding to Baranga feeder from Uttampur feeder of Gopalpur structure.

Proposed Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	% Loading
CED	GOPALPUR	BARANGA	100	293	330	2.83	349	119.09%

Refer 6.3.6 of the petition

Proposed SLD (summer'22):



Detailed Scope of Work:

- **<u>Propose Overhead 11 kv line augmentation:</u>**
  Proposed 12 KM 11KV overhead line conductor of 100sq mm from Sadar police station to Pratapnagari mahadev sahi via SCODA

- **<u>Proposed AB switch:</u>**
  Proposed two AB switches with two DPs at both side of Railway crossing near Paikraypur cutoff point

- **<u>Proposed UG line:</u>**
  Proposed Double circuit 11Kv XLPE UG 3C X 400 sq.mm cable of 0.5 km for Railway crossing near Paikraypur cut off point.

BOQ for Baranga Feeder Augmentation:

Refer 6.3.6 of the petition

A. 1. Augmentation of 11kV Overhead AAAC conductor of 12 KM circuit length from 55 sq. mm to 100 sq.mm of Baranga feeder of Gopalpur structur						
Sl.No.	**Mtr Code**	**Description of Materials**	**Unit**	**Qty**	**Rate**	**Amount**
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.1	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
		A. TOTAL COST FOR AUGMENTION OF 12 CKM		**12**	**746502.7151**	**89,58,032.58**

BOQ for Baranga Feeder UG Cable Works :

Refer 6.3.6 of the petition

B.2. For strengthening N-1 connectivity of this feeder, there is requirement of two AB switches with DP at Paikraipur cut off point and also two runs of 11KV XLPE 400 SQ MM UG cable of 0.5 km near Paikraypur cutoff point for railway crossing

Sl. No.	Description of Materials	Unit	Quantity	Rate (Rs)	Amount (Rs)
1	3x400mm² XLPE 11KV U.G. Cable	mtr	1000	1500	1500000
	cable joint kit straight through type for 3*400 sqmm ug cable	set	3	25317	75951
2	3x400mm² 11KV XLPE cable end jointing kit (Out door) heat srinkable (Make Raychem)	set	2	13904	27808
3	Cable loop chamber (15'x15'x5') with laterite Stone with 6" base concrete in the ratio 1:2:4 & filling with sand	Nos	3	26000	78000
4	High presure testing of 11KV XLPE Cable	Nos	1	5000	5000
5	Placement of 11KV cable Rootmarker	Nos	15	2000	30000
5	Cable laying, excavation and backfilling	MTR	1000	1200	1200000
6	Hosting of 11KV Cable	Nos	2	5000	10000
7	6" dia PVC pipe for cable bracing	ɔ/ mtr 4/2	12	250	3000
8	Clamp for brassing	Nos	4	117	468
	Construction of DP=2Nos.				
9	13mtr long 150x150 RS joist pole	/Kg 4/179	1799.2	65	116948
10	10x50x6 mm GI channel	Kg	206	78	16068
11	75 x 40 x 6 mm GI. Channel	Kg	180	78	14040
12	50 x 50 x 6 mm GI. Angle	Kg	145	78	11310
13	GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	4	1050	4200
14	No.6 GI Wire	K.g.	40	75	3000
15	40x6mm GI Flat for nutral	K.g.	40	75	3000
16	11KV AB switch 3 Pole (400 Amp.)	Set	2	12000	24000
17	11KV LA	No	6	3550	21300
18	11KVHG fuse	No	2	11530	23060
19	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
20	11KV Disc Insulator (90KN)Polymer	No	12	1150	13800
21	4 Bolt single tension H/W fitting	Nos	12	1055	12660
22	HT Stay Set Complete	Set	4	1050	4200
23	HT Stay insulator	No.	4	50	200
24	HT stay clamp (1.95Kg/ Pair)	Pair	4	125	500
25	7/10 Stay Wire	Kg	40	75	3000
26	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire, stay insulator .	No.	4	2315.15	9260.6
27	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5'x2'x2' = 20CFT = 0.570Cum Padding 900x600x150mm =0.081 0.651Cum @ 3071.25= 1999.38each	No.	4	2840.89	11363.56
28	Couping of support section 15''x15'' (3.9Cft) height 2'-6' (1' - 6'' above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	No.	4	676.37	2705.48
29	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
30	Al. binding wire/tape	Kg	20	420	8400
31	Al. Cable socket diff. size	No	24	45	1080
32	Danger Board	No	4	80	320
33	100mm2 AAAC for jumpering	Km	0.08	30000	2400
34	Red Oxide paint	Ltr	8	150	1200
35	All. Paint	Ltr	8	200	1600
36	Black Paint	Ltr	6	220	1320
37	Ms Nut , Bolt & Washer	K.g.	20	71	1420
38	Sundries for survey, PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Allm. Socket etc	LS	1	4092	4092
A	Total cost of Material as per 2018-19 Cost Data				3264836.8
B	Stock ,Storage &Insurance				97945.104
	Sub Total (A+B)				3362781.904
C	2% T & P charges of (A+B)				67255.63808
D	3% Contigency of (A+B)				100883.4571
E	7.5% Transportation charges of (A+B)				252208.6428
F	10% Errection Charges of (A+B)				336278.1904
G	Sub total (A to F)				4119407.832
H	Other over head (Including 6%) supervision charges of G				247164.4699
I	Total Estimated Capital cost (G+H)				4366572.302
J	GST @ 18% of H				785983.0144
K	CESS @1% of I				43665.72302
L	Total Estimate to be deposited by party (H+J+K)				5196221.04
N	Inspection Fee				5575
O	Grand Total (I+J+K+L+M+N)				5201796.04
	B.TOTAL COST FOR LAYOUT OF NEW 11 KV UG CABLE FOR 2 RUNS OF 0.5 CKM		1	5201796.04	**52,01,796.04**

Refer 6.3.6 of the petition

C. COST ESTIMATE FOR 2 NOS OF 11 KV AB SWITCH WITH DP					
Sl. No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
1	150X150 GI Joist (11Mtr. Long) (34.6kg/meter) (Each 380.6kg.)	NO	2	24739.00	49,478.00
2	Pressure Channel 100 x 50 x 6mm GI channel	K.g.	100	75.00	7,500.00
3	S/S DP bressing chhanel 75 x 40 x 6mm GI CHANEL	K.g.	48	75.00	3,600.00
4	AB switch Mounting Channel 100x50x6	K.g.	0	75.00	-
5	S/S DP bracing Angle 50 x 50 x 6 mm - 6 mtr. Long 2 nos.(4.5 K.g. per mtr.) with side angle	K.g.	54	65.00	3,510.00
6	11 K.V. Polymer type Insulator	No.	3	480.00	1,440.00
7	11 K.V DISC Insulator (B & S) 90KN Polymer	No.	6	1150.00	6,900.00
8	H.w fitting suitable for 100 sqmm AAAC 3 bolted	NO	6	468.00	2,808.00
9	PG Clamp for 100 mm2 Conductor for jumpering	No	3	400.00	1,200.00
10	11KV AB Switch 400Amp 3pole	Set	1	12000.00	12,000.00
10	H.T.stay set (Complete)	Set	2	700.00	1,400.00
11	H.T. Stay Insulator	No.	2	40.00	80.00
12	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	146.25	292.50
13	7/8 SWG Stay Wire	K.g.	24	90.00	2,160.00
14	GI Pipe Earthing 40 Dia Medium gage 3 mtrs. Long	No.	2	1500.00	3,000.00
15	40x6mm GI Flat for earthing	K.g.	40	60.00	2,400.00
16	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire , stay insulator .	No.	2	1753.90	3,507.80
17	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5.5'x2'x2' = 22CFT = 0.62Cum Padding 900x600x150mm = 0.081 0.701Cum @ 3071.25= 2152.95 each	NO	2	2152.95	4,305.90
18	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	Nos	2	512.40	1,024.80
19	Materials for Massonary work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	1719.90	3,439.80
20	Black Paint	Ltr	0.7	85.00	59.50
21	Ms Nut , Bolt & Washer	K.g.	4	75.00	300.00
22	Sundries for survey , PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Alm. Socket etc	LS	1	0.00	-
A.	**Total cost of materials for the year 2018-19**				**1,10,406.30**
B.	**Stock,Storage & Insurance = 3% of (A.)**				3,312.19
C	**Sub total (A+B)**				**1,13,718.49**
I.	**T & P charges = 2% of (C)**				2,274.37
II.	**Contigency = 3% of (C.)**				3,411.55
III.	**Transportation Charges = 7.5% of (C.)**				8,528.89
IV.	**Erection Charges for PSC Pole @ 20%**				0.00
	Erection Charges for Other Materials @ 10%				4,122.11
	Errection Charges for TFR, Breaker & Joist Pole @ 5%				2,548.12
D.	**Sub Total**				**1,34,603.53**
E	**Over Head Charges = 6% of (D.)**				0.00
F	**Total Estimated Capital Cost (D+E)**				**1,34,603.53**
G	**GST 18% of (D)**				**24,228.64**
H	**GST 18% of (E)**				0.00
I	**CESS = 1% of (F.)**				1346.04
J	**Inspection Fee**				1000.00
K	**Total (F+G+H+I+J)**				**1,61,178.20**
C.TOTAL COST ESTIMATE FOR TOTAL 2 NOS OF 11 KV AB SWITCH WITH DP			**2**	1,61,178.20	**3,22,356.40**
		total cost estimate for(B&C)			**55,24,152.44**

Refer 6.3.6 of the petition

Benefits:

- The reliability & continuity of power supply can be maintained.
- The increasing demand of feeder can be met by mitigating overloading issue.

19. Augmentation of 6Ckm of Uttampur Feeder

Proposal:

- Augmentation of 11kV overhead AAAC conductor of 6 KM circuit length from 55 sq. mm to 100 sq.mm of Uttampur feeder of Gopalpur structure.

Objective:

- To improve the reliability of power supply and meet the increasing demand by mitigating over loading issue of the feeder

Existing Scenario:

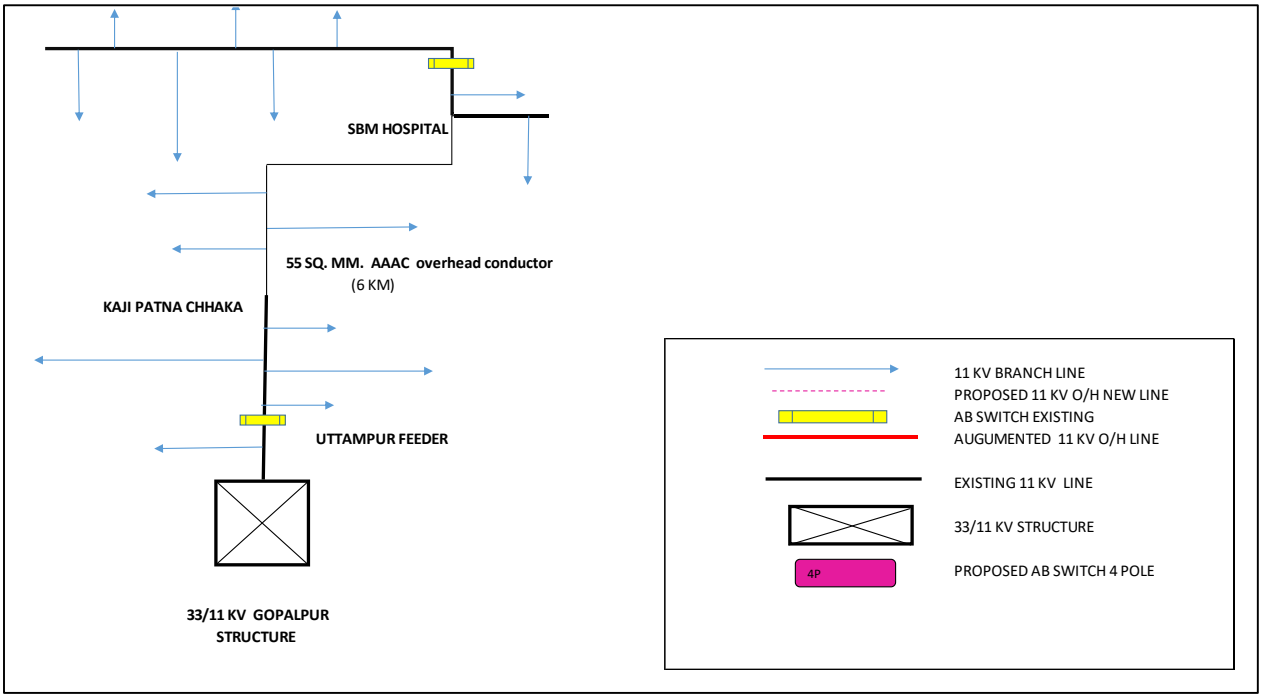
- Uttampur load is feeding through 11kv Uttampur feeder of Gopalpur structure. Uttampur feeder has a minimum overhead conductor size of 55 sq. mm. having current carrying capacity of 189 A .
- Loading of Uttampur feeder was 180A, as per peak load data collected from site from April-2018 to Oct-2020. Considering 2.83% load growth, projected loading for this feeder would be 190.33 A for the year of 2022. In this scenario the feeder will not be able to carry the future load.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading(%ge)
CED	GOPALPUR	UTTAMPUR	55	189	180	2.83	190.33	101(Overloading)

Existing SLD (summer'20):

Refer 6.3.6 of the petition



Proposed Scenario: -

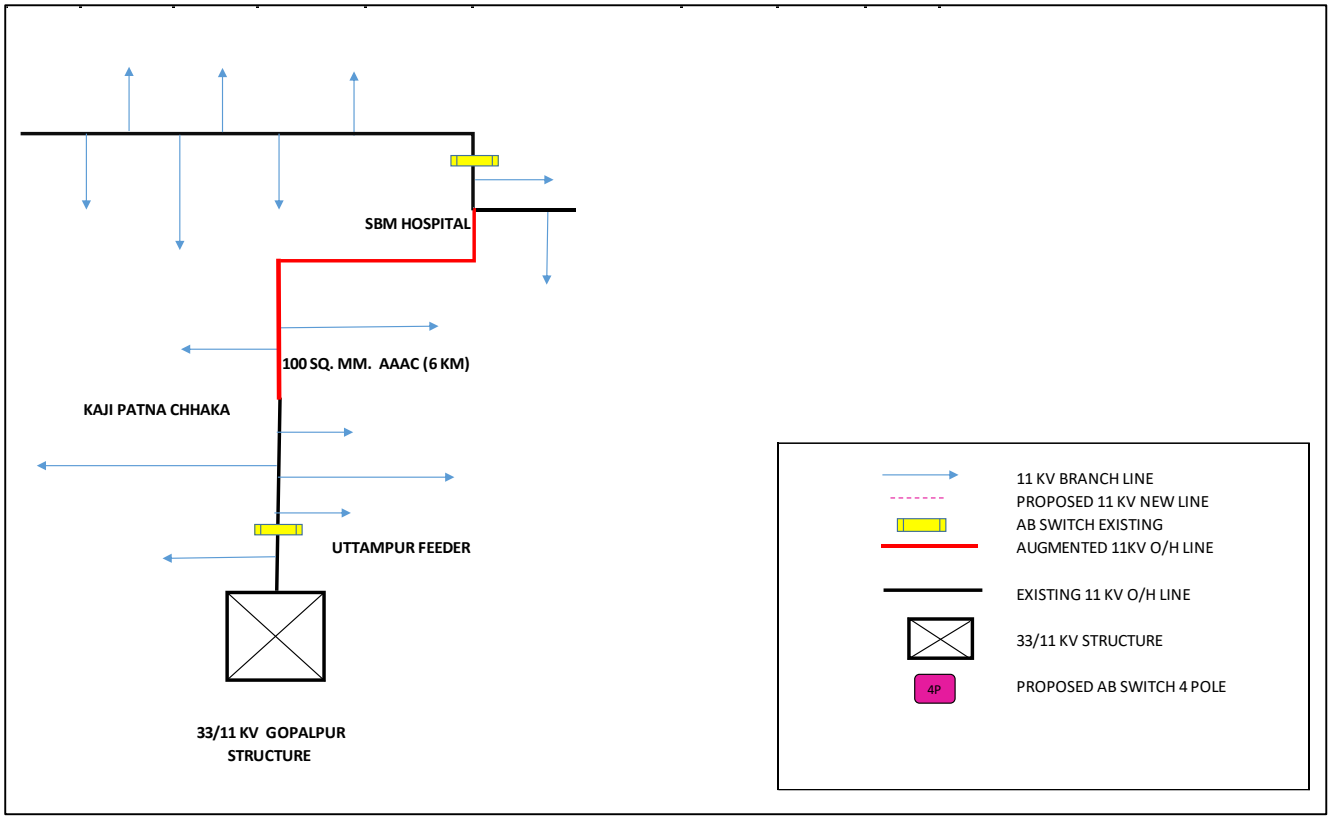
- Propose augmentation of overhead conductor from 55 sq.mm to 100 sq.mm for 6 km from Kajipatna chhak to SBM Hospital to handle the future load growth and overloading.

Proposed Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading(%ge)
CED	GOPALPUR	UTTAMPUR	100	293	180	2.83	190.33	64.96(Underloading)

Proposed SLD (summer'22):

Refer 6.3.6 of the petition



Detailed Scope of Work:

- **<u>Propose 11KV O/H line augmentation:</u>**
  Propose 11KV overhead line AAAC conductor augmentation from 55 sq mm to 100 sq mm of 6KM circuit length from Kajipatna chhak to SBM Hospital to handle the future load growth and overloading.

BOQ for Uttampur Feeder:

Augmentation of 11KV OH conductor size from 55 sqmm to 100 sqmm of 6 km from Kajipatna chhak to SVM

A. ESTIMATE FOR CONDUCTOR AUGMENTATION FROM 55 SQMM TO 100 SQMM(6 CKM)

Sl.No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00

Refer 6.3.6 of the petition

12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.1	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
		A. TOTAL COST FOR AUGMENTION OF 6 CKM		**6**	**746502.7151**	**44,79,016.29**

Benefits:

- Voltage regulation will be improved
- Distribution losses will get reduced
- Reliability & continuity of power supply can be maintained

Refer 6.3.6 of the petition

20. <u>Augmentation of 0.25Ckm of Kazibazar Feeder</u>

<u>Proposal:</u>

Augmentation of 11KV AAAC conductor of 0.25 km circuit length from 80 sq. mm to 100 sq.mm of Kazibazar feeder and Gangamandir feeder of DRDA structure.

<u>Objective:</u>

To improve the reliability, continuity of power supply and meet the increasing demand by mitigating over loading issue of the feeder

<u>Existing Scenario</u>:

- Kazibazar area load is feeding through Kazibazar feeder of DRDA structure. The feeder has a minimum O/H conductor size of 80 sq. mm. having current carrying capacity of 261 A.

- Loading of Kazibazar feeder was 210A, as per peak load data collected from site from April-2018 to Oct-2020. Considering 2.55 % load growth, projected loading for this feeder would be 221 A for the year of 2022. In this scenario, the feeder will not be able to carry the future load.

- Gangamandir feeder, which is nearer to Kazibazar feeder, a new one emerges from DRDA structure having minimum conductor size of 80 sq mm having rated current carrying capacity of 261 A. As recorded, peak load of the feeder was 60 A.

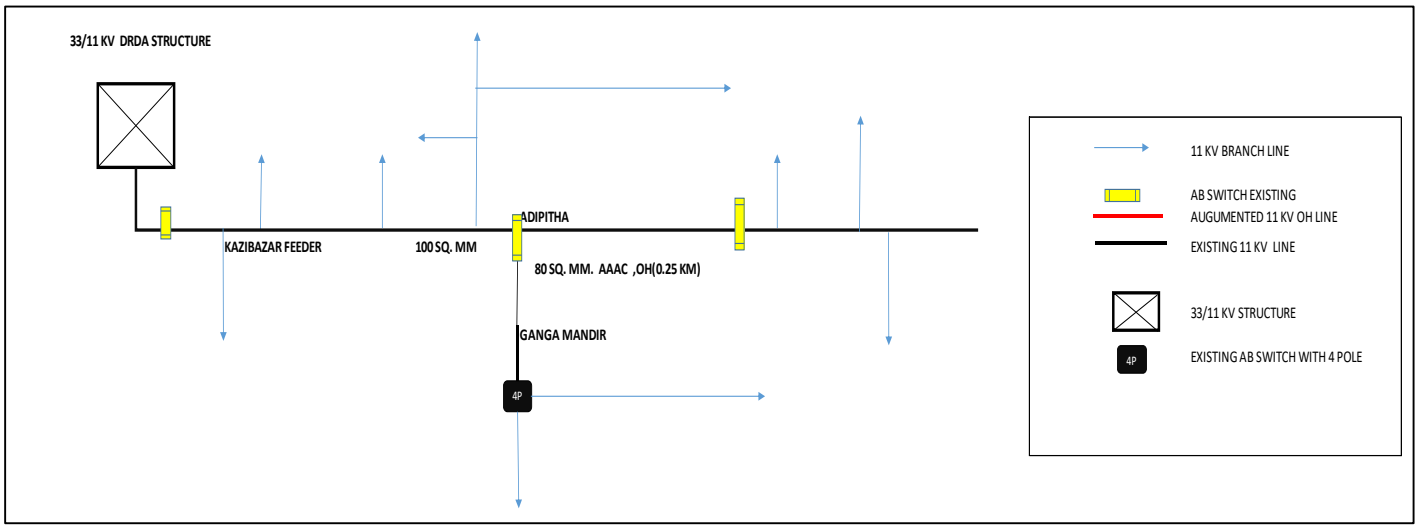
- At present, when there is any outage in Kazibazar feeder, although there is a back feeding arrangement to this feeder from Gangamandir feeder, it is being used for part load shifting. In this scenario, N-1 fails in the Kazibazar feeder due to overloading issue in Gangamandir feeder.

<u>Existing Loading Summary:</u>

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	%ge Loading
CDD-1	DRDA	KAZIBAZAR	80	261	210	2.55	221	84.61%(Underloaded)

Refer 6.3.6 of the petition

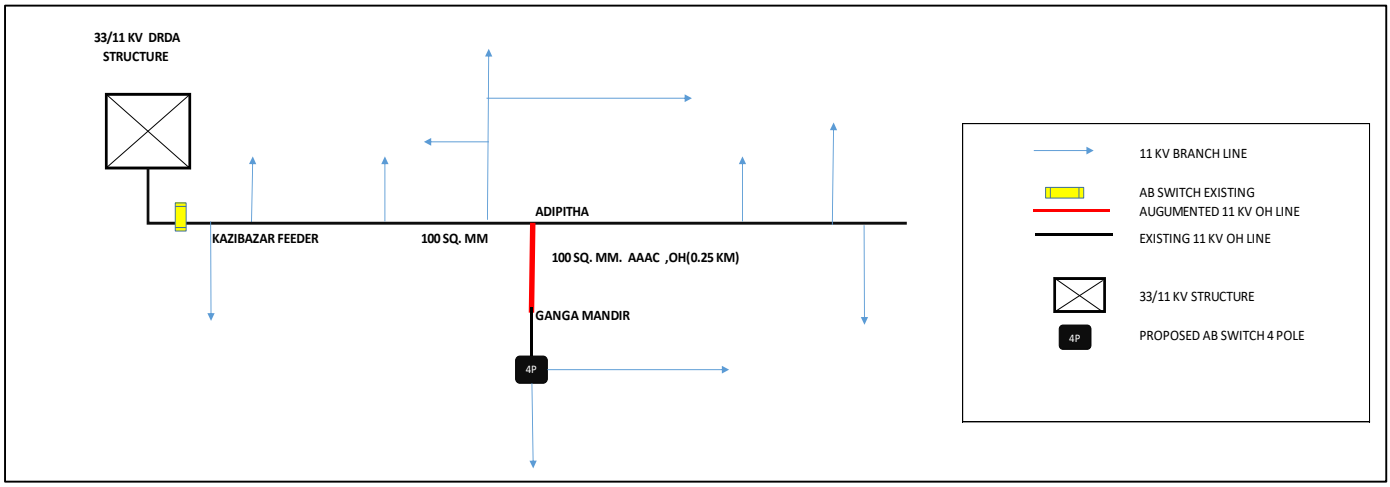
Existing SLD (summer'20):



Proposed Scenario:

- Propose augmentation of 11 KV overhead line conductor from 80 sq.mm to 100 sq.mm for 0.25 km circuit length from Gangamandir to Adipith to mitigate N-1 overloading issue of the feeder

Proposed SLD (summer'22):



Detailed Scope of Work:

- **Proposed 11 KV overhead line augmentation:**
  Proposed 11 KV overhead line conductor augmentation from 80 sqmm to 100sq mm of 0.25 km circuit length along the feeder from Gangamandir to Adipith

BOQ for Kazibazar Feeder:

Refer 6.3.6 of the petition

A. • Augmentation of 11KV AAAC conductor of 0.25 km circuit length from 80 sq. mm to 100 sq.mm of Kazibazar feeder and Gangamandir feeder of DRDA structure

Sl.No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.09	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
		TOTAL COST FOR AUGMENTION OF 0.250 CKM		**0.25**	**746502.7151**	**1,86,625.68**

Benefits:

Refer 6.3.6 of the petition

- The reliability and continuity of power supply will be improved.
- The increasing demand can be met by mitigating over loading issue of the feeder.

Refer 6.3.6 of the petition

21. Cable and AB Switch from Industrial feeder-2

Proposal:
For N-1 connectivity of 11 kV Industrial-2 feeder of 33/11kv OGP(Khapuria) structure , there is requirement to lay single circuit 11 kV XLPE 3C X 400 sq mm UG cable of 0.1 km along with one AB switch at Balisahi(Apollo Transformer) to link this feeder from Industrial-2 feeder of OGP structure.

Objective:
To improve the reliability of power supply and meet the increasing demand by mitigating over loading issue.

Existing Scenario:

- Industrial-2 load is feeding through Industrial-2 feeder of 33/11kv OGP structure. This feeder has a minimum overhead conductor size of 100 sq. mm. having current carrying capacity of 293 A. As recorded, Peak load of this feeder is 82A .

- If there is any breakdown in Industrial-2 feeder, then presently no other backup source is there for back feeding. In this scenario, N-1 connectivity fails in this feeder and remains in single connectivity condition.

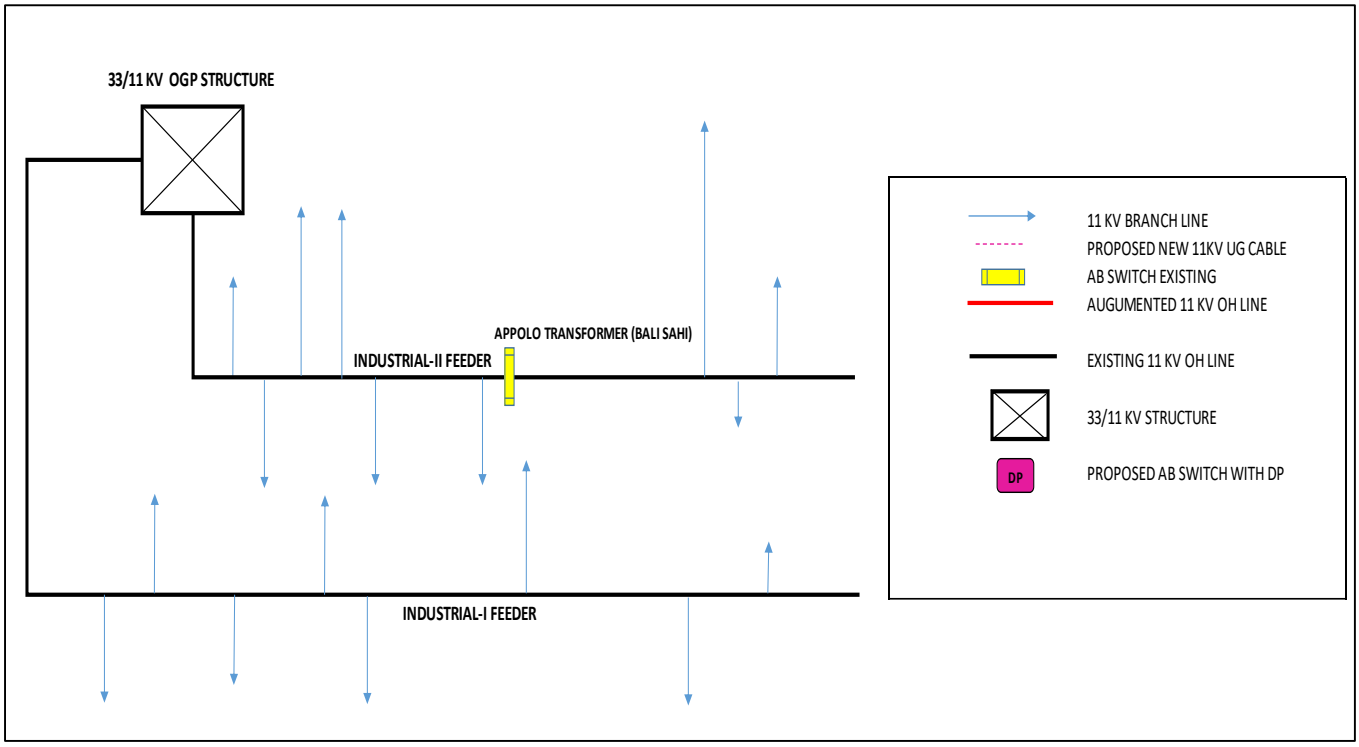
- Industrial-1 feeder, which is nearer to Industrial-2 feeder from OGP structure has conductor size of 100 sq.mm overhead line having Current carrying capacity of 293 A. As recorded, Peak load of this feeder is 188 A.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading(%ge)
CDD-2	OGP	Industrial-II	100	293	81	0.56	82	28%(Underload)

Existing SLD (summer'20):

Refer 6.3.6 of the petition



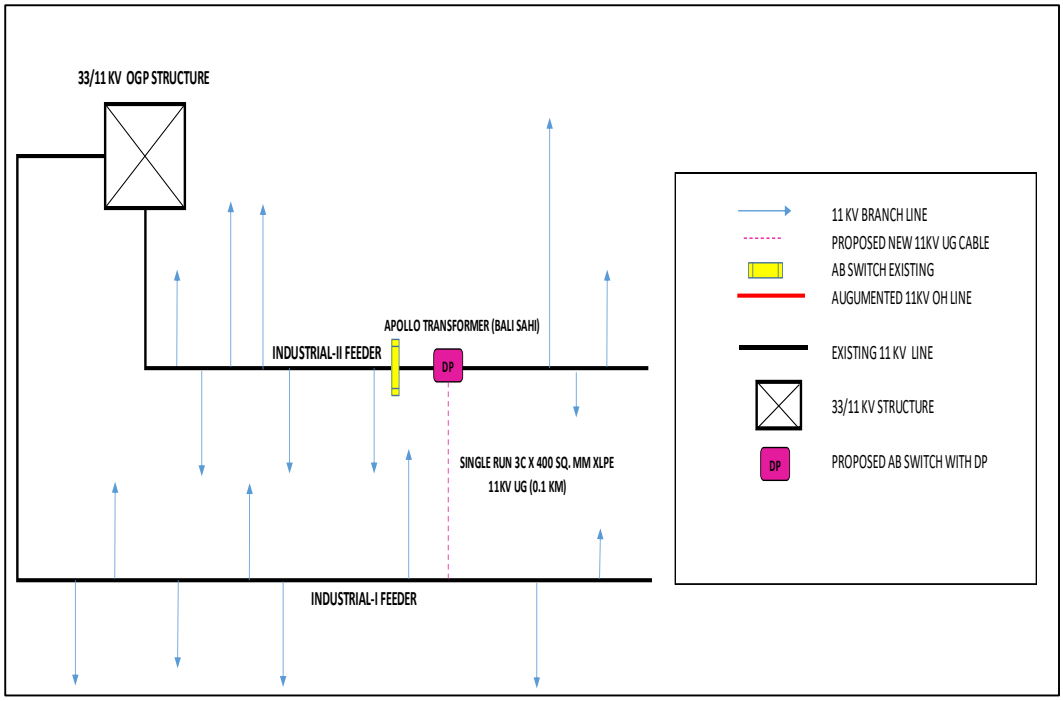
Proposed Scenario: -

- Require laying of new single circuit 0.1 km 11KV UG 3C X 400 sq.mm cable for back feeding to Industrial-2 feeder from Industrial-1 feeder of OGP structure

- Require one AB Switch with DP at Apollo Transformer (Bali Sahi) for back feeding to Industrial-2 feeder from Industrial-1 feeder of OGP structure.

Proposed SLD (summer'22):

Refer 6.3.6 of the petition



Detailed Scope of Work:

- **<u>Proposed AB switch:</u>**
  Propose one AB switch with DP at Appolo Transformer (Bali Sahi)

- **<u>Proposed UG line:</u>**
  Propose single circuit 11KV UG 3C X 400 sq.mm cable 0.1 km to link this feeder from Industrial-1 feeder of OGP structure

BOQ for Industrial-2 Feeder:

Refer 6.3.6 of the petition

2 runs of 11KV 3C X 400 SQ. MM XLPE UG cable and one AB switch with DP at Vaikuntha Vihar to link this feeder with Barrage feeder of Jagatpur structure					
Sl. No	Description of Materials	Unit	Quantity	Rate (Rs)	Amount (Rs)
1	3x400mm² XLPE 11KV U.G. Cable	mtr	1000	1500	1500000
	cable joint kit straight through type for 3*400 sqmm ug cable	set	3	25317	75951
2	3x400mm² 11KV XLPE cable end jointing kit (Out door) heat srinkable (Make Raychem)	set	2	13904	27808
3	Cable loop chamber (15'x15'x5') with laterite Stone with 6" base concrete in the ratio 1:2:4 & filling with sand	Nos	3	26000	78000
4	High presure testing of 11KV XLPE Cable	Nos	1	5000	5000
5	Placement of 11KV cable Rootmarker	Nos	15	2000	30000
5	Cable laying, excavation and backfilling	MTR	1000	1200	1200000
6	Hosting of 11KV Cable	Nos	2	5000	10000
7	6" dia PVC pipe for cable bracing	No/ mtr 4/24	12	250	3000
8	Clamp for brassing	Nos	4	117	468
	Construction of DP=2Nos.				
9	13mtr long 150x150 RS joist pole	No/Kg 4/1799.2	1799.2	65	116948
10	10x50x6 mm GI channel	Kg	206	78	16068
11	75 x 40 x 6 mm GI. Channel	Kg	180	78	14040
12	50 x 50 x 6 mm GI. Angle	Kg	145	78	11310
13	GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	4	1050	4200
14	No.6 GI Wire	K.g.	40	75	3000
15	40x6mm GI Flat for nutral	K.g.	40	75	3000
16	11KV AB switch 3 Pole (400 Amp.)	Set	2	12000	24000
17	11KV LA	No	6	3550	21300
18	11KVHG fuse	No	2	11530	23060
19	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
20	11KV Disc Insulator (90KN)Polymer	No	12	1150	13800
21	4 Bolt single tension H/W fitting	Nos	12	1055	12660
22	HT Stay Set Complete	Set	4	1050	4200
23	HT Stay insulator	No.	4	50	200
24	HT stay clamp (1.95Kg/ Pair)	Pair	4	125	500
25	7/10 Stay Wire	Kg	40	75	3000
26	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire, stay insulator .	No.	4	2315.15	9260.6
27	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5'x2'x2' = 20CFT = 0.570Cum Padding 900x600x150mm =0.081 0.651Cum @ 3071.25= 1999.38each	No.	4	2840.89	11363.56

Refer 6.3.6 of the petition

28	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	No.	4	676.37	2705.48
29	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
30	Al. binding wire/tape	Kg	20	420	8400
31	Al. Cable socket diff. size	No	24	45	1080
32	Danger Board	No	4	80	320
33	100mm2 AAAC for jumpering	Km	0.08	30000	2400
34	Red Oxide paint	Ltr	8	150	1200
35	All. Paint	Ltr	8	200	1600
36	Black Paint	Ltr	6	220	1320
37	Ms Nut , Bolt & Washer	K.g.	20	71	1420
38	Sundries for survey, PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Allm. Socket etc	LS	1	4092	4092
A	Total cost of Material as per 2018-19 Cost Data				3264836.8
B	Stock ,Storage &Insurance				97945.104
	Sub Total (A+B)				3362781.904
C	2% T & P charges of (A+B)				67255.63808
D	3% Contigency of (A+B)				100883.4571
E	7.5% Transportation charges of (A+B)				252208.6428
F	10% Errection Charges of (A+B)				336278.1904
G	Sub total (A to F)				4119407.832
H	Other over head (Including 6%) supervision charges of G				247164.4699
I	Total Estimated Capital cost (G+H)				4366572.302
J	GST @ 18% of H				785983.0144
K	CESS @1% of I				43665.72302
L	Total Estimate to be deposited by party (H+J+K)				5196221.04
N	Inspection Fee				5575
O	Grand Total (I+J+K+L+M+N)				5201796.04
	A.TOTAL COST FOR LAYOUT OF NEW 11 KV UG CABLE FOR 1 RUN OF 0.1 CKM		0.1	5201796.04	**5,20,179.60**

B. COST ESTIMATE FOR ONE 11 KV AB SWITCH WITH DP

Sl. No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
1	150X150 GI Joist (11Mtr. Long) (34.6kg/meter) (Each 380.6kg.)	NO	2	24739.00	49,478.00
2	Pressure Channel 100 x 50 x 6mm GI channel	K.g.	100	75.00	7,500.00
3	S/S DP bressing chhanel 75 x 40 x 6mm GI CHANEL	K.g.	48	75.00	3,600.00
4	AB switch Mounting Channel 100x50x6	K.g.	0	75.00	-
5	S/S DP bracing Angle 50 x 50 x 6 mm - 6 mtr. Long 2 nos.(4.5 K.g. per mtr.) with side angle	K.g.	54	65.00	3,510.00
6	11 K.V. Polymer type Insulator	No.	3	480.00	1,440.00
7	11 K.V DISC Insulator (B & S) 90KN Polymer	No.	6	1150.00	6,900.00
8	H.w fitting suitable for 100 sqmm AAAC 3 bolted	NO	6	468.00	2,808.00
9	PG Clamp for 100 mm2 Conductor for jumpering	No	3	400.00	1,200.00
10	11KV AB Switch 400Amp 3pole	Set	1	12000.00	12,000.00

Refer 6.3.6 of the petition

10	H.T.stay set (Complete)	Set	2	700.00	1,400.00
11	H.T. Stay Insulator	No.	2	40.00	80.00
12	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	146.25	292.50
13	7/8 SWG Stay Wire	K.g.	24	90.00	2,160.00
14	GI Pipe Earthing 40 Dia Medium gage 3 mtrs. Long	No.	2	1500.00	3,000.00
15	40x6mm GI Flat for earthing	K.g.	40	60.00	2,400.00
16	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire , stay insulator .	No.	2	1753.90	3,507.80
17	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5.5'x2'x2' = 22CFT = 0.62Cum Padding 900x600x150mm = 0.081 0.701Cum @ 3071.25= 2152.95 each	NO	2	2152.95	4,305.90
18	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	Nos	2	512.40	1,024.80
19	Materials for Massonary work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	1719.90	3,439.80
20	Black Paint	Ltr	0.7	85.00	59.50
21	Ms Nut , Bolt & Washer	K.g.	4	75.00	300.00
22	Sundries for survey , PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Alm. Socket etc	LS	1	0.00	-
A.	**Total cost of materials for the year 2018-19**				**1,10,406.30**
B.	**Stock,Storage & Insurance = 3% of (A.)**				3,312.19
C	**Sub total (A+B)**				**1,13,718.49**
I.	**T & P charges = 2% of (C)**				2,274.37
II.	**Contigency = 3% of (C.)**				3,411.55
III.	**Transportation Charges = 7.5% of (C.)**				8,528.89
IV.	**Erection Charges for PSC Pole @ 20%**				0.00
	Erection Charges for Other Materials @ 10%				4,122.11
	Errection Charges for TFR, Breaker & Joist Pole @ 5%				2,548.12
D.	**Sub Total**				**1,34,603.53**
E	**Over Head Charges = 6% of (D.)**				0.00
F	**Total Estimated Capital Cost (D+E)**				**1,34,603.53**
G	**GST 18% of (D)**				**24,228.64**
H	**GST 18% of (E)**				0.00
I	**CESS = 1% of (F.)**				1346.04
J	**Inspection Fee**				1000.00
K	**Total (F+G+H+I+J)**				**1,61,178.20**
	B.TOTAL COST ESTIMATE FOR ONE 11 KV AB SWITCH WITH DP		**1**	1,61,178.20	**1,61,178.20**
	TOTAL COST ESTIMATE FOR(A&B)				**6,81,357.80**

Benefits:

- Voltage regulation can be improved
- Reliability(N-1) & continuity of power supply can be maintained.

Refer 6.3.6 of the petition

22. **New Line for N-1 connectivity of Old I.E Feeder**

Proposal:

For N-1 connectivity of 11 kV Old I.E feeder of Jagatpur structure ,there is requirement for laying of 11KV 100 sq.mm AAAC OH line (1.2km) along with 2 runs of 11KV 3C X 400 SQ. MM XLPE UG (0.1 KM) and one AB switch with DP at Vaikuntha Vihar to link this feeder with Barrage feeder of Jagatpur structure

Objective:

To improve the reliability of power supply and meet the increasing demand by mitigating over loading issue.

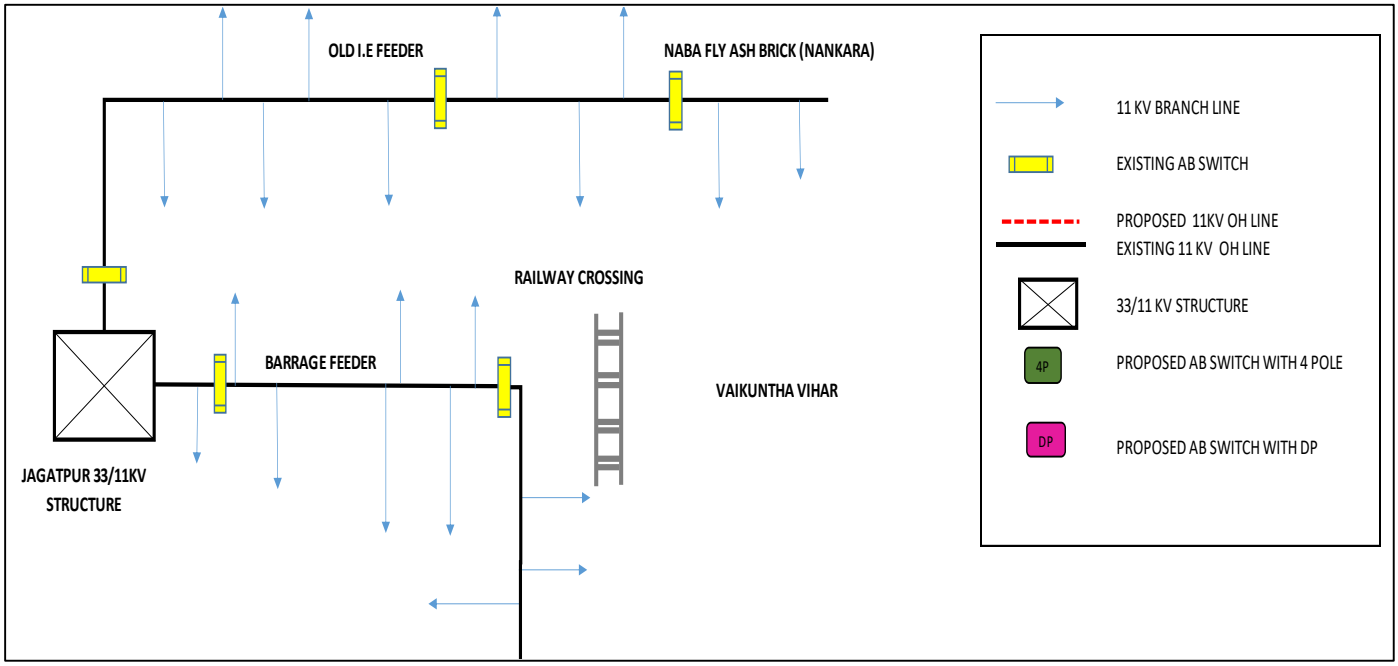
Existing Scenario:

- At present, Old I.E load is feeding through Old I.E feeder of Jagatpur structure. Old I.E feeder has a minimum overhead conductor size of 80 sq.mm having current carrying capacity of 261 A. As recorded, Peak load of this feeder was 184A.

- If there is any breakdown in Old I.E feeder, then presently no other backup source is there for back feeding. In this scenario, N-1 connectivity fails in this feeder and remains in single connectivity condition.

- Barrage feeder, which is nearer to Old I.E feeder, emerges from Jagatpur structure has conductor size 80 sq.mm Overhead line having Current carrying capacity of 261 A. As recorded, Peak load of this feeder was 140 A.

Existing SLD (summer'20):



Proposed Scenario: -

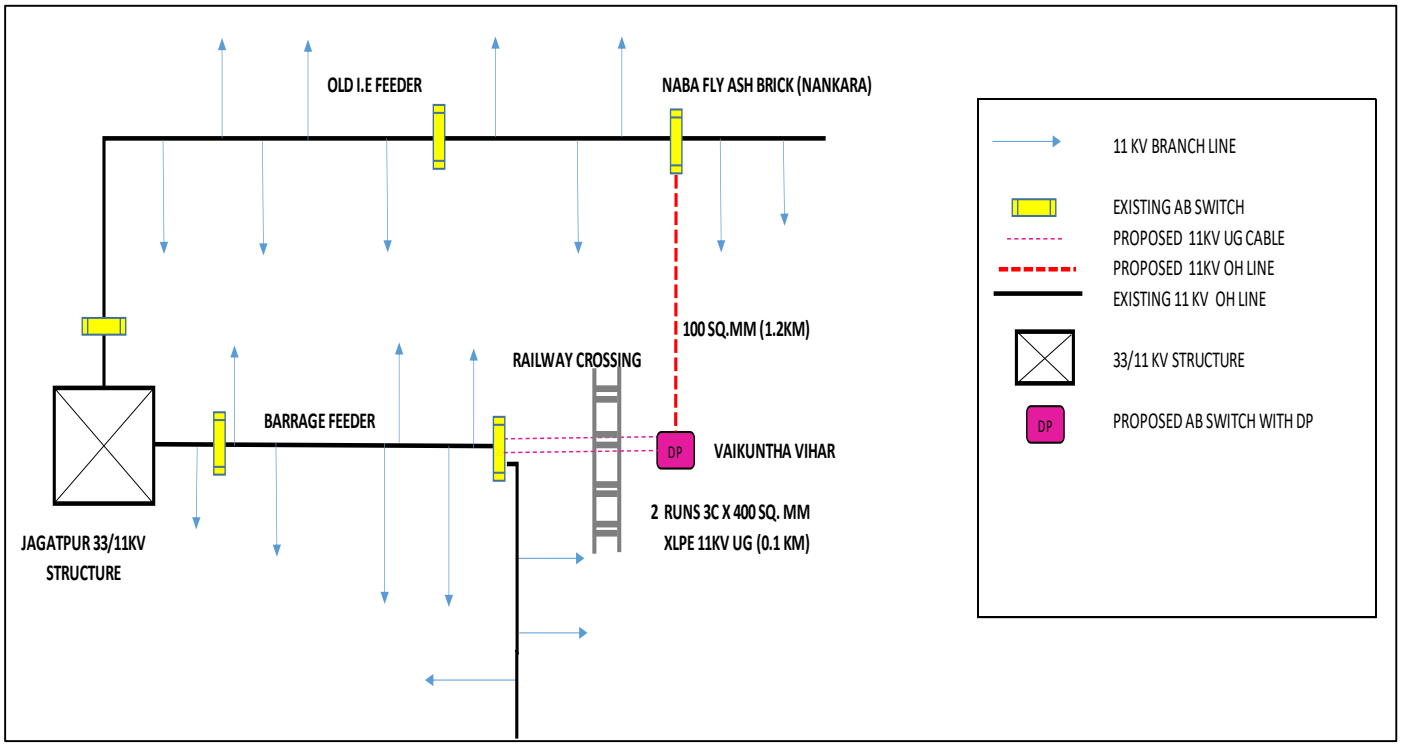
Refer 6.3.6 of the petition

- Require laying of new UG cable double circuit of 0.1 km 11KV UG 3C X 400 sq.mm cable for back feeding to Old I.E feeder from Barrage feeder.

- Require one AB Switch with DP at Vaikuntha vihar for back feeding to Old I.E feeder from Barrage feeder of Jagatpur structure.

- Require laying of new 11KV OH 100 sq.mm AAAC conductor of 1.2 km for back feeding to Old I.E feeder from Barrage feeder.

Proposed SLD (summer'22):



Detailed Scope of Work:

- **<u>Proposed AB switch:</u>**
  Proposed one AB switch with DP at Vaikuntha vihar.

- **<u>Proposed UG line:</u>**
  Proposed double circuit 11KV UG 3C X 400 sq.mm cable 0.1 km for link Old I.E feeder with Barrage feeder of Jagatpur structure.

- **<u>Proposed 11KV OH line:</u>**
  Proposed 11KV 100 sq. mm AAAC OH conductor of 1.2 Km from Naba fly ash to Vaikuntha vihar for link Old I.E feeder with Barrage feeder of Jagatpur Structure.

BOQ for Old I.E Feeder:

Refer 6.3.6 of the petition

A.COST ESTIMATE FOR CONSTRUCTION OF 11 KV NEW LINE OF 100SQ MM(1.2 C KM HAVING 11MTR RS JOIST POLE)

11 KV LINE BY 11 METER R JOIST POLE WITH 3 NOS DP AND 23 NOS SINGLE POLE WITH 40

Sl. No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	28	24,739	6,92,692.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	22	810	17,820.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	22	100	2,200.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	22	150	3,300.00
5	INS31	11KV G I pin	No.		80	-

Refer 6.3.6 of the petition

6	INS4	11KV pin insulator polymer	No.	75	200	15,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	12	468	5,616.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	12	1,150	13,800.00
9	MSGI20	Stay Set 18mm	No	8	1,050	8,400.00
10	INS17	HT stay insulator(140x85 mm)	No.	8	50	400.00
11	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	8	125	1,000.00
12	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	80	75	6,000.00
13	MSGI37	Earthing Coil	No.	19	166	3,154.00
14	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	2.781	55,000	1,52,955.00
15	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	22	703	15,466.00
16	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	120	65	7,800.00
17	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	50	65	3,250.00
18	MSGI46	Nuts & Bolts of Assorted size	Kg..	80	78	6,240.00
19		Design & providing Galvenised fencing around DP to prevent public coming in contact with DP	NO	3	30,000.00	90,000.00
20		50x6 flat	kg	60	75	4,500.00
21		GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	6	1,050.00	6,300.00
22		No.6 GI Wire	K.g.	40	75.00	3,000.00
23		40x6mm GI Flat for nutral	K.g.	50	75.00	3,750.00
24		No-6 G I wire(Dia 4.8mm)	Kg	75	29	2,160.00
25		No-8 G I wire(Dia 4.6 mm)	Kg	75	9	687.75
26		33KV AB switch 3 Pole (400 Amp.)	Set	3	12,000	36,000.00
27		Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	3	2270.27	6,810.81
28		50x50x6 mm M.S Angle (4.50Kg. / Mtr)	KG	85	65	5,525.00
29	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**11,15,826.56**
	B	Stock & Storage @ 3% of A				33474.7968
	C	Sub - Total (A+B)				11,49,301.36
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5				2,58,592.81
	E	Sub - Total (C+D)				14,07,894.16
	F	Other Overheads including supervision charges @ 6% of E				84,473.65
	G	Total estimated Capital Cost (E+F)				14,92,367.81
	H	GST 18% of G				2,68,626.21
	I	CESS 1% of G				14,923.68
	J	**Total Cost**				**17,75,917.70**
	K	Inspection fee				
		A.TOTAL COST ESTIMATE FOR 1.2 CKM 11 KV NEW LINE CONSTRUCTION OF(100 SQMM)		1.2	17,75,917.70	**21,31,101.24**

Refer 6.3.6 of the petition

B. ESTIMATE FOR NEW LAYOUT OF 11 KV UG CABLE(2 RUNS OF 0.1 CKM)					
Sl. No.	Description of Materials	Unit	Quantity	Rate (Rs)	Amount (Rs)
1	3x400mm² XLPE 11KV U.G. Cable	mtr	1000	1500	1500000
	cable joint kit straight through type for 3*400 sqmm ug cable	set	3	25317	75951
2	3x400mm² 11KV XLPE cable end jointing kit (Out door) heat srinkable (Make Raychem)	set	2	13904	27808
3	Cable loop chamber (15'x15'x5') with laterite Stone with 6" base concrete in the ratio 1:2:4 & filling with sand	Nos	3	26000	78000
4	High presure testing of 11KV XLPE Cable	Nos	1	5000	5000
5	Placement of 11KV cable Rootmarker	Nos	15	2000	30000
5	Cable laying, excavation and backfilling	MTR	1000	1200	1200000
6	Hosting of 11KV Cable	Nos	2	5000	10000
7	6" dia PVC pipe for cable bracing	No/ mtr 4/24	12	250	3000
8	Clamp for brassing	Nos	4	117	468
	Construction of DP=2Nos.				
9	13mtr long 150x150 RS joist pole	No/Kg 4/1799. 2	1799.2	65	116948
10	10x50x6 mm GI channel	Kg	206	78	16068
11	75 x 40 x 6 mm GI. Channel	Kg	180	78	14040
12	50 x 50 x 6 mm GI. Angle	Kg	145	78	11310
13	GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	4	1050	4200
14	No.6 GI Wire	K.g.	40	75	3000
15	40x6mm GI Flat for nutral	K.g.	40	75	3000
16	11KV AB switch 3 Pole (400 Amp.)	Set	2	12000	24000
17	11KV LA	No	6	3550	21300
18	11KVHG fuse	No	2	11530	23060
19	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
20	11KV Disc Insulator (90KN)Polymer	No	12	1150	13800
21	4 Bolt single tension H/W fitting	Nos	12	1055	12660
22	HT Stay Set Complete	Set	4	1050	4200
23	HT Stay insulator	No.	4	50	200
24	HT stay clamp (1.95Kg/ Pair)	Pair	4	125	500
25	7/10 Stay Wire	Kg	40	75	3000
26	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire, stay insulator .	No.	4	2315.15	9260.6
27	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5'x2'x2' = 20CFT = 0.570Cum Padding 900x600x150mm =0.081 0.651Cum @ 3071.25= 1999.38each	No.	4	2840.89	11363.56
28	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	No.	4	676.37	2705.48
29	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
30	Al. binding wire/tape	Kg	20	420	8400
31	Al. Cable socket diff. size	No	24	45	1080
32	Danger Board	No	4	80	320
33	100mm2 AAAC for jumpering	Km	0.08	30000	2400
34	Red Oxide paint	Ltr	8	150	1200
35	All. Paint	Ltr	8	200	1600
36	Black Paint	Ltr	6	220	1320
37	Ms Nut , Bolt & Washer	K.g.	20	71	1420
38	Sundries for survey, PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Allm. Socket etc	LS	1	4092	4092
A	Total cost of Material as per 2018-19 Cost Data				3264836.8
B	Stock ,Storage &Insurance				97945.104
	Sub Total (A+B)				3362781.904
C	2% T & P charges of (A+B)				67255.63808
D	3% Contigency of (A+B)				100883.4571
E	7.5% Transportation charges of (A+B)				252208.6428
F	10% Errection Charges of (A+B)				336278.1904
G	Sub total (A to F)				4119407.832
H	Other over head (Including 6%) supervision charges of G				247164.4699
I	Total Estimated Capital cost (G+H)				4366572.302
J	GST @ 18% of H				785983.0144
K	CESS @1% of I				43665.72302
L	Total Estimate to be deposited by party (H+J+K)				5196221.04
N	Inspection Fee				5575
O	Grand Total (I+J+K+L+M+N)				5201796.04

B.TOTAL COST FOR LAYOUT OF NEW 11 KV UG CABLE FOR 2 RUNS OF 0.1 CKM	0.2	5201796.04	**10,40,359.21**

Refer 6.3.6 of the petition

C. COST ESTIMATE FOR ONE 11 KV AB SWITCH WITH DP					
Sl. No.	**Description of Materials**	**Unit**	**Quantity**	**Rate**	**Amount**
1	2	3	4	5	6
1	150X150 GI Joist (11Mtr. Long) (34.6kg/meter) (Each 380.6kg.)	NO	2	24739.00	49,478.00
2	Pressure Channel 100 x 50 x 6mm GI channel	K.g.	100	75.00	7,500.00
3	S/S DP bressing chhanel 75 x 40 x 6mm GI CHANEL	K.g.	48	75.00	3,600.00
4	AB switch Mounting Channel 100x50x6	K.g.	0	75.00	-
5	S/S DP bracing Angle 50 x 50 x 6 mm - 6 mtr. Long 2 nos.(4.5 K.g. per mtr.) with side angle	K.g.	54	65.00	3,510.00
6	11 K.V. Polymer type Insulator	No.	3	480.00	1,440.00
7	11 K.V DISC Insulator (B & S) 90KN Polymer	No.	6	1150.00	6,900.00
8	H.w fitting suitable for 100 sqmm AAAC 3 bolted	NO	6	468.00	2,808.00
9	PG Clamp for 100 mm2 Conductor for jumpering	No	3	400.00	1,200.00
10	11KV AB Switch 400Amp 3pole	Set	1	12000.00	12,000.00
10	H.T.stay set (Complete)	Set	2	700.00	1,400.00
11	H.T. Stay Insulator	No.	2	40.00	80.00
12	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	146.25	292.50
13	7/8 SWG Stay Wire	K.g.	24	90.00	2,160.00
14	GI Pipe Earthing 40 Dia Medium gage 3 mtrs. Long	No.	2	1500.00	3,000.00
15	40x6mm GI Flat for earthing	K.g.	40	60.00	2,400.00
16	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire , stay insulator .	No.	2	1753.90	3,507.80
17	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5.5'x2'x2' = 22CFT = 0.62Cum Padding 900x600x150mm = 0.081 0.701Cum @ 3071.25= 2152.95 each	NO	2	2152.95	4,305.90
18	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	Nos	2	512.40	1,024.80
19	Materials for Massonary work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	1719.90	3,439.80
20	Black Paint	Ltr	0.7	85.00	59.50
21	Ms Nut , Bolt & Washer	K.g.	4	75.00	300.00
22	Sundries for survey , PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Alm. Socket etc	LS	1	0.00	-
A.	**Total cost of materials for the year 2018-19**				**1,10,406.30**
B.	**Stock,Storage & Insurance = 3% of (A.)**				3,312.19
C	**Sub total (A+B)**				**1,13,718.49**
I.	**T & P charges = 2% of (C)**				2,274.37
II.	**Contigency = 3% of (C.)**				3,411.55
III.	**Transportation Charges = 7.5% of (C.)**				8,528.89
IV.	**Erection Charges for PSC Pole @ 20%**				0.00
	Erection Charges for Other Materials @ 10%				4,122.11
	Errection Charges for TFR, Breaker & Joist Pole @ 5%				2,548.12
D.	**Sub Total**				**1,34,603.53**
E	**Over Head Charges = 6% of (D.)**				0.00
F	**Total Estimated Capital Cost (D+E)**				**1,34,603.53**
G	**GST 18% of (D)**				**24,228.64**
H	**GST 18% of (E)**				0.00
I	**CESS = 1% of (F.)**				1346.04
J	**Inspection Fee**				1000.00
K	**Total (F+G+H+I+J)**				**1,61,178.20**
	C.TOTAL COST ESTIMATE FOR ONE 11 KV AB SWITCH WITH DP		1	1,61,178.20	**1,61,178.20**
----------	**TOTAL COST ESTIMATE FOR(A&B &C)**				**33,32,638.64**

Refer 6.3.6 of the petition

Benefits:

Improve the reliability of power supply and meet the increasing demand by mitigating over loading issue.

23. For N-1 connectivity of 11 kv Barrage feeder of Jobra structure, there is requirement to lay double circuit 11 KV XLPE 3C X 400 sq mm UG cable of 0.240 km from Chuna Bhati to Survey & Map office Tower.

For strengthening N-1 connectivity of 11 kv Barrage feeder of Jobra structure, there is also another requirement of laying 2 runs of 0.820 km 11 KV XLPE 3C X 400 sq mm UG cable from Malgodown Police Station to Map Chhak four pole structure.

Objective:

To improve the reliability, continuity of power supply and meet the increasing demand by mitigating over loading issue of the feeder

Existing Scenario:

- At present, Barrage area under Jobra structure is feeding through Barrage feeder of Jobra structure. This feeder has a minimum overhead conductor size of 100 sq. mm. having current carrying capacity of 293A.

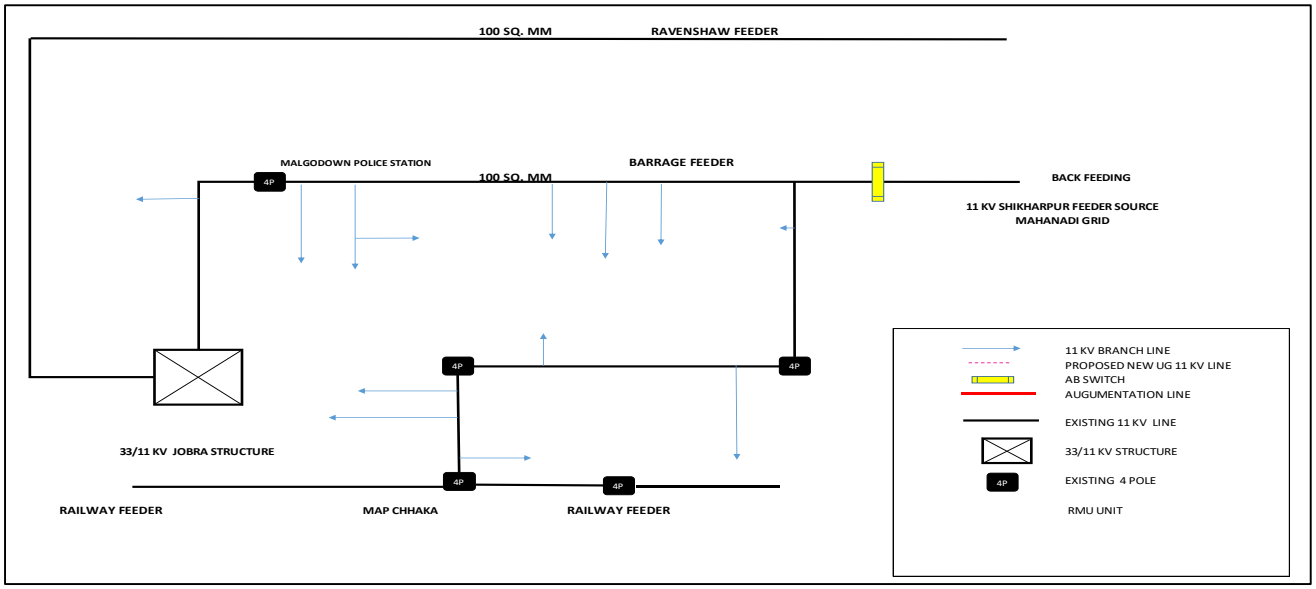
- Loading of this feeder is 140A, as per peak load data collected from site from April-2018 to Oct-2020. Considering 2.55% load growth, projected loading for this feeder would be 211 A for the year 2022.

- If there is any breakdown in Barrage feeder, then presently although one backup source is there from Ravenshaw feeder, but this feeder is in pathetic condition due to location issues. This feeder feeds through marshy land for which maintenance of feeder is difficult. In this scenario, to mitigate N-1 connectivity issues, there is requirement of UG cable layout in this area to get maintenance free reliable power supply.

- Previously, there was another back up source for this feeder from Railway feeder of Jobra structure through UG cable. However, due to damaged cable, back feeding has been hampered. New UG cable laying can provide alternate source of power to this feeder from Railway feeder of Jobra structure through 3 Way RMU arrangement.

Existing SLD (summer'20):

Refer 6.3.6 of the petition



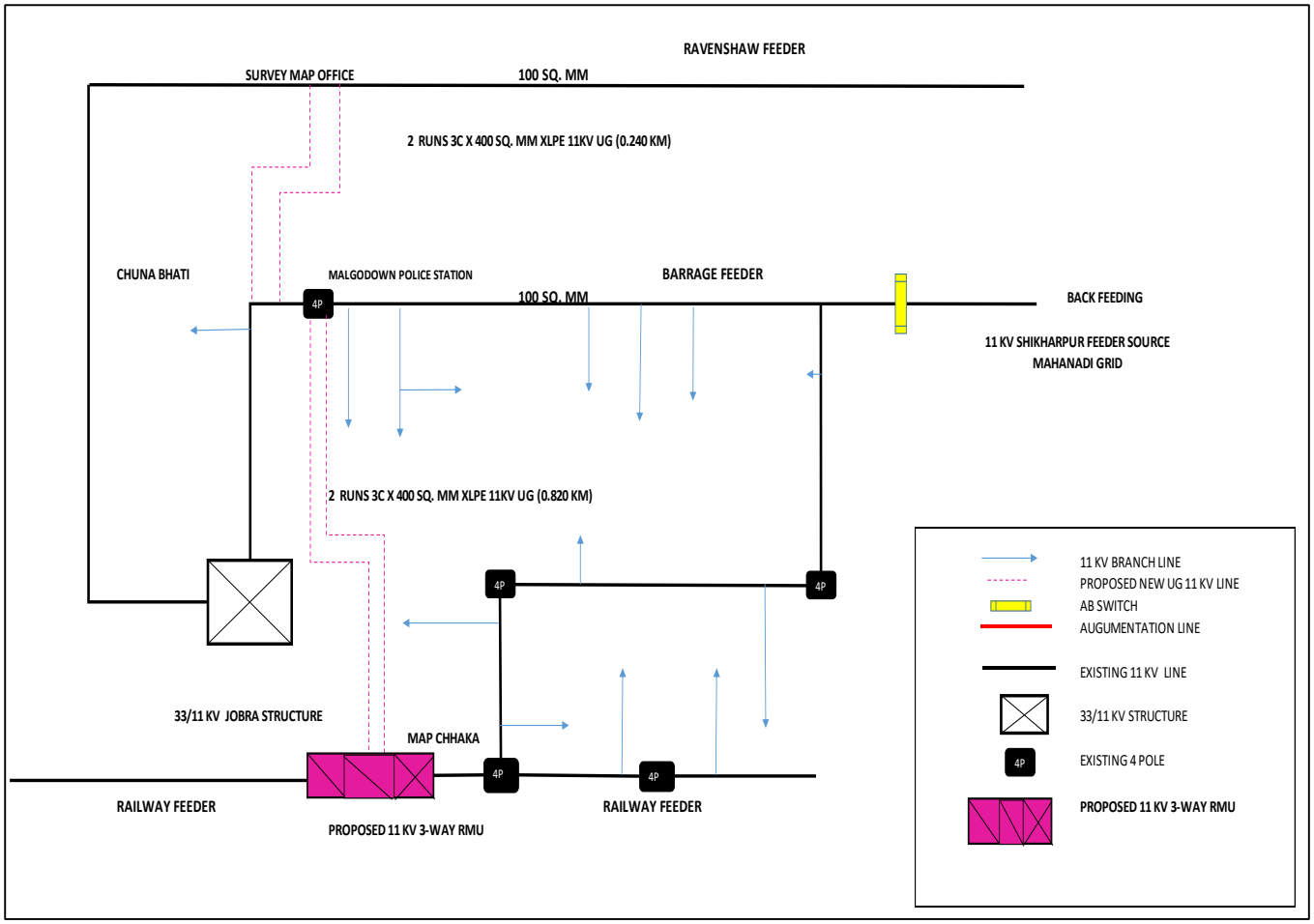
Proposed Scenario: -

- Require new construction of double circuit 0.240 km 11 KV UG 3C X 400 sq.mm cable from Chuna Bhati to Survey & Map office Tower for back feeding to Barrage feeder from Ravenshaw feeder of Jobra structure

- Require laying 2 runs of 11 KV UG cable (0.820 km) from Malgodown Police Station to Map Chhak four pole , near Map Chhak to link Railway Feeder of Jobra structure with Barrage feeder by installation of 3 WAY RMU at Map chhaka.

Proposed SLD (summer'22):

Refer 6.3.6 of the petition



Detailed Scope of Work:

- **<u>Proposed 11KV UG line:</u>**
  - Proposed Double circuit UG 3C X 400 sq.mm cable 0.240 km from Chuna Bhati to Survey & Map office Tower

  - Propose Double circuit UG 3C X 400 sq.mm cable 0.820 km from Malgodown Police Station to Map Chhak four pole

BOQ for Barrage Feeder:

Refer 6.3.6 of the petition

A. COST ESTIMATE FOR NEW LAYOUT OF 11 KV UG CABLE(2 RUNS OF 0.240 CKM AND 2 RUNS OF 0.820 CKM)					
Sl. No.	Description of Materials	Unit	Quantity	Rate (Rs)	Amount (Rs)
1	3x400mm² XLPE 11KV U.G. Cable	mtr	1000	1500	1500000
2	cable joint kit straight through type for 3*400 sqmm ug cable	set	3	25317	75951
3	3x400mm² 11KV XLPE cable end jointing kit (Out door) heat srinkable (Make Raychem)	set	2	13904	27808
4	Cable loop chamber (15'x15'x5') with laterite Stone with 6" base concrete in the ratio 1:2:4 & filling with sand	Nos	3	26000	78000
5	High presure testing of 11KV XLPE Cable	Nos	1	5000	5000
6	Placement of 11KV cable Rootmarker	Nos	15	2000	30000
7	Cable laying, excavation and backfilling	MTR	1000	1200	1200000
8	Hosting of 11KV Cable	Nos	2	5000	10000
9	6" dia PVC pipe for cable bracing	No/ mtr 4/24	12	250	3000
10	Clamp for brassing	Nos	4	117	468
11					
12	13mtr long 150x150 RS joist pole	No/Kg 4/1799.2	1799.2	65	116948
13	10x50x6 mm GI channel	Kg	206	78	16068
14	75 x 40 x 6 mm GI. Channel	Kg	180	78	14040
15	50 x 50 x 6 mm GI. Angle	Kg	145	78	11310
16	GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	4	1050	4200
17	No.6 GI Wire	K.g.	40	75	3000
18	40x6mm GI Flat for nutral	K.g.	40	75	3000
19	11KV AB switch 3 Pole (400 Amp.)	Set	2	12000	24000
20	11KV LA	No	6	3550	21300
21	11KVHG fuse	No	2	11530	23060
22	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
23	11KV Disc Insulator (90KN)Polymer	No	12	1150	13800
24	4 Bolt single tension H/W fitting	Nos	12	1055	12660
25	HT Stay Set Complete	Set	4	1050	4200
26	HT Stay insulator	No.	4	50	200
27	HT stay clamp (1.95Kg/ Pair)	Pair	4	125	500
28	7/10 Stay Wire	Kg	40	75	3000
29	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire, stay insulator .	No.	4	2315.15	9260.6
30	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5'x2'x2' = 20CFT = 0.570Cum Padding 900x600x150mm =0.081 0.651Cum @ 3071.25= 1999.38each	No.	4	2840.89	11363.56
31	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	No.	4	676.37	2705.48
32	Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	4	2270.27	9081.08
33	Al. binding wire/tape	Kg	20	420	8400
34	Al. Cable socket diff. size	No	24	45	1080
35	Danger Board	No	4	80	320
36	100mm2 AAAC for jumpering	Km	0.08	30000	2400
37	Red Oxide paint	Ltr	8	150	1200
38	All. Paint	Ltr	8	200	1600
39	Black Paint	Ltr	6	220	1320
40	Ms Nut , Bolt & Washer	K.g.	20	71	1420
41	Sundries for survey, PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Allm. Socket etc	LS	1	4092	4092

Refer 6.3.6 of the petition

Total cost of Material as per 2018-19 Cost Data			3264836.8
Stock ,Storage &Insurance			97945.104
Sub Total (A+B)			3362781.904
2% T & P charges of (A+B)			67255.63808
3% Contigency of (A+B)			100883.4571
7.5% Transportation charges of (A+B)			252208.6428
10% Errection Charges of (A+B)			336278.1904
Sub total (A to F)			4119407.832
Other over head (Including 6%) supervision charges of G			247164.4699
Total Estimated Capital cost (G+H)			4366572.302
GST @ 18% of H			785983.0144
CESS @1% of I			43665.72302
Total Estimate to be deposited by party (H+J+K)			5196221.04
Inspection Fee			5575
Grand Total (I+J+K+L+M+N)			5201796.04
TOTAL COST FOR LAYOUT OF NEW 11 KV UG CABLE FOR 2 RUNS OF 0.240 CKM & 2 RUNS OF 0.820 CKM)	2.12	52,01,796.04	**1,10,27,807.60**

Benefits:

The reliable and continuous power supply can be maintained in the feeder.

Refer 6.3.6 of the petition

24. Augmentation of 5Ckm of Ramkumarpur feeder

Proposal:

- Augmentation of 11kV overhead AAAC conductor of 5 KM circuit length from 34 sq. mm to 100 sq.mm of Ramkumarpur feeder of Sompur structure.
- For strengthening N-1 connectivity of 11 kV Kandarapur feeder of Kandarpur structure , there is requirement of new construction of 11 kV OH 100 sq.mm AAAC(0.4 km) from Kampada to Aurchili & one AB switch with DP at Aurchili to link this feeder with Ramkumarpur feeder of Sompur structure

Objective:

To improve the reliability of power supply and meet the increasing demand by mitigating over loading issue of the feeder

Existing Scenario:

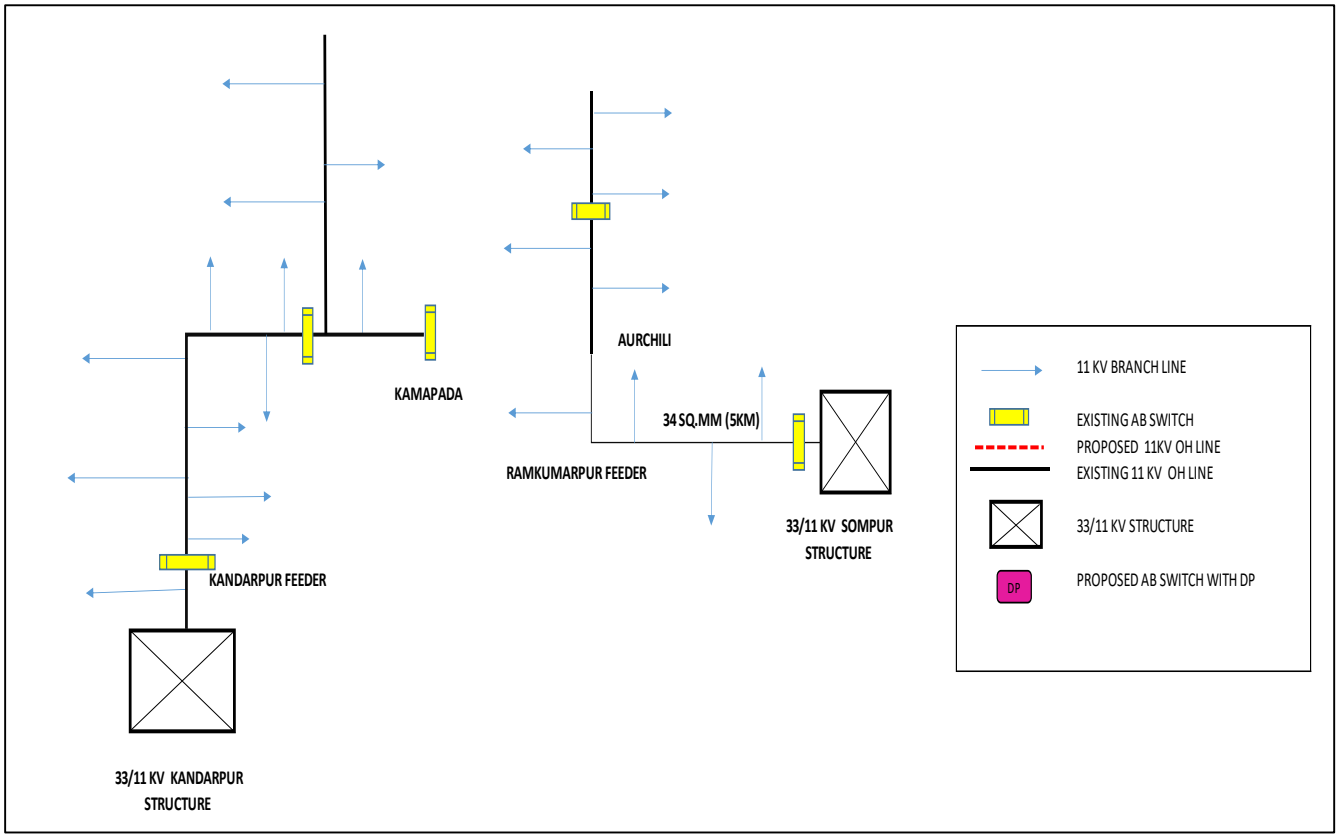
- At present, Ramkumarpur load is feeding through Ramkumarpur feeder of Sompur structure. Ramkumarpur feeder has a minimum overhead conductor size of 34 sq. mm. having current carrying capacity of 140 A. As recorded, Peak load of this feeder is 139 A.
- Kandarpur feeder has a minimum conductor size of 55 sq.mm having current carrying capacity of 189 A. If there is any outages in Kandarpur feeder, then presently no other backup source is there for back feeding. In this scenario, N-1 connectivity fails in this feeder and remains in single connectivity condition.
- Ramkumarpur feeder, which is nearer to Kandarpur feeder, emerges from Sompur structure. The Ramkumarpur feeder would be an alternate supply for Kandarpur feeder only after conductor augmentation of Ramkumarpur feeder is done as mentioned above.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder(Proposed)	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	% Loading
CDD-2	SOMPUR	RAMKUMARPUR	34	140	139	0.56	140.56	100.4%(Overloadedloaded)

Existing SLD (summer'20):

Refer 6.3.6 of the petition



Proposed Scenario: -

- Require installation of one AB Switch with DP at Aurchili for back feeding to Kandarpur feeder from Ramkumarpur feeder of Sompur structure.

- Require construction of 11 kV OH 100 sq.mm AAAC(0.4 km) from Kampada to Aurchili for back feeding to Kandarpur feeder from Ramkumarpur feeder of Sompur structure.

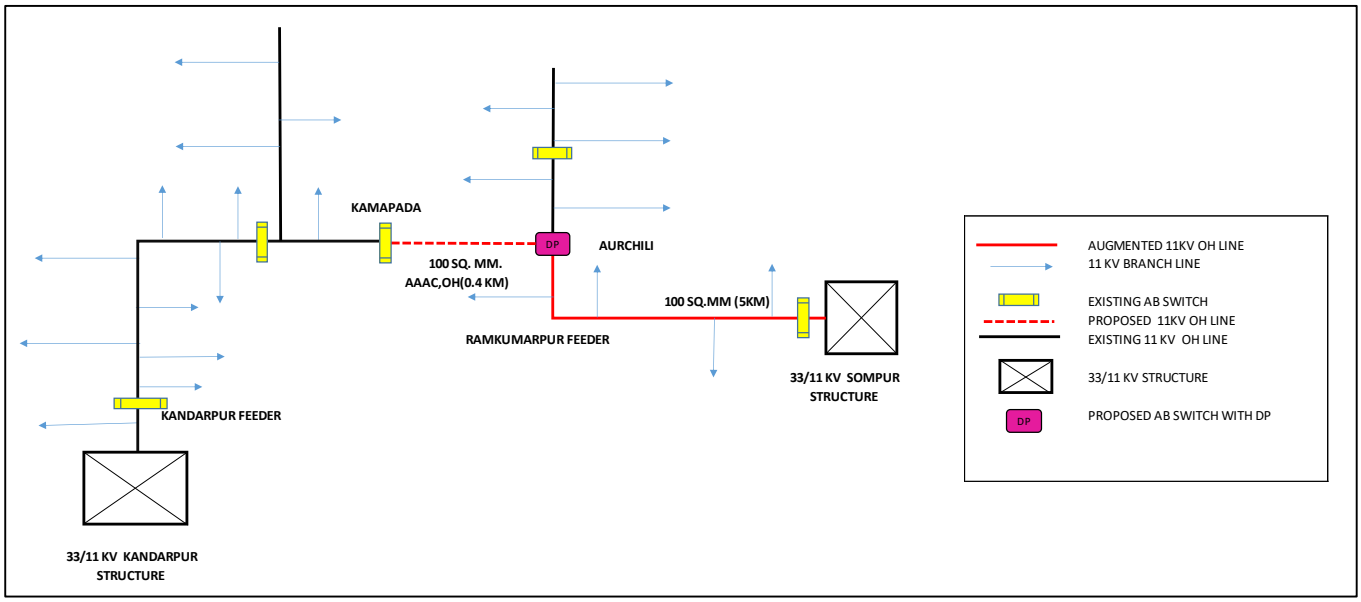
- Propose augmentation of overhead conductor of Ramkumarpur feeder from 34 sq.mm to 100 sq.mm for 5 km from Sompur structure to Aurchili to handle the future load growth

Proposed Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder(Proposed)	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	% Loading
CDD-2	SOMPUR	RAMKUMARPUR	100	293	139	0.56	140.56	47.97%(Underloaded)

Proposed SLD (summer'22):

Refer 6.3.6 of the petition



Detailed Scope of Work:

- **<u>Proposed AB switch:</u>**

Propose one AB switch with DP at Aurchili.

- **<u>Proposed 11KV OH line:</u>**

Proposed 11KV OH 100 sq.mm AAAC(0.4 km) from Kampada to Aurchili for back feeding to Kandarpur feeder from Ramkumarpur feeder of Sompur structure.

- **<u>Propose O/H line augmentation:</u>**

Proposed 5 km O/H line conductor of 100sq mm from Sompur structure to Aurchili to handle the future load growth.

BOQ for Kandarpur Feeder:

Refer 6.3.6 of the petition

feeder of Sompur structure • For strengthening N-1 connectivity of 11 kV Kandarapur feeder of Kandarpur structure , there is requirement of new construction of 11 kV OH 100 sq.mm AAAC(0.4 km) from Kampada to Aurchili & one AB switch with DP at Aurchili to link this feeder with Ramkumarpur feeder of Sompur structure						
Sl.No.	**Mtr Code**	**Description of Materials**	**Unit**	**Qty**	**Rate**	**Amount**
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.09	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5 % of				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
		A. TOTAL COST FOR AUGMENTION OF 5 CKM		**5**	**7,46,502.72**	**37,32,513.58**

Refer 6.3.6 of the petition

B.COST ESTIMATE FOR CONSTRUCTION OF 11 KV NEW LINE OF 100SQ MM(0.4 C KM HAVING 11MTR RS JOIST POLE) 11 KV LINE BY 11 METER R JOIST POLE WITH 3 NOS DP AND 23 NOS SINGLE POLE WITH 40 METER SPAN LENGTH.						
Sl.No.	**Mtr Code**	**Description of Materials**	**Unit**	**Qty**	**Rate**	**Amount**
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	28	24,739	6,92,692.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	22	810	17,820.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	22	100	2,200.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	22	150	3,300.00
5	INS31	11KV G I pin	No.		80	-
6	INS4	11KV pin insulator polymer	No.	75	200	15,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	12	468	5,616.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	12	1,150	13,800.00
9	MSGI20	Stay Set 18mm	No	8	1,050	8,400.00
10	INS17	HT stay insulator(140x85 mm)	No.	8	50	400.00
11	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	8	125	1,000.00
12	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	80	75	6,000.00
13	MSGI37	Earthing Coil	No.	19	166	3,154.00
14	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	2.781	55,000	1,52,955.00
15	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	22	703	15,466.00
16	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	120	65	7,800.00
17	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	50	65	3,250.00
18	MSGI46	Nuts & Bolts of Assorted size	Kg..	80	78	6,240.00
19		Design & providing Galvenised fencing around DP to prevent public coming in contact with DP	NO	3	30,000.00	90,000.00
20		50x6 flat	kg	60	75	4,500.00
21		GI Pipe Earthing 40 Dia Medium gage 3mtr Long	No.	6	1,050.00	6,300.00
22		No.6 GI Wire	K.g.	40	75.00	3,000.00
23		40x6mm GI Flat for nutral	K.g.	50	75.00	3,750.00
24		No-6 G I wire(Dia 4.8mm)	Kg	75	29	2,160.00
25		No-8 G I wire(Dia 4.6 mm)	Kg	75	9	687.75
26		33KV AB switch 3 Pole (400 Amp.)	Set	3	12,000	36,000.00
27		Materials for Machinery work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	3	2270.27	6,810.81
28		50x50x6 mm M.S Angle (4.50Kg. / Mtr)	KG	85	65	5,525.00
29	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
30	A	**Total Cost of materials.**				**11,15,826.56**
31	B	Stock & Storage @ 3% of A				33474.7968
32	C	Sub - Total (A+B)				11,49,301.36
33	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5 % of				2,58,592.81
34	E	Sub - Total (C+D)				14,07,894.16
35	F	Other Overheads including supervision charges @ 6% of E				84,473.65
36	G	Total estimated Capital Cost (E+F)				14,92,367.81
37	H	GST 18% of G				2,68,626.21
38	I	CESS 1% of G				14,923.68
39	J	**Total Cost**				**17,75,917.70**
40	K	Inspection fee				
		B.COST ESTIMATE FOR CONSTRUCTION OF 11 KV NEW LINE OF 100SQ MM(0.4 C KM HAVING 11MTR RS JOIST POLE)		**0.4**	**17,75,917.70**	**7,10,367.08**

Refer 6.3.6 of the petition

C. COST ESTIMATE FOR ONE 11 KV AB SWITCH WITH DP					
Sl. No.	**Description of Materials**	**Unit**	**Quantity**	**Rate**	**Amount**
1	2	3	4	5	6
1	150X150 GI Joist (11Mtr. Long) (34.6kg/meter) (Each 380.6kg.)	NO	2	24739.00	49,478.00
2	Pressure Channel 100 x 50 x 6mm GI channel	K.g.	100	75.00	7,500.00
3	S/S DP bressing chhanel 75 x 40 x 6mm GI CHANEL	K.g.	48	75.00	3,600.00
4	AB switch Mounting Channel 100x50x6	K.g.	0	75.00	-
5	S/S DP bracing Angle 50 x 50 x 6 mm - 6 mtr. Long 2 nos.(4.5 K.g. per mtr.) with side angle	K.g.	54	65.00	3,510.00
6	11 K.V. Polymer type Insulator	No.	3	480.00	1,440.00
7	11 K.V DISC Insulator (B & S) 90KN Polymer	No.	6	1150.00	6,900.00
8	H.w fitting suitable for 100 sqmm AAAC 3 bolted	NO	6	468.00	2,808.00
9	PG Clamp for 100 mm2 Conductor for jumpering	No	3	400.00	1,200.00
10	11KV AB Switch 400Amp 3pole	Set	1	12000.00	12,000.00
10	H.T.stay set (Complete)	Set	2	700.00	1,400.00
11	H.T. Stay Insulator	No.	2	40.00	80.00
12	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	146.25	292.50
13	7/8 SWG Stay Wire	K.g.	24	90.00	2,160.00
14	GI Pipe Earthing 40 Dia Medium gage 3 mtrs. Long	No.	2	1500.00	3,000.00
15	40x6mm GI Flat for earthing	K.g.	40	60.00	2,400.00
16	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire , stay insulator .	No.	2	1753.90	3,507.80
17	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5.5'x2'x2' = 22CFT = 0.62Cum Padding 900x600x150mm = 0.081 0.701Cum @ 3071.25= 2152.95 each	NO	2	2152.95	4,305.90
18	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	Nos	2	512.40	1,024.80
19	Materials for Massonary work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	1719.90	3,439.80
20	Black Paint	Ltr	0.7	85.00	59.50
21	Ms Nut , Bolt & Washer	K.g.	4	75.00	300.00
22	Sundries for survey , PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Alm. Socket etc	LS	1	0.00	-
A.	**Total cost of materials for the year 2018-19**				**1,10,406.30**
B.	**Stock,Storage & Insurance = 3% of (A.)**				3,312.19
C	**Sub total (A+B)**				**1,13,718.49**
I.	**T & P charges = 2% of (C)**				2,274.37
II.	**Contigency = 3% of (C.)**				3,411.55
III.	**Transportation Charges = 7.5% of (C.)**				8,528.89
IV.	**Erection Charges for PSC Pole @ 20%**				0.00
	Erection Charges for Other Materials @ 10%				4,122.11
	Errection Charges for TFR, Breaker & Joist Pole @ 5%				2,548.12
D.	**Sub Total**				**1,34,603.53**
E	**Over Head Charges = 6% of (D.)**				0.00
F	**Total Estimated Capital Cost (D+E)**				**1,34,603.53**
G	**GST 18% of (D)**				**24,228.64**
H	**GST 18% of (E)**				0.00
I	**CESS = 1% of (F.)**				1346.04
J	**Inspection Fee**				1000.00
K	**Total (F+G+H+I+J)**				**1,61,178.20**
C.TOTAL COST ESTIMATE FOR ONE 11 KV AB SWITCH WITH DP			**1**	1,61,178.20	**1,61,178.20**
	TOTAL COST ESTIMATE FOR(A&B &C)				**46,04,058.85**

Refer 6.3.6 of the petition

Benefits:

The reliability & continuity of power supply can be maintained in this feeder.

Refer 6.3.6 of the petition

25. Installation of Outdoor VCB

Proposal:

Installation of a new outdoor VCB(400A) inside Sishu bhavan structure for N-1 connectivity of 11 kV Town hall feeder of Sishu bhavan structure.

Objective:

To improve the reliability of power supply and meet the increasing demand by mitigating over loading issue of the feeder.

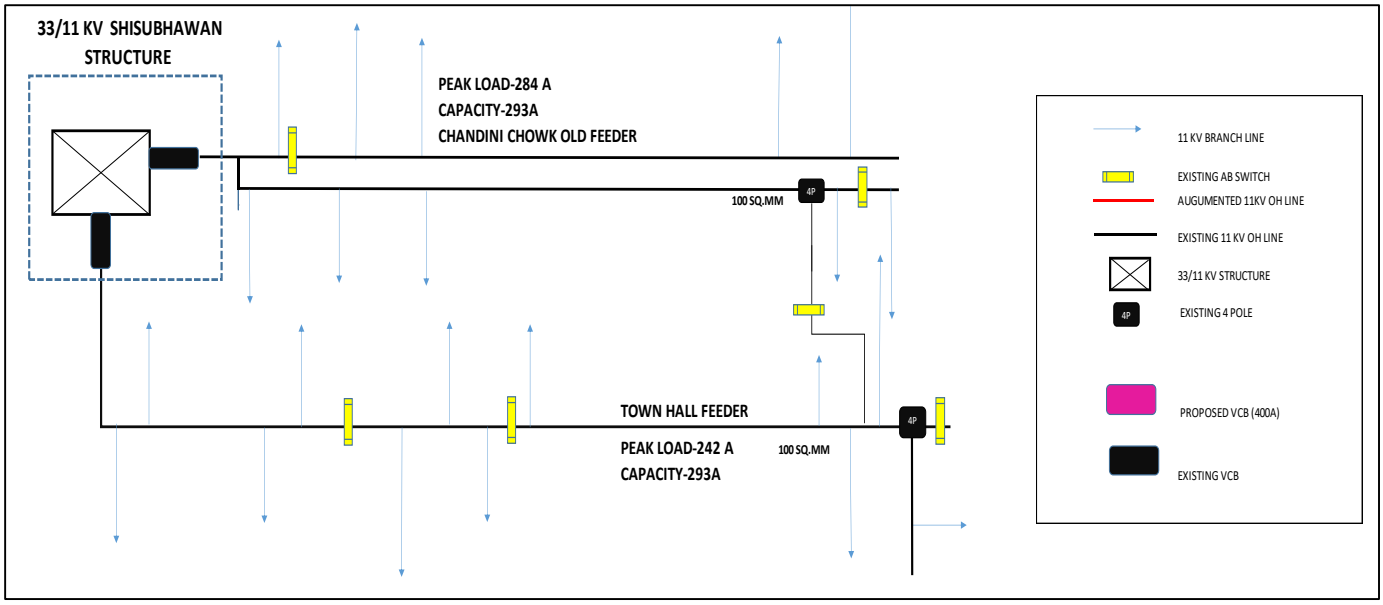
Existing Scenario:

- Townhall area load is feeding through Townhall feeder of Sisubhavan structure. This feeder has overhead conductor size of 100 sq. mm. having current carrying capacity of 293 A. As recorded, Peak load of this feeder was 230 A.

- Old Chandinichowk feeder, which is nearer to Townhall feeder, emerges from Sisubhavan structure has conductor size 100 sq.mm overhead line having Current carrying capacity of 293 A. As recorded, Peak load of this feeder was 284 A.

- If there is any outage in Townhall feeder, then presently no other backup source is there for back feeding. In this scenario, N-1 connectivity fails in this feeder and remains in single connectivity condition.

Existing SLD (summer'20):

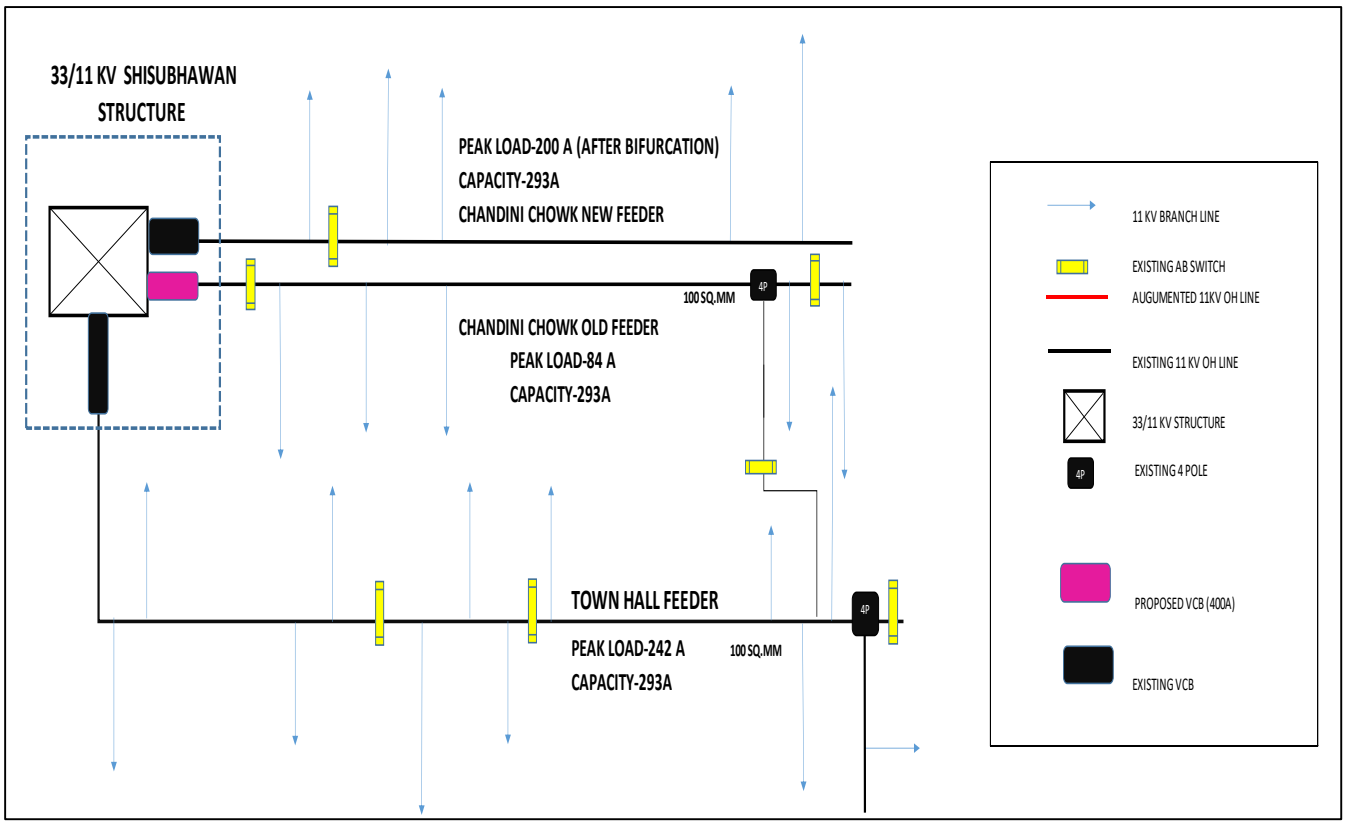


Proposed Scenario:

Refer 6.3.6 of the petition

- Require new installation of one outdoor 11KV 400A VCB inside structure for feeder bifurcation of existing Chandinichowk feeder such that nearly 80A load will be shifted into new Chandinichowk feeder and New chandini chowk feeder will be able to meet combined load of Townhall feeder .

Proposed SLD (summer'22):



Detailed Scope of Work:

- **<u>Propose outdoor 11 KV 400A VCB new installation:</u>**

Propose one outdoor 11KV 400A VCB new installation inside structure.

BOQ for TownHall Feeder:

Refer 6.3.6 of the petition

For strengthening N-1 connectivity of 11 kV Town hall feeder of Sishu bhavan structure , Proposed installation of a new outdoor VCB(400A) inside Sishu bhavan structure .					
SL NO	**DESCRIPTION OF MATERIALS**	**UNIT**	**QTY**	**RATE**	**TOTAL RATE**
1	11 KV O/D VCB	NO	1	3,45,000.00	345000
2	Design & constraction of Rcc foundation structure	EA	1	30083.86	30083.86
3	50X6 FLAT(20 MTR X 2.5 KG=50 KGX75)	KG	50	75	3750
4	Total Estimated Capital cost(A)				378833.86
5	Stock ,Storage &Insurance(B)				11364.99
6	Sub Total (A+B)				390198.85
7	2% T & P charges of (A+B)				7803.977
8	3% Contigency of (A+B)				11705.9655
9	7.5% Transportation charges of (A+B)				29264.9138
10	10% Errection Charges of (A+B)				39019.885
11	Sub total (A to F)				477993.591
12	Other over head (Including 6%) supervision charges of G				28679.6155
13	Total Estimated Capital cost (G+H)				506673.207
14	GST @ 18% of H				5162.33079
15	CESS @1% of I				5066.73207
16	Inspection Fee				5575
17	Grand Total (I+J+K+L+M+N)				522477.27
	TOTAL COST FOR INSTALLATION OF A NEW OUTDOOR VCB				**5,22,477.27**

Benefits:

The reliability & continuity of power supply can be maintained in this feeder.

Refer 6.3.6 of the petition

26. **Augmentation of 0.35 Ckm Judge Court Feeder**

Proposal:
Augmentation of 11KV overhead AAAC conductor from 80 sq. mm to 100 sq.mm of Judge Court feeder under DRDA structure of 0.350 KM circuit length.

Objective:
To improve the reliability, continuity of power supply and meet the increasing demand by mitigating over loading issue of the feeder

Existing Scenario:

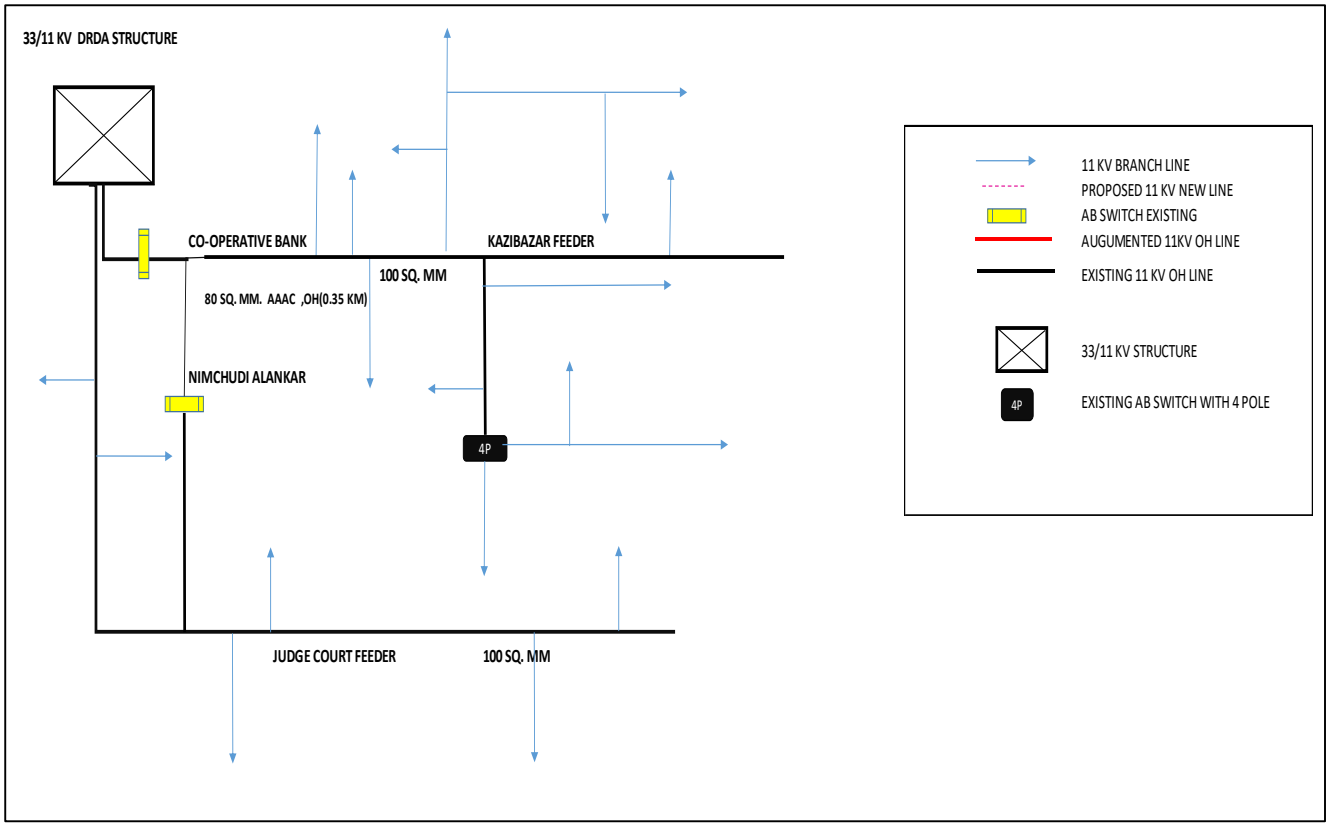
- Judge court area load is feeding through Judge court feeder under DRDA structure. Judge court feeder has a minimum overhead conductor size of 80 sq. mm. having current carrying capacity of 261 A. As recorded, Peak load of this feeder is 70 A.
- Kazibazar feeder, which is nearer to Judge court feeder, emerges from DRDA structure has conductor size 80 sq.mm O/H line having Current carrying capacity of 261 A. As recorded, Peak load of this feeder is 221 A.
- If there is any outage in Kazi bazar feeder, then presently although backup source is there for back feeding from Judge Court feeder of DRDA structure, but Judge Court feeder will not be able to meet the future combined load of both feeder. In this scenario, N-1 fails in Kazibazar feeder due to overloading of the feeder.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	%ge Loading
CDD-1	DRDA	JUDGE COURT	80	261	70	2.55	73.61	27%(Underloading)

Existing SLD (summer'20):

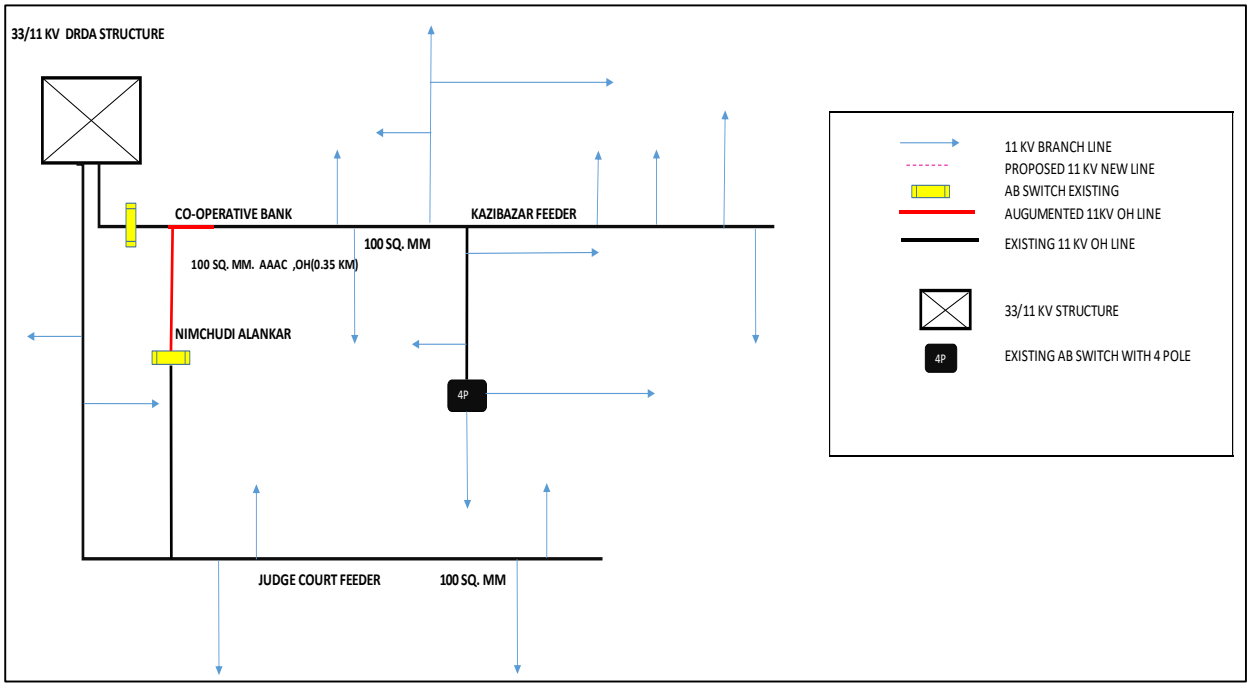
Refer 6.3.6 of the petition



Proposed Scenario: -

- Propose overhead 11KV AAAC conductor augmentation from 80 sq.mm to 100 sq.mm for 0.350 km circuit length from Alankar Nimchudi to Co-operative bank to mitigate N-1 fail due to overloading.

Proposed SLD (summer'22):



Refer 6.3.6 of the petition

Detailed Scope of Work:

- **Propose 11 KV O/H line augmentation:**

Proposed 11KV overhead line AAAC conductor augmentation from 80 sq. mm to 100 sq. mm from Alankar Nimchudi to Co-operative bank of 0.350KM circuit length

BOQ for Judge court Feeder:

Augmentation of 11KV overhead AAAC conductor from 80 sq. mm to 100 sq.mm of Judge Court feeder under DRDA structure of 0.350 KM circuit length						
Sl.No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.09	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation tc	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection 10%=22.5 % of C				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
		TOTAL COST FOR AUGMENTION OF 0.350 CKM		**0.35**	**7,46,502.72**	**2,61,275.95**

Refer 6.3.6 of the petition

Benefits:

The reliability and continuity of power supply will be maintained to all consumers in this feeder by mitigating N-1 reliability.

Refer 6.3.6 of the petition

27. Augmetation of 1.5 Ckm of Ravenshaw feeder

Proposal:

- Augmentation of 11 KV overhead line AAAC conductor of 1.5 km circuit length from 55 sq. mm to 100 sq.mm of Ravenshaw feeder of Jobra structure

Objective:

To improve the reliability, continuity of power supply (N-1) and meet the increasing demand by mitigating over loading issue of the feeder

Existing Scenario:

- At present, Ravenshaw area load is feeding through Ravenshaw feeder of Jobra structure. This feeder has a minimum overhead AAAC conductor size of 55 sq. mm. having current carrying capacity of 189 A.

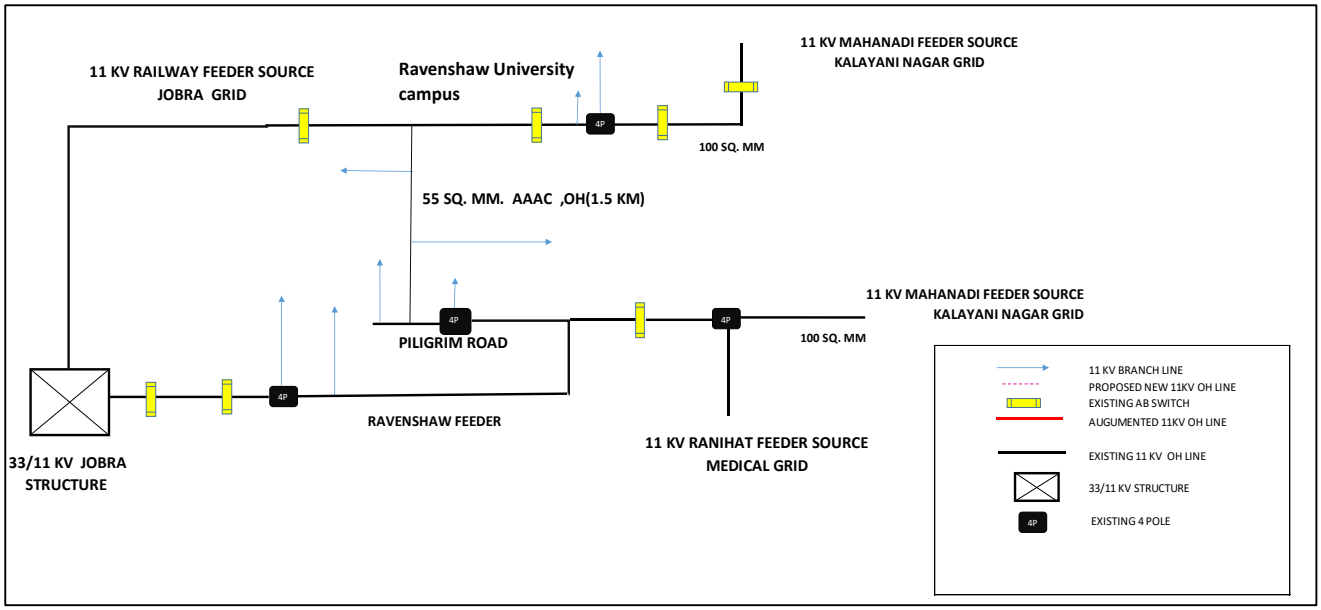
- Loading of Ravenshaw feeder was 195A, as per peak load data collected from site from April-2018 to Oct-2020. Considering 2.55% load growth, projected loading for this feeder would be 205A for the year of 2022. In this scenario, the feeder will not be able to carry the future load.

Existing Loading Summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading %ge
CDD-1	JOBRA	RAVENSHAW	55	189	195	2.55	205	108.5(Overloaded)

Existing SLD (summer'20):

Refer 6.3.6 of the petition



Proposed Scenario:

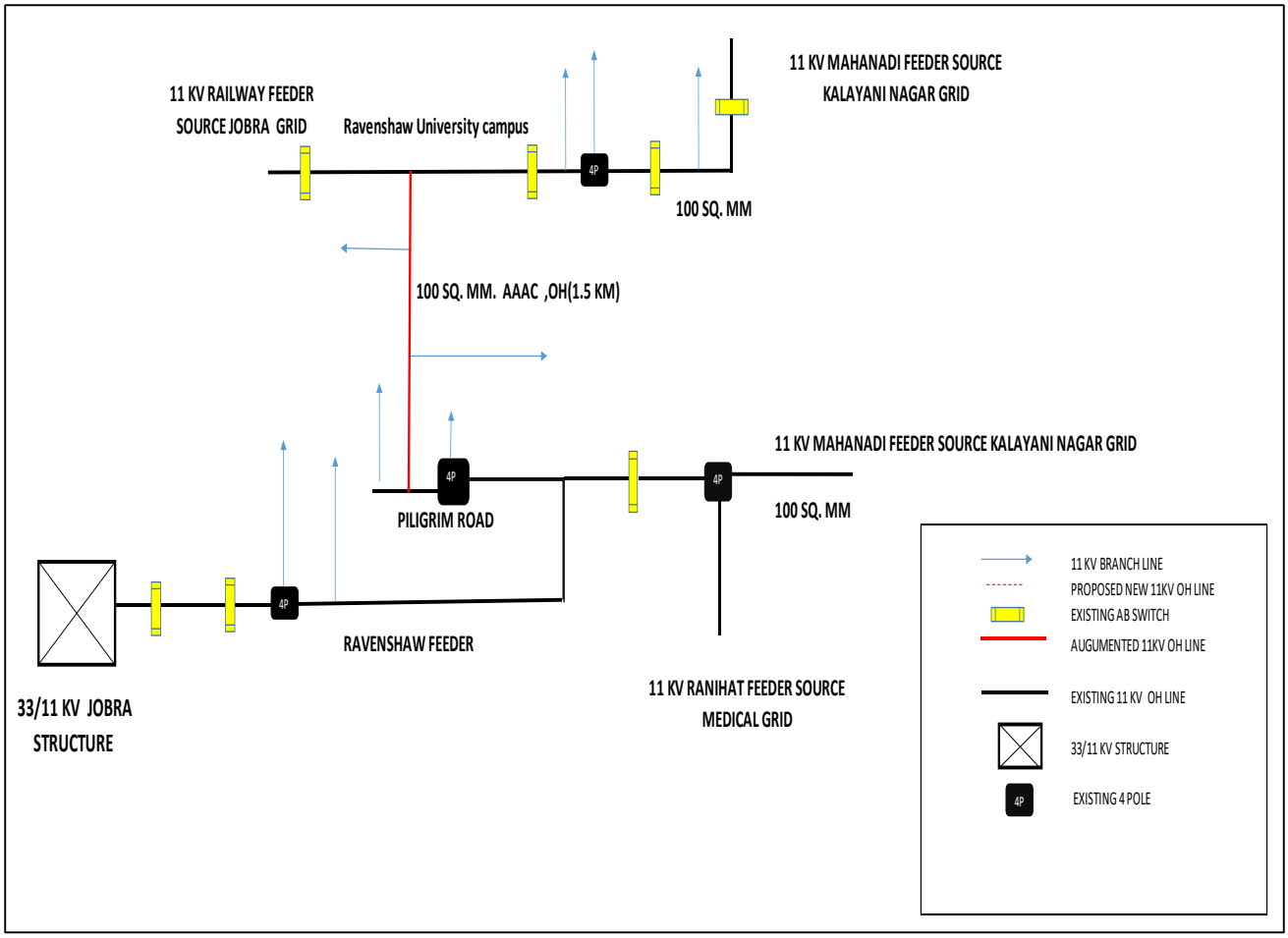
- Propose overhead conductor augmentation from 55 sq.mm to 100 sq.mm for 1.5 km from Ravenshaw University campus to Pilligrim road start point to handle the future load growth

Proposed Loading summary:

Division Name	Structure Name	Feeder Name	Minimum Conductor size in sq.mm of main trunk feeder	Feeder capacity considering derating factor of 90%	Peak Loading in Ampere(A)	Load Growth in %	Projected load in Ampere (A)	Loading%ge
CDD-1	JOBRA	RAVENSHAW	100	293	195	2.55	205	69.96%(Under loaded)

Proposed SLD (summer'22):

Refer 6.3.6 of the petition



Detailed Scope of Work:

- **<u>Propose overhead 11KV line augmentation:</u>**

Propose augmentation of 11 KV overhead line conductor from 55sqmm to 100 sq mm having 1.5 km circuit length

<u>BOQ for Ravenshaw Feeder:</u>

Refer 6.3.6 of the petition

• Augmentation of 11 KV overhead line AAAC conductor of 1.5 km circuit length from 55 sq. mm to 100 sq.mm of Ravenshaw feeder of Jobra structure

Sl.No.	Mtr Code	Description of Materials	Unit	Qty	Rate	Amount
1		2	3	4	5	6
1	RSJ2	11 MTR JOIST POLE (380.6 KG/PER POLE)	No.	10	24,739	2,47,390.00
2	MSGI11	11KV V cross arm (10.2 Kg each)	No.	10	810	8,100.00
3	MSGI39	Top bracket 75x40mm MS channel (1.3kg each)/	No	10	100	1,000.00
4	MSGI36	Back Clamp for V cross arm(33KV) 1.7 kg each 950*8 Flat)	No.	10	150	1,500.00
5	INS31	11KV G I pin	No.	0	80	-
6	INS4	11KV pin insulator polymer	No.	30	200	6,000.00
7	INS26	H.w fitting suitable for 100 sqmm 3 bolted	Set	6	468	2,808.00
8	INS12	Disc insulator (B&S) 70KN Polymer	No.	6	1,150	6,900.00
9	MSGI20	Stay Set 18mm	No	3	1,050	3,150.00
10	INS17	HT stay insulator(140x85 mm)	No.	3	50	150.00
12	MSGI43	HT Stay Clamp (1.9Kg / Pair)	Pair	3	125	375.00
13	MSGI18	7/10 SWG G I stay wire (10Kg. / Set)	Kg..	60	75	4,500.00
14	MSGI37	Earthing Coil	No.	7	166	1,162.00
15	AAAC4	100mm2 All Aluminium Aloy Conductor. AAAC	KM	3.1	55,000	1,69,950.00
21	MSGI25	Barbed wire/Anticlimbing device with ddugjy sign board	set	10	703	7,030.00
22	MSGI8	100x50x6 mm MS Channel (9.2Kg. / Mtr)	Kg..	40	65	2,600.00
23	MSGI5	50x50x6 mm M.S Angle (4.50Kg. / Mtr)	Kg	20	65	1,300.00
24	MSGI46	Nuts & Bolts of Assorted size	Kg..	40	78	3,120.00
25	ACS19	Additional amount for fabrication and galvanisation with transportation to galvanising plant	Kg.	200	10	2,000.00
	A	**Total Cost of materials.**				**4,69,035.00**
	B	Stock & Storage @ 3% of A				14071.05
	C	Sub - Total (A+B)				4,83,106.05
	D	Contingency @ 3 %+T&P Charges @2%+Transportation 7.5% +Errection				1,08,698.86
	E	Sub - Total (C+D)				5,91,804.91
	F	Other Overheads including supervision charges @ 6% of E				35,508.29
	G	Total estimated Capital Cost (E+F)				6,27,313.21
	H	GST 18% of G				1,12,916.38
	I	CESS 1% of G				6,273.13
	J	**Total Cost**				**7,46,502.72**
	K	Inspection fee				Extra as per Govt notification
	A. TOTAL COST FOR AUGMENTION OF 1.5 CKM 11KV 100 SQ MM AAAC CONDUCTOR			**1.5**	**7,46,502.72**	**11,19,754.07**

BENEFITS:

- Voltage regulation can be improved
- Reliability & continuity of power supply can be maintained by mitigating N-1 issue.

Refer 6.3.6 of the petition

28. New installation of one 11 KV 3-Way RMU at Potapokhari field to mitigate NOP issue in the Nayabazar feeder of CRRI structure.

Objective:

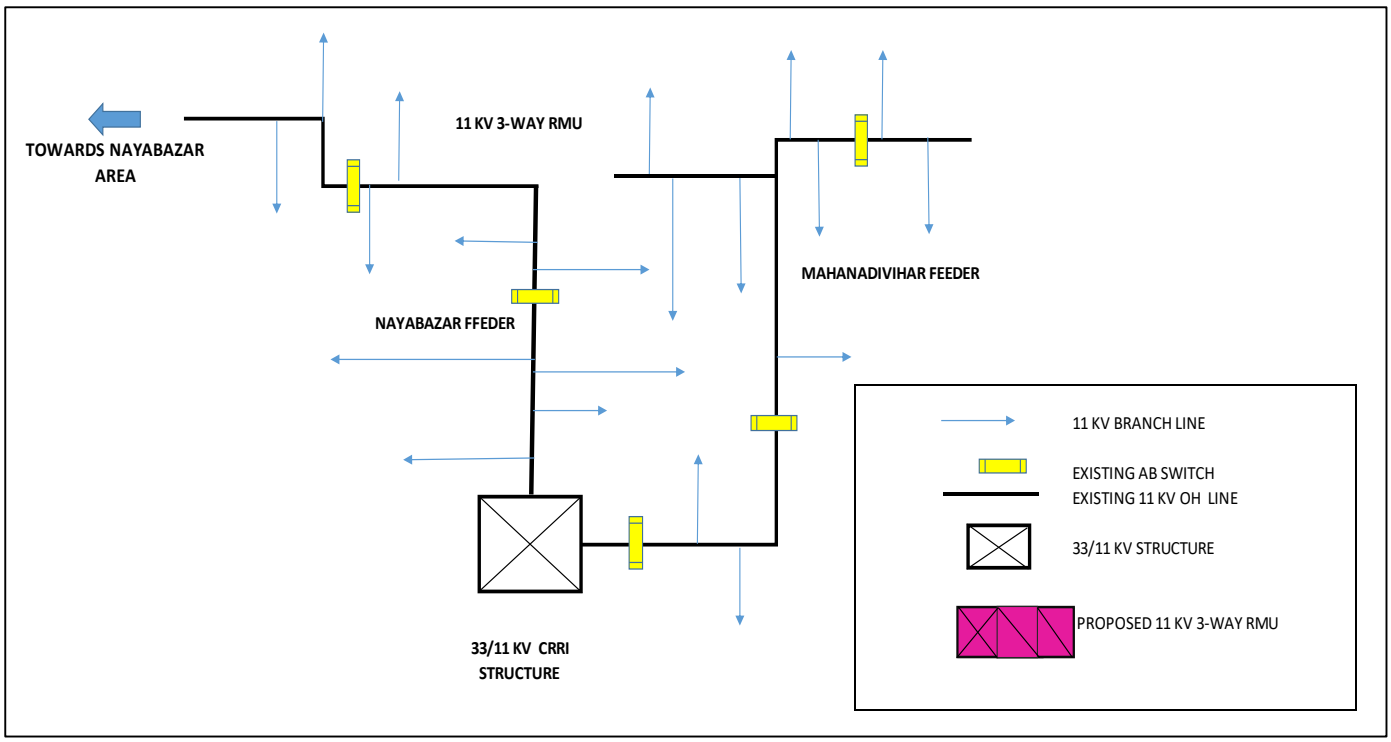
To improve the reliability of power supply and meet the increasing demand by placing of one 11 KV 3 way RMU.

Existing Scenario:

- Nayabazar load is feeding through Nayabazar feeder of CRRI structure. This feeder has overhead AAAC conductor size of 100 sq. mm. having current carrying capacity of 293 A. As recorded, peak load of this feeder was 185 A.

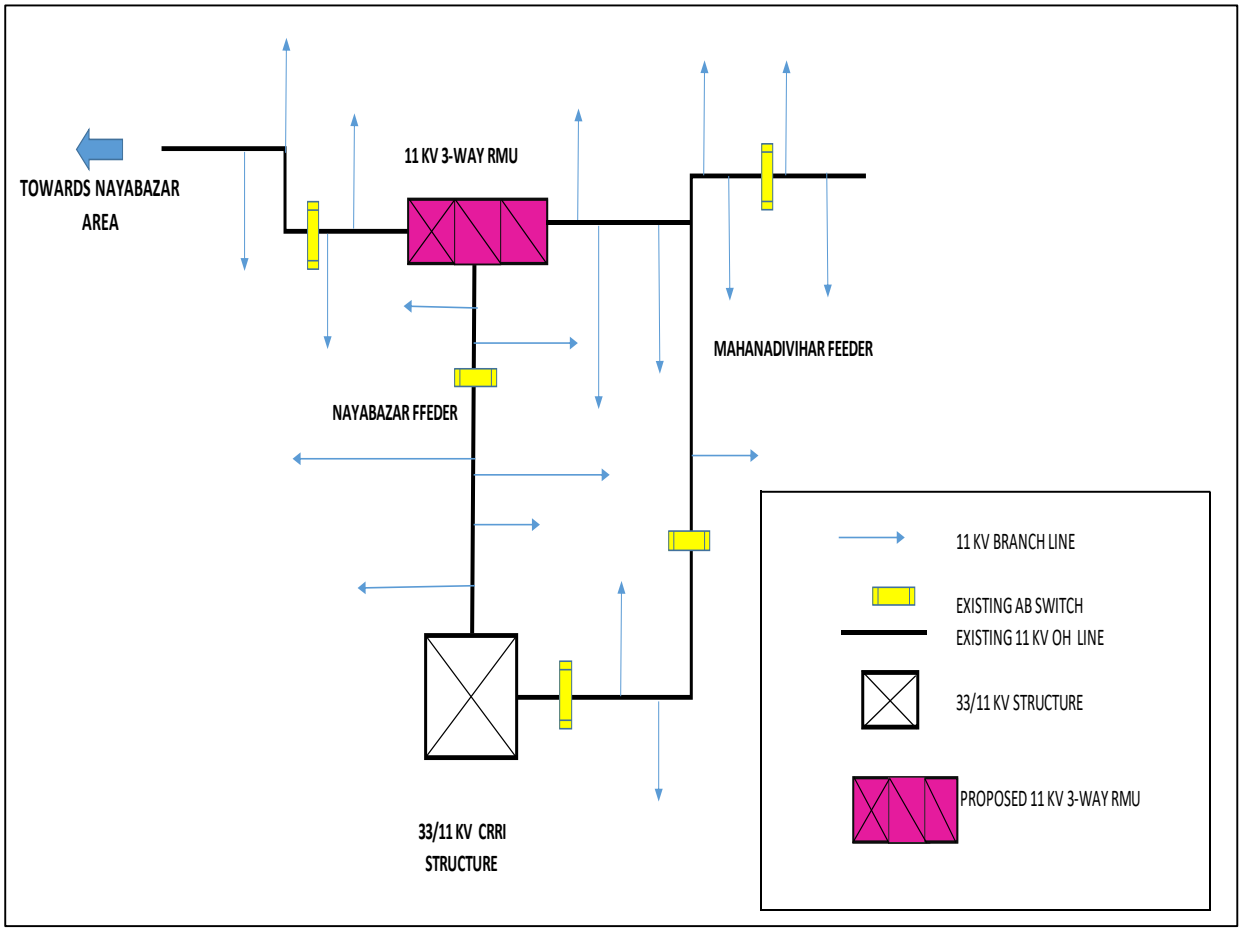
- If there is any outage in this feeder, although there is a back feeding supply from Mahanadi vihar feeder of CRRI structure, but presently there is no permanent arrangement. For back feeding, temporary jumper has been used here. In this scenario, NOP issue arises in this feeder hampering N-1 connectivity.

Existing SLD(Summary'20)



Refer 6.3.6 of the petition

Proposed SLD (Summary'22):



BOQ FOR NEW INSTALLATION OF ONE 11KV 3 WAY RMU:

Refer 6.3.6 of the petition

A.COST ESTIMATE FOR INSTALLATION OF ONE 3-WAY RMU					
SL NO	DESCRIPTION	UOM	NO		TOTAL COST
1	3 WAY RMU	EA	1	3,75,000.00	3,75,000.00
2	Design & constraction of Rcc foundation structure	EA	1	30,083.86	30,083.86
3	40mm dia GI pipe earthing device 3 mtr. Long(1050*3)	KG	1	3,150.00	3,150.00
4	50X6 FLAT	KG	50	75.00	3,750.00
5	Design & providing Galvenised fencing around RMUs to prevent public coming in contact with compact substation	EA	1	40,000.00	40,000.00
6	Total Estimated Capital cost (A)				4,51,983.86
7	Stock ,Storage &Insurance (B)		-		13,559.52
8	Sub Total (A+B)		-		4,65,543.38
9	2% T & P charges of (A+B)				9,310.87
10	3% Contigency of (A+B)				13,966.30
11	7.5% Transportation charges of (A+B)				34,915.75
12	10% Errection Charges of (A+B)				46,554.34
13	Sub total (A to F)				5,70,290.64
14	Other over head (Including 6%) supervision charges of G				34,217.44
15	Total Estimated Capital cost (G+H)				6,04,508.07
16	GST @ 18% of H				1,08,811.45
17	CESS @1% of I				6,045.08
18	Inspection Fee				5575
19	Grand Total (I+J+K+L+M+N)				7,24,939.61
20	**TOTAL COST FOR NEW INSTALLATION OF ONE 11 KV 3 WAY RMU**				**7,24,939.61**

Benefits:

- Quick power restoration to the consumers.
- N-1 reliability of power supply and reliability.

Refer 6.3.6 of the petition

29. **Justification for installation of Load break switch along with LINE DP for 11KV Feeders in BBSR City.**

Proposal:

- Installation of 11 nos. of 11 KV LBS with DP at various locations for mitigation of N-1 overloading, feeder over loading and N-1 connectivity.

Objective:

To improve the reliability, continuity of power supply by placing of 11 KV LBS with DP.

Summary of Proposed 11KV LBS with Line DP:

Refer 6.3.6 of the petition

Lists of 11kv LBS with DP at various locations

SL. NO.	DIVISION NAME	33/11 KV STRUCTURE NAME	STRUCTURE CODE	11 KV FEEDER NAME	ISSUE	QTY	LOCATION
1	BED, BBSR	NAHARKANTA	14180	NAHARKANTA	JUMPERING	1	PAHAL
2	BED, BBSR	NAHARKANTA	14180	BALIYANTA	JUMPERING	1	BHINGARPUR
3	BED, BBSR	BHINGARPUR	14224	GANGESWAR	JUMPERING	1	TRINATH BAZAAR
4	BED, BBSR	PANDARA	14364	JAGANNATH	JUMPERING	1	NEAR PANDARA STRUCTURE
5	BCCD-2	CS PUR-2/SAISHREE VIHAR	14002/14250	NAVAL	JUMPERING	1	NILADRI VIHAR
6	BCCD-2	SAINIK SCHOOL	14010	GAJAPATINAGAR	JUMPERING	1	NEAR SAINIK SCHOOL
7	BCCD-2	BARAMUNDA	14005	BARAMUNDA HOUSING BOARD	JUMPERING	1	NEAR FIRE STATION
8	BCCD-2	BARAMUNDA	14005	CRPF FEEDER	JUMPERING	2	NEAR PETROL PUMP AND
9	BED, BBSR	RASULGARH	14021	RASULGARH FEEDER	OVER LODING	1	SATYA VIHAR ,NEAR GANGUA BRIDGE
10	BED, BBSR	LAXMISAGAR	14020	JHARAPADA	OVER LODING	1	HALDIAPADIA
Total						11	NOS

Benefits:

- 11 KV LBS with Line are proposed in place of Jumpering and AB switch to provide N-1 connectivity

Refer 6.3.6 of the petition

- Uninterrupted power supply and reliability can be maintained.

Refer 6.3.6 of the petition

30. Justification for installation of Load break switch along with LINE DP for 11KV Feeders in Cuttack city.

Proposal:
Installation of 30 nos. of 11 KV LBS with line DP & four pole at various locations for mitigation of issues like feeder N-1 fail, feeder N-1 connectivity fail & NOP issues in some feeder.

Objective:
To improve the reliability of power supply and meet the increasing demand by placing of 11 KV LBS with DP/4 pole

Summary of Proposed 11 KV LBS with DP/4 pole:

Refer 6.3.6 of the petition

LISTS OF SINGLE LBS WITH DP/FOUR POLE OF FEEDER								
SL NO	DIV	33/11 KV STRUCTURE	11 KV FEEDER	ISSUE TYPE	PROPOSAL	LBS WITH DP	LBS WITH FOUR POLE	LOCATION
1	CED	TANGI	HARIPUR	N-1 CONNECTIVITY	Require 2 LBS with one 4 pole structure at Sandha Padia for back feeding to Haripur feeder from Berhampur feeder,Shankarpur 2.New 11KV OH line of length 2 km(Sandhapadia to Kamanga) having conductor size of 100 sqmm has been approved.	NIL	2	SANDHAPADIA
2	CED	GOPALPUR	42 MOUZA	N-1 CONNECTIVITY	Require 2 nos of line DP LBS from Pratapnagari Dahaliabag to Pratapnagri for backfeeding 42 Mouza feeder from Baranga feeder	2	NIL	PRATAPNAGRI & DAHALIABAG
3	CDD-2	CRRI	CRRI	N-1 CONNECTIVITY	One 11kv line DP LBS is required to install at forder farm to link CRRI & Mahanadi-2 feeder(Mahanadi vihar)	1	NIL	FORDER FARM
4	CDD-2	JAGATPUR	NADIKULA	N-1 CONNECTIVITY	Require one LBS with DP near Pepsi factory with 2 cutoff point to link between Nadikula & IDCO feeder	1	NIL	PEPSI FACTORY
5	CDD-2	KANDARPUR	AYETPUR	N-1 CONNECTIVITY	Require a DP LBS at Andpada for Back feeder linking with Ayetpur and Ramchandrapur feeder,Kisan nagar	1	NIL	ANDPADA
6	CDD-2	KISAN-NAGAR	MALLIPUR	N-1 CONNECTIVITY	Require one DP LBS near structure for backfeeding this feeder from Kishan nagar feeder(Kisan nagar)	1	NIL	NEAR STRUCTURE
7	CDD-2	KISAN-NAGAR	BISWALAPADA	N-1 CONNECTIVITY	Require one DP LBS near structure for backfeeding this feeder from Kishan nagar feeder(Kisan nagar)	1	NIL	NEAR STRUCTURE
8	CDD-2	BENTKAR	KALAPADA	N-1 CONNECTIVITY	Require 2 nos of DP LBS from Kalapada to Kalpada 4 pole structure to backfeed this feeder	2	NIL	KALUPADA TO KALUPADA 4
9	CDD-2	BENTKAR	JHINKIRIA	N-1 CONNECTIVITY	Require 2 nos of DP LBS from Boulakuda to Aikulanga to backfeed this feeder from Bentakar feeder(Bentakar structure)	2	NIL	BOULAKUDA TO AIKULANG
10	CDD-2	MATAGAJPUR	MATAGAJAPUR	N-1 CONNECTIVITY	Require one DP LBS near structure to backfeed this feeder from Industrial-2 feeder(OGP)	1	NIL	NEAR STRUCTURE
11	CDD-2	OGP	INDUSTRIAL-1	NOP ISSUE	Require one line DP LBS at Aurobind nagar(Kali mandir) to back feed this feeder from Kalyani nagar feeder(Chauliaganj)	1	NIL	AUROBIND NAGAR(KALI TEMPLE)

Refer 6.3.6 of the petition

12	CDD-2	OGP	OGP & GOSHALA	NOP ISSUE	Require one line DP LBS inside Premises of Govt. Press at Khapuria to link Industrial-1 feeder from OGP feeder	1	NIL	INSIDE GOVT PRESS PREMISES
13	CDD-2	JAGATPUR-IPICOL	MAHANADI	NOP ISSUE	Require one LBS with DP to link between Nadikula feeder(Jagatpur structure) & Mahanadi feeder at Mundasahi only after augmentation of PTR	1	NIL	MUNDASAHI
14	CDD-2	JAGATPUR-IPICOL	NEW INDUSTRIAL	NOP ISSUE	Require one LBS with DP to link between IDCO feeder(Jagatpur) & New Industrial feeder(Jagatpur-IPICOL) at Coal Tar Factory only after augmentation of PTR	1	NIL	COAL TAR FACTORY
15	CDD-2	MAHANADI VIHAR	MAHANADIVIHAR-I	NOP ISSUE	Require 400A line DP LBS near structure for backfeeding this feeder from Gandarpur feeder(Mahanadi vihar Structure)	1	NIL	NEAR STRUCTURE
16	CDD-2	SOMPUR	RAMKUMARPUR	NOP ISSUE	Require 400A line DP LBS near structure for backfeeding it from Teldia feeder(Sompur Structure)	1	NIL	NEAR STRUCTURE
17	CDD-2	SOMPUR	SOMPUR 2	NOP ISSUE	Require 400A line DP LBS near structure for backfeeding it from Teldia feeder(Sompur Structure)	1	NIL	NEAR STRUCTURE
18	CED	CHOUDWAR	OTM	NOP ISSUE	Require a line DP LBS(11KV) at Pathagara 9 pole structure for back feeding OTM feeder from Choudwar feeder,Choudwar	1	NIL	PATHAGARA 9 POLE STRUCTURE
19	CDD-2	KANDARPUR	PARAMHANSA	N-1 CONNECTIVITY	Require two nos of LBS with One four pole structure at Matgajpur Nadibandha for back feeding to Paramahansha feeder from Matgajpur feeder,Matgajpur structure	NIL	2	MATGAJPUR NADIBANDH
20	CED	CHHATISA	BANIPADA	N-1 CONNECTIVITY	Require two LBS with one Four pole structure at East End Technologies Pvt Ltd for back feeding to Banipada feeder from Industrial feeder,Choudwar	NIL	2	EAST END TECHNOLOGIES PVT LTD
21	CED	CHHATISA	KUSPANGI	N-1 CONNECTIVITY	Require two LBS with one Four pole structure at Similihand for back feeding to this feeder from City barrage feeder,Choudwar	NIL	2	SIMILIHAND
22	CED	CHOUDWAR	ARC	N-1 CONNECTIVITY	Require 2 LBS with 0ne four pole structure at Baidheswar Temple(Agrahat) for back feeding ARC feeder from Local feeder,Choudwar	NIL	2	BAIDHESWAR TEMPLE(AGRAHAT)
TOTAL LBS WITH DP AND FOUR POLE= 30						**20**	**10**	

Refer 6.3.6 of the petition

BOQ FOR NEW INSTALLATION OF ABOVE PROPOSED 30 NOS. OF LBS WITH DP/4 Pole (Cuttack) and 11 NO.S OF LBS FOR BHUBANESWAR:

A. COST ESTIMATE FOR installation of 11 KV LBS WITH DP/FOUR POLE					
Sl. No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
1	150X150 GI Joist (11Mtr. Long) (34.6kg/meter) (Each 380.6kg.)	NO	2	24739.00	49,478.00
2	Pressure Channel 100 x 50 x 6mm GI channel	K.g.	100	75.00	7,500.00
3	S/S DP bressing chhanel 75 x 40 x 6mm GI CHANEL	K.g.	48	75.00	3,600.00
4	LBS Mounting Channel 100x50x6	K.g.	0	75.00	-
5	S/S DP bracing Angle 50 x 50 x 6 mm - 6 mtr. Long 2 nos.(4.5 K.g. per mtr.) with side angle	K.g.	54	65.00	3,510.00
6	11 K.V. Polymer type Insulator	No.	3	480.00	1,440.00
7	11 K.V DISC Insulator (B & S) 90KN Polymer	No.	6	1150.00	6,900.00
8	H.w fitting suitable for 100 sqmm AAAC 3 bolted	NO	6	468.00	2,808.00
9	PG Clamp for 100 mm2 Conductor for jumpering	No	3	400.00	1,200.00
10	11KV LBS 400Amp 3pole	Set	1	700000.00	7,00,000.00
11	H.T.stay set (Complete)	Set	2	700.00	1,400.00
12	H.T. Stay Insulator	No.	2	40.00	80.00
13	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	146.25	292.50
14	7/8 SWG Stay Wire	K.g.	24	90.00	2,160.00
15	GI Pipe Earthing 40 Dia Medium gage 3 mtrs. Long	No.	2	1500.00	3,000.00
16	40x6mm GI Flat for earthing	K.g.	40	60.00	2,400.00
17	Fixing and concreating of stay set with 0.5Cum cement concret foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labour and material except stay set , stay wire , stay insulator .	No.	2	1753.90	3,507.80
18	Concreting of support C.C - 1:4:8 using 40mm BHG metal size - 5.5'x2'x2' = 22CFT = 0.62Cum Padding 900x600x150mm = 0.081 0.701Cum @ 3071.25= 2152.95 each	NO	2	2152.95	4,305.90
19	Couping of support section 15"x15" (3.9Cft) height 2'-6' (1' - 6" above G.L & 1' - 0' below G.L) in C.C 1:2:4 using 12mm BHG metal & curing for 5 days	Nos	2	512.40	1,024.80
20	Materials for Massonary work for Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	1719.90	3,439.80
21	Black Paint	Ltr	0.7	85.00	59.50
22	Ms Nut , Bolt & Washer	K.g.	4	75.00	300.00
23	Sundries for survey , PVC tape, Ampire tape,Danger Board, small size nut & Bolt preparation of drawing Alm. Socket etc	LS	1	0.00	-
A.	**Total cost of materials for the year 2018-19**				**7,98,406.30**
B.	**Stock,Storage & Insurance = 3% of (A.)**				23,952.19
C	**Sub total (A+B)**				**8,22,358.49**
I.	**T & P charges = 2% of (C)**				16,447.17
II.	**Contigency = 3% of (C.)**				24,670.75
III.	**Transportation Charges = 7.5% of (C.)**				61,676.89
IV.	**Erection Charges for PSC Pole @ 20%**				0.00
	Erection Charges for Other Materials @ 10%				4,122.11
	Errection Charges for TFR, Breaker & Joist Pole @ 5%				2,548.12
D.	**Sub Total**				**9,31,823.53**
E	**Over Head Charges = 6% of (D.)**				0.00
F	**Total Estimated Capital Cost (D+E)**				**9,31,823.53**
G	**GST 18% of (D)**				**1,67,728.24**
H	**GST 18% of (E)**				0.00
I	**CESS = 1% of (F.)**				9318.24
J	**Inspection Fee**				1000.00
K	**Total (F+G+H+I+J)**				**11,09,870.00**
	A.TOTAL COST ESTIMATE FOR TOTAL 41 NOS OF 11 KV LBS WITH DP/FOUR POLE		**41**	**11,09,870.00**	**4,55,04,669.96**

Refer 6.3.6 of the petition

Benefits:

- Quick power restoration to the consumers.
- N-1 reliability and Continuity of power supply will be maintained.