



MAHARASHTRA STATE ELECTRICITY TRANSMISSION COMPANY LIMITED
(CIN NO U40109MH2005SGC153646)

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MSETCL/CO/STU/Sys/MTC/

Date:

No = 6109

22 AUG 2022

To,
As per mailing list


Sub: Minutes of 4th Maharashtra Transmission Committee (MTC) meeting held on 01, August, 2022.

Please find enclosed herewith minutes of the 4th Maharashtra Transmission Committee (MTC) meeting held on 01, August, 2022 at 11:30 Hrs. at Tata Power, Khopoli Hydro station Dist. Raigad.

It is to be noted that the minutes of above meeting is also available on website www.mahatransco.in in STU section.

Thanking you.

Yours faithfully


Chairperson –MTC And
Chief Engineer (STU)

Copy s.w.r. to:

- 1) The Director (Operations), CO, MSETCL, Mumbai

List of MTC Members

Sr. No.	Name of Organization	Name of Nominee & Designation	Committee position	Email ID
1	State Transmission Utility (STU)	Chief Engineer-STU	Chairperson	ce@mahatransco.in
2	State Transmission Utility (STU)	Superintending Engineer - STU	Member Convener	ses_s@mahatransco.in
3	SLDC	Chief Engineer-SLDC	Member	cesldc@mahatransco.in
4*	MSETCL	Jagannath G. Chude- Superintending Engineer (Project Scheme-I)	Member	SE1prj@mahatransco.in
5	MSEDCL	Chief Engineer (Distribution), CO, Mumbai	Member	cedist@mahadiscom.in
6	MSPGCL	Rahul Sohani (Dy.Chief Engineer)	Member	cegwm@mahagenco.in , seest1@mahagenco.in
7	Maharashtra eastern grid Power Transmission co ltd	Atul Sadaria	Member	atuli.sadaria@adani.com
8	Adani Electricity Mumbai Ltd. (Transmission Business)	Rakesh Raj (Head Planning – AEML Transmission)	Member	rakesh.raj2@adani.com
9	Tata Power Co. Ltd.- Mumbai- Transmission	Sh. Kiran Desale (Head- Transmission)	Member	desalekv@tatapower.com gstawre@tatapower.com
10	Central Railway	S.S.Parihar (Chief Electrical Engineer/Electrical Energy Management/CR)	Member	dyceetrdcrly@gmail.com
11	M/s Tata Power Company Ltd. (Distribution)	V T Narayanan	Member	vtnarayanan@tatapower.com
12	Adani Electricity Mumbai Ltd. (Distribution Business)	Abaji Naralkar (Asst. Vice President)	Member	abaji.naralkar@adani.com
13	BEST Undertaking	Ajay Ramchandra Talegaonkar. Divisional Engineer (Project)	Member	depro@bestundertaking.com

Minutes of the 4th Maharashtra Transmission Committee (MTC) Meeting held on 01, August, 2022 at 11:30 Hrs. at Tata Power, Khopoli Hydro station Dist. Raigad

The 3rd Maharashtra Transmission Committee (MTC) was held on 01, August, 2022 at 11:30 Hrs. at Tata Power, Khopoli Hydro station Dist. Raigad. Some members have joined meeting through VC. Chief Engineer (STU) presided over the meeting. The list of members/participants is enclosed as **annexure-I**.

Chief Engineer (STU), Chairperson of MTC, Welcomed all the MTC members & other participants in the 4th MTC meeting. After brief introduction of the participants, agenda items were taken up for discussion

Agenda Point No. 1:

Establishment of VSAT captive hub at SLDC Airoli & backup hub at ALDC Ambazari, Nagpur for 1000 Nos. of VSAT remote nodes at respective EHV substations for real time visibility of RTU/SAS data to SLDC & ALDC alongwith voice & AMR meter data transmission through this communication network.

EE (ACI&P), MSETCL placed before the MTC a proposal for Establishment of VSAT captive hub at SLDC Airoli & backup hub at ALDC Ambazari, Nagpur for 1000 Nos. of VSAT remote nodes at respective EHV substations for real time visibility of RTU/SAS data to SLDC & ALDC alongwith voice & AMR meter data transmission through this communication network.

EE (ACI&P), MSETCL explained the present status & emphasized the necessity for Establishment of VSAT captive hub at SLDC Airoli & backup hub at ALDC Ambazari.

- Multiple types of communication technologies need to be used for servicing different needs on vast geography.
- An OPGW (Fibre Optic) backbone needs to be developed and expanded to cover all network locations.
- Utilization of VSAT by creating MSETCL's own captive hub is an immediate requirement. The VSAT service established in this way will be used for ensuring 100 % visibility to SLDC, secured and reliable AMR data availability and voice communication. Such VSAT services with a own captive hub will remain a permanent backup after the establishment of OPGW communication at all locations. This is essential so as to have N-1 communication availability for visibility, AMR and voice communication.
- GPRS communication will be used depending on applications like AMR.
- PLCC will remain in use for all station-to-station applications like protection systems, voice communication providing redundancy (N-1) to OPGW when established. Also, PLCC communication on black restoration paths up to control centre will be required.

TPC & AEML representatives requested to include their substations for VSAT services as a backup. Chairperson, MTC opined that they may approach the competent authority of MSETCL & explore the possibility of availing MSETCL VSAT services as a backup.

After detailed deliberation and discussion, the committee recommended the said proposals of Establishment of VSAT captive hub at SLDC Airoli & backup hub at ALDC Ambazari, Nagpur for 1000 Nos. of VSAT remote nodes at respective EHV substations for real time visibility of RTU/SAS data to SLDC & ALDC alongwith voice & AMR meter data transmission through this communication network for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda point no. 2:

Construction of 400kV DC line from 765/400kV PGCIL Shikrapur s/s to 400kV Lonikand II s/s.

SE (Schemes), MSETCL Proposed & presented the proposal for Construction of 400kV DC line from 765/400kV PGCIL Shikrapur s/s to 400kV Lonikand II s/s.

SE (Schemes), MSETCL explained that Presently Pune district is mainly fed from 400kV Lonikand-I, Lonikand-II, Chakan & Jejuri S/stn.

400kV Lonikand-II S/stn is mainly fed from 400kV Parli through 400kV Karjat S/stn. 400kV Lonikand-I is fed from 400KV Karad, stage-IV New koyna, 400kV Talegaon PGCIL, 400kV Chakan-II S/stn & feeds 400kV Jejuri S/stn which has another source from 400kV Koyna-IV S/stn. 400kV Lonikand-I & 400kV Lonikand- II S/stn are interconnected. 400kV Lonikand-I & II caters the 220kV load of Theur, Bhosari, Khadaki, VSNL, Ranjangaon, Kathapur & extended upto Magarpatta & Alephata. It seems that most of the Pune region is fed from Lonikand I & II S/stn. Hence these are important S/stn for Pune region.

400kV Karjat S/stn is charged on 11.01.2022. After full loading of 400kV Karjat S/stn import from 400kV Parli S/stn for 400kV Lonikand-II S/stn will be reduced, which may result into overloading of 400kV Talegaon(PGCIL)-Chakan line. Hence the source from 765kV Shikrapur S/stn has become essential for future.

After completion of 400kV DC line 400kV Lonikand-I S/stn will be a strong source to 400kV Jejuri S/stn, also overloading of 400kV Chakan-Talegaon PG line will be avoided.

400kV Chakan- Talegaon PG line will get relief after construction of 400kV DC line from 765kV Shikrapur to 400kV Lonikand-II S/stn & 220kV level creation at 765kV Shikrapur S/stn along with allied lines.

After detailed deliberation and discussion by members, the committee recommended the above proposal of Construction of 400kV DC line from 765/400kV PGCIL Shikrapur s/s to

400kV Lonikand II s/s for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 3:

Establishment of 132/33 kV Mukutban s/s, Tal. Zari, Dist. Yavatmal.

SE (Schemes), MSETCL elucidated the necessity for Establishment of 132/33 kV Mukutban s/s, Tal. Zari, Dist. Yavatmal.

SE (Schemes), MSETCL explained that Presently, Zari taluka in Yavatmal district is fed from 220/33 kV Wani & 132/33 kV Pandharkawda s/stns.

132 kV Pandharkawda s/s is loaded and 33 kV Ghonsa & Patan feeders of MSEDCL are too lengthy. Hence these feeders have high voltage regulation and the area is facing low voltage problem.

33 kV Shindola feeder emanating from 220 kV Wani s/s is also a lengthy feeder and hence high voltage regulation is experienced resulting low voltage problem.

If 132 kV Mukutban s/s will be established the feeders with high voltage regulations will be shifted to the proposed Mukutban s/s leading to reduction in length of 33 kV feeders & improved Voltage Regulation (VR).

After detailed deliberation and discussion, the committee recommended the above proposal of Establishment of 132/33 kV Mukutban s/s, Tal. Zari, Dist. Yavatmal for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 4:

Establishment of 220/33 kV Shrirampur MIDC s/s Dist-Ahmednagar.

SE (Schemes), MSETCL placed before the MTC a proposal for Establishment of 220/33 kV Shrirampur MIDC s/s Dist-Ahmednagar.

At present 220kV Babbleshwar s/s in taluka Rahata is feeding Shrirampur MIDC, Haregaon, Naigaon, Shrirampur, Sutgirni, Belapur 33/11 kV s/s. 132kV Newasa s/s in Newasa Taluka is feeding Bhokar, Takalibhan, Matapur 33/11kV s/s. The low voltage problem is observed in all above 33/11kV substations under Shrirampur Taluka.

Some of the 33kV feeders emanating from 220kV Babbleshwar and 132/33 kV Newasa s/s are lengthy, due to this, the consumers at the fag end are facing low voltage problems. Due to establishment of 220/33 kV Shrirampur MIDC substation, nearer source will be made available to lengthy DISCOM's feeders which will improve voltage profile at their end. Establishment of 220kV s/s at Shrirampur s/s will resolve the issue.

Above scheme will provide the following benefits:-

- Length of the feeder will decrease leading to improvement in the voltage regulation.
- Catering increase in demand of new industrial consumer in 220/33 Shrirampur MIDC s/s.
- Catering present and expected increase in load with proper voltage.

After detailed deliberation and discussion, the committee recommended the above proposal of Establishment of 220/33 kV Shrirampur MIDC s/s Dist-Ahmednagar for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 5:

Establishment of 400/220 kV Kalwa GIS-I s/s Dist-Thane.

SE (Schemes), MSETCL placed before the MTC a proposal for Establishment of 400/220 kV Kalwa GIS-I s/s Dist-Thane.

SE (Schemes), MSETCL further stated that the existing 400/220kV Kalwa substation is nearly around 55 years old and has capacity of 2100 MVA. It feeds Mumbai region. Average load is about 1200-1300 MW.

Mahape area is developing with various IT park and data centres. In future there is forecasting of increase in load demand due to upcoming several data centers. New EHV load applications in the tune of about 730MW load received which cannot be met from existing 400kV Kalwa substation.

Also during N-1 contingency of 1x 600MVA ICT, the load cannot be managed by other ICTs. The fault level of 400kV Kalwa substation has reached up to 69kA, which is above the permissible limit. If the existing bus of 400/220kV Kalwa substation is splitted up, then the fault level will also reduce.

To reduce the fault level and to meet the upcoming load demand it is necessary to establish a new 400/220kV substation.

Above scheme will provide the following benefits:-

- 1500MVA capacity will be added due to 400kV Kalwa GIS I substation. Hence future upcoming demand can be catered.
- The loading on 400/220kV ICT of existing Kalwa substation will reduce as there will be sharing of load.
- Fault level will be reduced by 19KA at 220kV level where the fault level is 69kA at existing 400/220kV Kalwa substation

After detailed deliberation and discussion, the committee recommended the above proposal of Establishment of 400/220 kV Kalwa GIS-I s/s Dist-Thane. for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 6:

Establishment of 132/33 kV Nandura s/s Dist-Buldhana.

SE (Schemes), MSETCL proposed a proposal for Establishment of 132/33 kV Nandura s/s Dist-Buldhana.

SE (Schemes), MSETCL further explained that Nandura taluka in Buldhana District is fed from 132 kV Malkapur and Motala s/stns. As there are multiple nos of 33/11 KV substation on each feeder, any interruption may lead to power failure for large area & large nos. of consumers get affected.

The length of Malkapur-Nandura feeder is 34 kms and voltage regulation on this feeder is 16.319%. Also the length of Motala-Nandura feeder is 32 kms and voltage regulation on this feeder is 28.34%.

Establishment of proposed s/s will help in strengthening the network and avoiding the breakdowns & overloading of the system. The low voltage problems will be resolved and the consumers will get reliable and quality supply.

After detailed deliberation and discussion, the committee recommended the above proposal of Establishment of 132/33 kV Nandura s/s Dist-Buldhana. for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 7:

Establishment of 132/33 kV Sarol s/s, Tal.-Kaij, Dist.- Beed.

MSETCL representative explained in depth the necessity for Establishment of 132/33 kV Sarol s/s, Tal.-Kaij, Dist.- Beed.

He explained that Supply to Kaij, Dharur and Beed Talukas is fed from 220 kV Manjarumbha and 132/33 KV Kaij s/stns

The 33 kV Yellamghat feeder emanating from 220 kV Manjarumbha s/s & 33 kV Veeda feeder emanating from 132 kV Kaij s/s are very lengthy. Due to this, the consumers at the fag end are facing low voltage problems.

After establishment of proposed s/s the low voltage problems will be resolved and the consumers will get reliable and quality supply. Also, there will be strengthening of network and the breakdowns & overloading of the system will be avoided.

TPC representative suggested 220KV voltage level for sarol substation instead of creating 132KV level at 220KV Manjarumbha s/s. MSETCL representative replied that already level creation at 220 kV Manjarumbha s/s was proposed & provision of same is done at Manjarumbha existing switchyard. In order to establish 220KV at sarol, additional land will have to be procured. More ROW for 220KV line will be required.

Chairperson. MTC has stated that System study for the said proposal/scheme is already carried out. STU will share the system study report to MTC members.

After detailed deliberation and discussion, the committee recommended the above proposal of Establishment of 132/33 kV Sarol s/s, Tal.-Kaij, Dist.- Beed. for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 8

Scheme of Augmentation of Substation by providing additional 1X50MVA, 132/33kV T/F along with HV & LV Bay at 132kV Gondia under EHV O&M Div. Bhandara in Nagpur zone

MSETCL Representative proposed the above proposal before the MTC. He stated that this Substation feeds power to Gondia District (Urban-60%, Rural-20%, MIDC-20%). Load on existing 2x50MVA, 132/33kV transformers has reached more than 75% of its capacity. Substation fulfils the P1 criteria of augmentation scheme.

Further, MSEDCL has proposed 03 Nos. of S/s namely 33kV Mundipar, 33kV Matatoli & 33kV Kati having total capacity of 15MVA. Furthermore, the load on S/s is expected to rise by 5% on yearly basis and if elimination of 11kV is carried out then the load of 132/11kV T/F (at 132KV Gondia s/s) about 2MVA will also be added to the existing 33kV bus.

It is difficult to manage the load in case of outage/tripping on any of the transformer i.e. the substation does not satisfy n-1 criteria. Hence, additional 1X50MVA, 132/33kV T/F is proposed at 132kV Gondia S/s.

After detailed deliberation and discussion, the committee recommended the above proposal of Scheme of Augmentation of Substation by providing additional 1X50MVA, 132/33kV T/F along with HV & LV Bay at 132kV Gondia under EHV O&M Div. Bhandara in Nagpur zone for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 9:

Scheme of Augmentation of Substation by providing additional 1X50MVA, 132/33kV T/F along with HV & LV Bay and 33KV Incomer Bay alongwith 33KV Twin bus conductor at 132KV Hingana-I S/s under Ringmain Division, Nagpur.

MSETCL representative placed before the MTC a proposal/Scheme of Augmentation of Substation by providing additional 1X50MVA, 132/33kV T/F along with HV & LV Bay and 33KV Incomer Bay alongwith 33KV Twin bus conductor at 132KV Hingana-I S/s under Ringmain Division, Nagpur.

He explained that this Substation feeds power to MIDC area and some part of urban area of Nagpur City (MIDC-60%, Urban-40%). Load on existing 2x50MVA, 132/33kV transformers has reached 60% of its capacity.

It is difficult to manage the load in case of outage/tripping on any of the transformer i.e. the substation does not satisfy n-1 criteria. Substation fulfils the P1 criteria of augmentation scheme. Hence, additional 1X50MVA, 132/33kV T/F is proposed at 132kV Hingna-I S/s.

After detailed deliberation and discussion, the committee recommended the above proposal of Scheme of Augmentation of Substation by providing additional 1X50MVA, 132/33kV T/F along with HV & LV Bay and 33KV Incomer Bay alongwith 33KV Twin bus conductor at 132KV Hingana-I S/s under Ringmain Division, Nagpur for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 10:

Scheme of Augmentation of Substation by providing additional 1X50MVA, 132/33kV T/F along with HV & LV Bay and 33KV Incomer Bay alongwith 33KV Twin bus conductor at 132KV Hingana-II S/s Ringmain Division, Nagpur.

MSETCL representative stated that this Substation feeds power to urban area of Nagpur City (Urban-78%, Rural-22%). Load on existing 2x50MVA, 132/33kV transformers has reached more than 50% of its capacity. The upcoming load of 33kV Jaitala feeder (5MVA) is expected on the S/s

It is difficult to manage the load in case of outage/tripping on any of the transformer i.e. the substation does not satisfy n-1 criteria. Substation fulfils the P1 criteria of augmentation scheme. Hence, additional 1X50MVA, 132/33kV T/F is proposed at 132kV Hingna-II S/s.

After detailed deliberation and discussion, the committee recommended the above proposal of Scheme of Augmentation of Substation by providing additional 1X50MVA, 132/33kV T/F along with HV & LV Bay and 33KV Incomer Bay alongwith 33KV Twin bus conductor at 132KV Hingana-II S/s. Ringmain Division, Nagpur for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 11:

Scheme of Augmentation of Substation by replacement of existing 2X25MVA, 220/33KV T/F by 2X50MVA, 220/33KV T/F at 220KV Kaulewada S/S under EHV O&M Division Bhandara.

MSETCL representative informed that this Substation feeds power mostly to rural area of Nagpur & some part of urban area (Rural-65%, Urban-35%). Load on existing 2x25MVA, 220/33kV

transformers has reached 70% of its capacity. Feasibility for connection of 10MVA (in phased manner) is granted to M/s Orient Cement.

It is difficult to manage the load in case of outage/tripping on any of the transformer i.e. the substation does not satisfy n-1 criteria. Hence, replacement of 2X25MVA, 220/33kV T/Fs by 2X50MVA, 220/33kV T/Fs is proposed at 220kV Kaulewada S/s.

After detailed deliberation and discussion, the committee recommended the above proposal of Scheme of Augmentation of Substation by replacement of existing 2X25MVA, 220/33KV T/F by 2X50MVA, 220/33KV T/F at 220KV Kaulewada S/S under EHV O&M Division Bhandara for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 12:

Scheme of Augmentation of Substation by Addition of 3X167 MVA, 400/220/33KV ICT along with HV & LV bays at 400KV Karad S/S

MSETCL representative explained that the Substation feeds power to Satara, Kolhapur, Sangli, & Ratnagiri District. The total maximum load reached on 3 X 315 MVA, 400/220 kV ICTs is 834 MVA in Apr-2021 i.e. 88 % of full load capacity.

The main sources to various 220/132/110 kV substations in Karad Zone are from 400kV Talandge, 400kV Alkud, 400kV Karad and 400kV New Koyana S/s. The geographical location of 400kV Karad S/s is at centre of the mentioned 400kV substations. Hence in case of any emergency/occurrence at any of these 400kV substations, load is shifted to 400kV Karad S/s.

It is difficult to manage the load in case of outage/tripping on any of the ICT i.e. the substation does not satisfy n-1 criteria. Hence, in order to have proper load management & to cater the future load, addition of 3X167 MVA, 400/220/33kV ICT is proposed.

After detailed deliberation and discussion, the committee recommended the above proposal of Scheme of Augmentation of Substation by Addition of 3X167 MVA, 400/220/33KV ICT along with HV & LV bays at 400KV Karad S/S for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 13:

Scheme of “Replacement of Existing 0.2 ASCR Panther conductor with HTLS conductor of 132kV Harangul-Ausa-Niwali-Ujani Including LILO Portion of Ausa & Niwali & 132kV Ujani-Tuljapur-Naldurg-Bale (Solapur) Including LILO Portion of Tuljapur & Naldurg.

MSETCL representative explained that the 132 kV Harangul (Latur) — Ujani — Naldurg — Solapur (Bale) DC line is very old (more than 45 years, commissioned in 1976). The conductor is weakened due to ageing, overloading and environmental conditions. Due to ageing of conductor, the conductor is unable to withstand load causing breakdown due to snapping of conductor.

STU has suggested for strengthening of the said corridor, as there is around 300 MW of renewable generation available in the nearby area i.e. Akkalkot, Waghdari & Naldurg region. The present network is not capable of handling the evacuation of these generation & in case of any tripping/breakdown, backing down of RE generation is required some times.

Being an RE generation prone area, lot of generations have been proposed in this pocket. As on 31.05.2022, substations of this area (i.e. 132 kV Latur (Koyna), 220 kV Harangul S/s, 132 kV Niwali, 132 kV Ausa, 132 kV Ujani, 220 kV Tuljapur, 132 kV Naldurg, 220 kV Bale, 132 kV Waghdari, 132 kV Akkalkot, 132 kV Karazgi & 132 kV Mandrup) have following RE generations (Solar + Wind + Hybrid) connected or proposed for connection:

Existing — 762 MW
Sanctioned — 410 MW
Applications —1260 MW

Thus, a total of 2432 MW of RE generations is already being proposed in this area.

STU after Load flow study has recommended to renovate 132kV Harangul (Latur) - Ujani - Naldurg- Solapur (Bale) DC line using 0.2 ACSR equivalent HTLS conductor which will help to facilitate RE evacuation and power transfer without system constraints.

Above scheme will provide following benefits:-

- The Capacity of the said corridor will be increased/doubled.
- Uninterrupted evacuation of RE generation available in the corridor will be feasible.
- Criteria of N-1 system compliance will be addressed.
- Load trimming due to tripping will be eliminated.
- Reduction in interruptions/tripping & occurrences.
- Reliability and availability of the system will be improved.
- Life enhancement of existing line

After detailed deliberation and discussion, the committee recommended the above proposal of Scheme of “Replacement of Existing 0.2 ACSR Panther conductor with HTLS conductor of 132kV Harangul-Ausa-Niwali-Ujani Including LILO Portion of Ausa & Niwali & 132kV Ujani-Tuljapur-Naldurg-Bale (Solapur) Including LILO Portion of Tuljapur & Naldurg.for consideration by GCC for inclusion in upcoming 5 year STU transmission plan.

Agenda Point No. 14:

LE scheme of replacement of existing old 400kV, 220kV & 132kV Pneumatic Circuit Breakers by Spring-Spring mechanism Circuit Breakers under EHV O&M Circle, Bhusawal

MSETCL representative explained that 19 nos. of 400kV, 18 nos. of 220kV & 09 nos. of 132kV Circuit Breakers in 400kV Khadka & 400 kV Dhule s/s are having obsolete pneumatic mechanism technology.

Also, 15nos. of 220kV & 132kV and 13 nos. of 220kV & 132kV circuit breakers are having pneumatic operating mechanism at various substations under EHV O&M Dn. Dhule and EHV O&M Dn. Jalgaon respectively. Most of the Circuit Breakers have completed service life more than 15-20 years.

After detailed deliberation and discussion, the committee members suggested that provisions of MERC guidelines for capex shall be verified and presented in next MTC meeting if necessary.

Agenda Point No. 15:

Replacement of Normal/Antifog type Porcelain disc insulators by Antifog Long Rod Porcelain insulators and DSN/DTN hardware of various 400kV lines under 400kV (O&M) Division, Lonikand-I

MSETCL representative explained that proposed 400kV lines are important in MSETCL Western Grid. Most of these lines are commissioned on or before 20-30 years back.

These lines pass through Sugar cane farm, Jaggery mills and hilly areas prone to dense fog and further prone to algae formation. The soil dust and carbon particles get deposited on Porcelain disc type Insulator Strings resulting in formation of electrical path (flow of current along the surface) due to wet insulator surface by dew, fog or sudden rain conditions during the period other than monsoon which causes de-capping and hence frequent break-down of line.

Also, some lines passes through different terrain like dust prone area, industrial pollutants area, forest area, stone crusher region, agriculture area and hilly region of Sahyadri Ranges which is approximately 60 km away from sea shore where the wind is very high.

Further, there is a heavy dense fog in the morning hours at mentioned area in the month of April, May & June of every year. Due to this dense fog (moisture) create easy conduction with low resistance path on insulators surface causing the de-capping of insulator strings which is resulting into conductor snapping and fall down in the valley due to which there is damage to the conductor.

In addition to this, it is to bring into kind notice here that, the multiple trippings occurred on 09.02.2022 where 5 nos. of 400 kV lines were under breakdown under 400 kV R. S. O&M Division, Lonikand-I which leads to major power failure of Pune Metropolitan region. The lines are namely 400 kV Chakan-Talegaon (PGCIL) line, 400 kV Lonikand-1-Chakan line, 400 kV Lonikand-1-Karad line, 400 kV Lonikand1-Karjat1 & 2.

During fault findings, it is observed that all fault tower locations are found in hilly, dusty and foggy prone area. Also, due to such major breakdown, the power supply to other receiving end stations severely affect & ultimately unrest from consumer & also resulted into huge financial loss to company.

During discussion TCP-T and AEML-T representative informed that recently MERC has directed to carry out such replacement of insulators in R&M budget while submission of their DPR to Hon. Commission.

After detailed deliberation and discussion, the committee suggested that the scheme of Replacement of Normal/Antifog type Porcelain disc insulators by Antifog Long Rod Porcelain insulators and DSN/DTN hardware of various 400kV lines is a routine maintenance work & may be executed under R&M budget.

Point No. 16:

Life Extension scheme for replacement of existing old 0.2 ACSR Panther conductor of 100kVApta – Thal (38Km), 100kV Apta - Jite (13Km), 100kV Jite - Thal (24.16Km) with new 0.2 ACSR Panther conductor under EHV O & M Division, Panvel under Vashi Zone-Revision in scheme thereof.

MSETCL representative explained that 100 kV Apta-Jite-Thal and 100 kV Apta-Thal D/C lines are originating / emanating from the 220 kV Apta substation. These are the only two lines radially feeding 100kV Thal substation.

These lines were commissioned way back in the year 1982. These lines are passing through forest, hilly and creek area and rendered the services of more than 39 years. Due to ageing effect and the costal atmosphere, the conductor of these lines is deteriorated at various places.

Conductor of these lines was tested in Oct -2016 and the result shows that there is deformation in both electrical and mechanical parameters.

To ensure the reliability and availability of supply, the scheme for replacement of old conductor by new 0.2 ACSR Panther conductor is proposed.

After detailed deliberation and discussion, the committee recommended the above proposals of Life Extension scheme for replacement of existing old 0.2 ACSR Panther conductor of 100kVApta – Thal (38Km), 100kV Apta - Jite (13Km), 100kV Jite - Thal (24.16Km) with new 0.2 ACSR Panther conductor under EHV O & M Division, Panvel under Vashi Zone-Revision in scheme thereof. for consideration by GCC for inclusion in upcoming five year STU plan and DPR approval thereof.

Agenda Point No. 17: Establishing 33KV voltage level at 220KV Karanjade station.

TPC representative presented the proposal as below:

- MSEDCL has proposed 06 Nos of 33 kV outlets from 220 kV Karanjade Station for meeting the existing load growth and power demand of upcoming residential and commercial projects. Considering this requirement in Panvel and new Airport Area, addition of 33 kV GIS at Karanjade Switching station is most suitable option.

- It will facilitate proposed development at Panvel area with bulk load demand with using available infrastructure and space which will reduce the cost and burden on consumers.
- Enhanced reliability and continuity of supply as sources from two different stations will be available. (Gawan and Karanjade SS)
- As TPC-T Karanjade is connected to Hydro Generating stations, it will help in resuming power supply in case of emergencies.
- Site visit carried out by MSEDCL officials at TPC-T Karanjade and Waghivali SS to check feasibility for expansion on 04.06.2022. Proposal submitted to MSEDCL Head Office for further process.

After detailed deliberation and discussion the committee suggested based on the load requirement from Director (Operations) ,MSEDCL the 33 kV outlets at 220 kV Karanjade Station shall be reviewed by STU. TPC-T shall submit the proposal in next MTC meeting along with 33 kV outlets requirement from MSEDCL and STU review outcome.

Agenda Point No. 18: MV Switchgear replacement at 110KV Kalyan RSS with additional feeders for Discom.

TPC representative presented the proposal as below:

- Requirement of additional 06 separate Outlets with load requirement of about 41.5 MW is submitted by MSEDCL for their various upcoming switching stations. Existing 22 kV switchyard cannot be extended as it has road on one side and residential area on other side. Hence, it will not be possible to accommodate additional outlets in the available space for any future requirement.
- The existing 22 kV Outdoor Switchgears at Kalyan is difficult to maintain due to non-availability of spares. OEM have stopped manufacturing these types of breakers (ABB-OHB, Siemens-3AA3, 3AH3) and its spares.
- Various elements of 22 kV switchyard are developing defects resulting in failure.
- 22kV Switchyard at Kalyan is surrounded by Chemical factories. Due to polluted weather, there is problem of frequent rusting of switchyard equipment.
- Series of meetings were held with MSEDCL Kalyan Division.
- Letter received from MSEDCL Kalyan West Division for feasibility 11.01.2022
- Letter received from MSEDCL Kalyan East Division for feasibility 28.03.2022

- DPR submitted to STU on 29.04.2022

During meeting, it was discussed that date of commissioning of said equipment to be presented in next meeting. Further it is to explore for other expert agency for maintenance of these MV switchgears if it was not outlived the service period of said MV switchgears.

After detailed deliberation and discussion the committee suggested based on the load requirement from Director (Operations), MSEDCL the 33 kV outlets at 110 kV Kalyan Station shall be reviewed by STU. TPC-T shall submit the proposal in next MTC meeting along with 33 kV outlets requirement from MSEDCL and STU review outcome.

Agenda Point No. 19: MV Switchgear replacement at 110KV Vikhroli station with segregation of back to back feeders.

TPC representative presented the proposal as below:

- OEM have stopped manufacturing these types of breakers and its spares. The poles of HPA24 Make Breakers are not available in the market as OEM had discontinued the product as well as support to old switchgear.
- There are back-to-back connected feeders at Vikhroli RS. It is unsafe to work on one feeder for maintenance / fault repairs while the other feeder is in service. It is proposed to segregate these back-to-back connected feeders in this switchgear replacement thereby enhancing safety.
- It will not be possible to accommodate additional outlets requirement of DISCOMs in the available space for any future requirement.
- DPR submitted on 05.05.2022

After detailed deliberation and discussion, the committee members suggested that provisions of MERC guidelines for capex shall be verified and presented in next MTC meeting if necessary.

Agenda Point No. 20 to 28:

- Agenda Point No. 20: 220kV Chandivali EHV Scheme.
- Agenda Point No. 21: 220kV Kandivali EHV Scheme.
- Agenda Point No. 22: 220kVDahisar EHV scheme.
- Agenda Point No. 23: 220kV Malad EHV scheme.
- Agenda Point No. 24: 220kV Khardanda EHV scheme.

Agenda Point No. 25: 220kV Connectivity between AEML-BKC & AEML Aarey S/s.

Agenda Point No. 26: 220Kv Uttan EHV scheme.

Agenda Point No. 27: 220kV Reactor at AEML-Chembur EHV S/s

Agenda Point No. 28: 33kV Reactors at AEML EHV Substations

The said schemes are already been discussed in the earlier MTC meetings. Therefore the committee members suggested that the said schemes need not be discussed at present. Further TPC representative suggested that after final consultation/decision, the schemes shall be presented in the subsequent MTC meeting.

The committee opined that the proposal /Scheme were in the earlier MTC meeting and suggested for review by Joint Study group & STU committee review formulated for above schemes respectively. Therefore these schemes shall not be included as an agenda points & shall not be put up for discussion in the MTC meetings till the finalization/submission of reports thereof.

Point No. 29: Appropriate Transmission scheme at 220kV level for reactive power Management around DTPS / Boisar.

In this regard, STU representative informed that the said matter is taken up with Chief Engineer (MSETCL-Vashi Zone). Accordingly the study will be carried out for best remedial solution and will be put up in next MTC meeting.

Agenda Point No. 30: Establishing connectivity between 400 kV north and south Mumbai. Phase I: Installation of 400 kV Station at Dharavi.

STU deliberated that after Establishing connectivity between 400 kV Vikhroli and 400 kV Station at Dharavi (New substation) the existing the 220 kV Trombay- Dharavi 3xS/c Lines rated for 343 MVA each will be underutilized and also the fault level at 220 kV Dharavi will increase. Alternatively, the proposal will be reviewed after realization of 400 kV projects under execution and also schemes planned in STU Five year transmission Plan.

SE (STU), Member Secretary offered the vote of thanks to all the MTC members and other participants.

Chairperson –MTC
Chief Engineer (STU)