

CIRCULAR

Sub: -Approval for use of latest technology material in MSEDCL i.e. Natural Ester, HT Covered conductor and Fault Passage Indicator.

A proposal to use new technologies in MSEDCL distribution network system was submitted to the Board. The Board vide BR No 1941 dated 07/11/2019 has given approval to use following technologies in network at specific locations-

1. Natural Ester Oil filled Transformers,
2. Insulated conductors for HT overhead lines (Covered Conductors) and
3. Overhead Line Fault Passage Indicators (FPI).

1. Natural Ester Oil Filled Transformers:-

- Existing mineral oil used in transformers is not bio-degradable and has low flash point (140°C and fire point 150°C). Further, the mineral oil requires periodical maintenance (filtration). There are many incidences of fatal and non-fatal accidents due to transformer oil flashover.
- Natural Ester Oil is bio-degradable and has much superior properties in terms of flash point (minimum 250°C as compared to 140°C of mineral oil). Fire point (minimum 300°C as compared to 150 °C of mineral oil). Hence, the incidences of catching fire by oil can be reduced, if natural ester oil is used in such cases. Natural Ester Oil does not require periodical maintenance and has greater moisture tolerance. The Chief Electrical Inspector, PWD, GoM, has allowed to use Natural Ester Oil for **sealed transformers** to be used in the basement area of high-rise buildings also.

2. Covered Conductor:-

1. It is observed that there are many fatal or non-fatal electrical accidents and power interruptions occurring due to touching of tree branches to the live conductors and less clearance of overhead lines which have bare conductors strung on the poles.
- It is also observed that at some places where there is crossing of gaothan feeder and agriculture feeder, illegal hooking from gaothan feeder to agriculture feeder is done for illegally using electricity for agriculture more than stipulated period.
- The cost of covered conductors and associated accessories is much less than the underground cable, which becomes very costly affair, if RI charges are required to be paid.
- The advantages of using covered conductors has been already observed at Thane and Washim circle.

3. Fault Passage Indicators:-

At present, whenever fault occurs on HT line, patrolling has to be done physically for detecting any fault on the line and line can be charged only after physically isolation of faulty section,. It takes long time for carrying out this activity, due to which interruption period increases and large number of consumers are affected. The problem is more severe for long HT line catering power supply to Industries and Towns. The above problem of delay in restoration of power supply can be addressed to large extent if Fault Passage Indicators (communicable or non-communicable) are used at long 'T' point of lengthy feeders.

- The indication (communicable / non-communicable) of the fault passage indicator will enable to the lineman to know the location of faulty section of the line immediately and after isolating that faulty section, the power supply can be restored immediately, thus reducing the interruption period and consumers unrest thereof.
- The fault passage indicators for underground cable are already being used by MSEDCL at RMU locations and its usefulness has been also observed.

In view of above, it is to inform that the Board of Directors vide Board Resolution no.1941 dated 07/11/2019 has accorded approval for adopting these technologies in MSEDCL as under-

- a. To use of Natural Ester Oil filled sealed distribution transformers and power transformers at crowded locations of towns and tourist places and basement of high-rise buildings.
- b. To use insulated/covered conductors to replace the existing overhead HT lines passing through crowded places, narrow lanes having less clearances from buildings, HT lines passing through trees of forest or elsewhere and at crossing of gaothan and AG feeder.
- c. To use communicable fault passage indicators on Industrial feeders and high revenue feeders and to use non communicable fault passage indicators on long HT feeders having long tap lines.

This is for your information and immediate necessary action for implementation please.


(Dr. Manish Wath)
Chief Engineer (Testing)

Copy s.w.r.to:-

- 1) The Director (Operations)/(Projects)/(Commercial), Corporate Office, MSEDCL.
- 2) The Executive Director (O&M),MSEDCL, Corporate Office, Mumbai.

Copy to:-

All field offices, MSEDCL (as per mailing list)