Subject 23: Establishing 1x10 MVA, 110/11 kV sub-station at **Hattaragi** in Sirsi Taluk, Uttara Kannada District.

Proposed by: CEE, Bagalkot Transmission Zone. **Sketch- BGKT 3**

Preamble:

Presently, Hattaragi, Sampakhanda, Devanalli and Harshikatta and their surrounding areas are being fed from 2 numbers of 11 kV feeders emanating from 110/11 kV Sirsi and 1 number of 11 kV feeder emanating from 110/11 kV Siddapura sub-station.

The installed capacity of 110/11 kV Sirsi sub-station is 2x10 MVA, 110/11 kV(PL-14.4 MW, LF-0.847) Transformers and is being fed from Jog power house by 110 kV DC line with Lynx conductor for a distance of about 48.2kms & 220 kV Esale(sirsi) sub-station by 110 kV DC line with Lynx conductor for a distance of about 6kms. The peak load recorded on 110 kV Double Circuit line feeding to 110 kV Sirsi sub-stations is 4 & 6.6 MW. Further the total connected load of 110/11 kV Sirsi sub-station is 55758 kVA on 11 kV reference.

The installed capacity of 110/11 kV Siddapur sub-station is 1x5 MVA,110/11 kV & 1x10MVA 110/11 kV(PL-6.8 MW, LF-0.53) Transformers and is being fed from Jog power house by 110 kV DC line with Lynx conductor for a distance of about 18.2kms. The peak load recorded on 110 kV SC line feeding to 110kV Siddapur sub-stations is 6.6MW. The total connected load of 110/11 kV Siddapur sub-station is 63250 kVA on 11 kV reference.

The details of 11 kV feeders feeding to Hattaragi, Sampakhanda, Devanalli and Harshikatta and their surrounding areas is as follows

Sl. No.	Name of the sub-station	Name of 11 kV feeders	Length of the line (in Kms)	Connected Load (kVA)	Peak Load in Amps	AES in MUs	VR %	AEL in MUs
1	110/11 kV Sirsi	Sampakhanda	48.02	6688	75.00	5.1182	30.5	1.2539
2		Devanalli	49.01	3453	72.00	2.3156	31.6	0.4483
3	110/11 kV Siddapura	Harsikatta	63.77	6351	85.00	3.786	54.2	1.6567

The above 11 kV feeders which are feeding Hattaragi, Sampakhanda, Devanalli and Harshikatta and surrounding villages are having lengthy 11 kV feeders and is upto 63.7 kms. The voltage regulation is also very poor and is upto 54.2% Due to lengthy 11 kV feeders, the line fault is also more.

Alternative-1:

11 kV feeders are proposed for reconductoring with Rabbit ACSR conductor. The details are as follows.

Sl. No.	Name of the sub-station	Name of 11 kV feeders	Length of the line (in Kms)	Connected Load (kVA)	Peak Load in Amps	AES in MUs	VR %	AEL in MUs

1	110/11 kV Sirsi	Sampakhanda	48.02	6688	75.00	5.1182	14.98	0.5995
2		Devanalli	49.01	3453	72.00	2.3156	20.13	0.2513
3	110/11 kV Siddapura	Harsikatta	63.77	6351	85.00	3.786	39.31	1.0868

Even after reconductoring of existing 11 kV feeders with Rabbit conductor, the voltage regulation of some 11 kV feeders is not improving. Hence, Alternative-1 is not feasible.

Alternative-2:

Establishing 1x10 MVA, 110/11 kV sub-station at Hattaragi with construction of 110 LILO line to from one circuit of 110 kV Sirsi-Kumta DC line for a distance of about 0.2 kms.(Aprox).

Sl. No.	Name of the sub-station	Name of 11 kV feeders	Length of the line (in Kms)	Connected Load (kVA)	Peak Load in Amps	AES in MUs	VR %	AEL in MUs
1	110/11 kV Hattaragi	New Bandal	23.11	1768	19.83	1.35301	3.67	0.04017
2		New Amminalli	15.90	1517	17.01	1.16093	2.54	0.02518
3		New Mattighatta	35.06	2146	44.75	1.43911	9.24	0.06439
4		New Herur 01	25.15	1679	22.47	1.00089	5.67	0.03986
5		New Herur 02	32.87	2600	34.80	1.54992	8.87	0.09280
1	110/11 kV Sirsi	Sampkhanda Residual	14.16	3240	34.76	2.47951	6.09	0.12466
2		Devanalli Residual	18.80	1470	30.65	0.98579	4.64	0.02274
1	110/11 kV Siddapura	Harsikatta Residual	37.59	2072	27.73	1.23517	8.63	0.07138

Summary:

i. Total load on new sub-station will be 9710 kVA.
ii. Annual energy savings will be 2.877 Mus.
iii. Approximate cost of the project is Rs 567.56 Laks
iv. BCR will 1.53
v. Reduction of load on 110 kV Sirsi sub-station will be 5431 kVA.
vi. Reduction of load on 110 kV Siddapura sub-station will be 4279 kVA.
vii. Forest Land Identified, Yet to be acquired.

Planning section comments:

1) The work is not included in APW 17-18.

Discussion: *The Director(Technical) HESCOM explained to the committee that, 11 kV feeders feeding to Hattaragi and surrounding areas are overloaded, very lengthy and having poor voltage regulation. The power supply is being arranged in spells to Hattaragi and surrounding areas.*

The Director (Technical) HESCOM also brought to the notice of the committee that, the length of 11 kV Sampakhanda feeder is about 48 kms with voltage regulation of 30.5%. The length of 11 kV Devanalli feeder is about 49 kms with voltage regulation of 31.6%. And the length of 11 kV Harsikatta feeder is about 64 kms with voltage regulation of 54.2%. Since, these 11 kV feeders are very lengthy, for having better voltage regulation and bifurcation of load, there is no possibility of construction of any new 11 kV feeders. Hence, requested the committee to consider the proposal.

The Committee discussed the subject in detail. The Committee observed that by establishing 110/11 kV sub-station at Hattaragi, the Voltage Regulation of 11 kV lines will improve. There will be improvement in tail end voltage. Interruption of power supply will be reduced to maximum extent. Quality and reliability of power supply can be achieved. This area is having concentrated load and existing sub-station feeding this area is over loaded.

Further, the committee also observed that, load to an extent of 5431 kVA from 110 kV Sirsi and 4279 kVA from 110 kV Siddapura sub-stations will be transferred to proposed 110/11 kV sub-station.

After detailed discussions, Committee approved the proposal of establishing 1x10 MVA, 110/11 kV sub-station at ***Hattaragi*** *in Sirsi Taluk, Uttara Kannada District by constructing 110 kV LILO line from one circuit of 110 kV Sirsi-Kumta DC line with Lynx conductor for a distance of about 0.2 kms. HESCOM has to take up the work of construction of new 11 kV lines with Rabbit conductor and residual feeders should be reconductored with Rabbit conductor*

Decision: Approved.

Action: CEE TZ Bagalkot.

Subject 24: Establishing 1x10 MVA, 110/11 kV sub-station at **Mulagund** in Gadag Taluk, Gadag District.

Proposed by: CEE, Bagalkot Transmission Zone.

Preamble:

Presently Mulagund, Harthi, Neelagund, Hosur, Kallur, Kanavi, Chinchali villages and their surrounding areas are being fed from 2 numbers of 11 kV feeders emanating from 110/33/11 kV Gadag sub-station.

The installed capacity of 110/33/11 kV Gadag sub-station is 2x20 MVA, 110/33 kV (PL-34.8MW, LF-1.0) & 2x10 MVA, 110/11 kV(PL-13.9 MW, LF-0.81) Transformers and is being fed from 220 kV Gadag sub-station by 110 kV SC line with Lynx conductor for a distance of about 0.6 kms. The peak load recorded on 110 kV SC line feeding to 110 kV Gadag sub-stations is 27.6 MW. The total connected load of 110/33/11 kV Gadag sub-station is 47637 kVA on 11 kV reference.

The details of 11 kV feeders feeding to Mulagund, Harthi, Neelagund, Hosur, Kallur, Kanavi, Chinchali villages and their surrounding areas is as follows