HYDEL BULLET

Issue - 4, Vol-6, April 2018

A Monthly Publication of the Kerala State Electricity Board Engineers'Association

Be Proactive .....

KSEB Engineers' Association is conducting the 65th Annual General Body Meeting at Fine Arts Hall,Eranakulam on May 13, 2018. Every year along with the AGB meeting, association conducts national seminar on topics of contemporary relevance. This year, the seminar topic selected is Proposed Amendments in Electricity Act and its Impact on Indian Power Sector.

The Indian Power sector has gone through dramatic changes over the last fifteen years since the introduction of the Electricity Act in 2003. The Electricity Boards in many states have been unbundled and separated into several functional utilities, viz. Generation, Transmission and Distribution. In many states Generation sector is delicensed, non discriminatory Open Access is introduced in transmission sector and the distribution sector is privatised. The whole sector has been brought under the scrutiny of independent regulators. There is assured return of 14-16 % on equity to the utility companies for attracting investment.

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State Level Seminar Series Competitions held...

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When stocks are taken after fifteen years, then present status of the sector needs a detailed evaluation. The objectives envisaged have not yet been achieved fully. It is imperative to note that 45 million of the rural households across the country still have no access to electricity despite idle generation. In many states, the electricity tariff has not been rationalised and is still decided by the governments. The power sector has to catalyse the ambitious 7- 8 % economic growth of the country.

The proposed amendments in the Act mainly aims to bifurcate distribution sector in to content and carriage. It may pave the way to speedy privatisation. That is why the employees and engineers in this sector throughout the country oppose the amendments on a common platform called National Coordination Committee of Electricity Employees and Engineers (NCCOEEE). The impacts of the amendments in power sector as well as consumers need to be examined. This year in our AGB Seminar, the experts in power sector, journalists, free thinkers, consumers, representatives etc. are presenting their views on **pros** and **cons** of the amendments.

KSEBL is also passing through a serious phase change. The planning department has almost been defunct for several years. There was no proper generation, transmission or distribution planning in KSEBL. The organisation as a whole was made an instrument for achieving political goals of the ruling parties. Ad-hoc and random plans are being prepared and implemented without rigorously analysing the real costs and benefits.

Massive investments shall not be made without assessing the feasibility and financial viability. The utility is being pressurised to take over defunct and useless thermal stations abandoned by corporates. Land and infrastructure facilities are taken back, making the past investments as sunken cost without any possible recovery. Assets and facilities of the utility are being snatched away for unviable dreamy projects without any real benefits and violating the provisions of Electricity Act as well as its Subordinate Regulations. Engineering places are being "flagged" without any justification and flouting norms according to whims and fancies of an association. The pension fund is another concern which the employees now have.

All employees and engineers in KSEBL should be made aware of the ground realities in the organisation and oppose the initiatives that are detrimental to organisation. Every engineer, employee, stakeholder and citizen must respond positively to bring in growth and prosperity to the state and nation. We earnestly request all Engineers to actively participate in the AGB meeting and make it a grand success.

മുറുക്കിപ്പിടിച്ച ഒരു പൊതിച്ചോറ്

Er. **എൻ.ടി. ജോബ്**

വീണു കിടക്കുന്ന ആ അമ്മയുടെ കൈകളിൽ മുറുക്കി പിടിച്ച ഒരു ചെറിയ പൊതിച്ചോറുണ്ടായിരുന്നു. അനക്കമില്ലാതെയായതോടെ ആളുകൾ ചുറ്റുംകൂടി, എല്ലാ ദിവസവും രാവിലെ മുതൽ വൈകുന്നേരം വരെ ആ വഴിയരികിൽ ഭിക്ഷയെടുത്തിരുന്ന ആ അമ്മ ആരാണെന്നോ എന്താണെന്നോ ആരും അന്വേഷിച്ചിരുന്നില്ല. അനക്കമില്ലാതായതോടെ അന്വേഷണങ്ങൾ മുറുകി. അന്വേഷണങ്ങൾ എത്തിച്ചേർന്നത് ഒരു കുടിലിനുള്ളിലേക്കായിരുന്നു. അഞ്ചുവയസുമാത്രം പ്രായമുള്ള ഒരു കുട്ടിയായിരുന്നു ആ കുടിലനകത്തുണ്ടായിരുന്ന ആളനക്കം.

വഴിയരികിൽ ചലനമറ്റുകിടന്ന അമ്മയുടെ മകന്റെ കുഞ്ഞായിരുന്നു അത്. കുടിലിനുള്ളിലുണ്ടായിരുന്നത്. ആ കുഞ്ഞിന്റെ അച്ഛനാരാണെന്ന് ചോദ്യങ്ങൾ ഉയർന്നെങ്കിലും കിട്ടിയ ഉത്തരം വൈദ്യുതി ബോർഡിലെ ജീവനക്കാരെ ഒന്നടങ്കം വിഷമിപ്പിക്കുന്നതായിരുന്നു. വൈദ്യുത ലൈനിൽനിന്നും ഷോക്കടിച്ചു മരിച്ച ഒരു കരാർ തൊഴിലാളിയായിരുന്നു അയാൾ. ആ കുഞ്ഞിനെ ഉപേക്ഷിച്ച് അവന്റെ അമ്മയും കടന്നുപോയപ്പോൾ അച്ഛന്റെ അമ്മയാണവനെ നോക്കി വളർത്തുവാനുണ്ടായിരുന്നത്, അവന്റെ വളർത്തമ്മയും പോയപ്പോഴുണ്ടാകുന്ന ശൂന്യത എങ്ങിനെ തീർക്കുമെന്നത് വലിയ ഒരു ചോദ്യമായി എല്ലാവരുടെയും മനസ്സിനെ വേദനിപ്പിക്കുമ്പോഴും നമ്മളെല്ലാം ചിന്തിക്കേണ്ട ഗൗരവതരമായ അവസ്ഥയാണ് അത്. വൈദ്യുത ലൈനുകളിൽ നിന്നും ഷോക്കേറ്റു വീഴുന്ന കരാർ തൊഴിലാളികളുടെ പിന്നീടുള്ള ജീവിതാവസ്ഥ; അത് ആരും പിന്നീട് അന്വേഷിക്കാറില്ല.

സംസ്ഥാനത്തിനകത്ത് എത്രയോ പേർ അപകടങ്ങളിൽപ്പെട്ട് ജീവിതം നശിച്ച്, ജീവിച്ചിരിക്കുന്നു എന്ന ഒറ്റ കാരണം കൊണ്ട് ഉന്തിതള്ളി ജീവിതം മുന്നോട്ടുകൊണ്ടു പോകുന്നു. അങ്ങിനെയുള്ളവർക്കൊരു പുനരധിവാസം ഗൗരവമായി ചിന്തിക്കേണ്ട വിഷയമാണ്.

ഈ അവസ്ഥകൾ ഉണ്ടാക്കുന്ന വൈദ്യുതി അപകടങ്ങൾ ഇല്ലാതാക്കേണ്ടത് നമ്മുടെ ഓരോരുത്തരുടെയും കടമയാണ്. നിസ്സാരമായ തെറ്റുകൾ കൊണ്ടും അശ്രദ്ധകൾ കൊണ്ടുമുണ്ടാകുന്ന അപകടങ്ങൾ ഒഴിവാക്കാനെന്ന പേരിലുള്ള ഉപരിപ്ലവ വിപ്ലവങ്ങൾ മാത്രമാണ് നടക്കുന്നത്. സുരക്ഷാ ഉപകരണങ്ങളും സുരക്ഷാപ്രതിജ്ഞകളും എല്ലായിടത്തും എത്തിയെങ്കിലും സുരക്ഷാ ക്രമീകരണ

ങ്ങളോടെ പ്രവർത്തനങ്ങൾ എന്ന രീതിയിലേക്ക് ഇതുവരെയും എത്തിച്ചേർന്നിട്ടില്ല.

അറ്റകുറ്റ പണികൾക്കിടയിലാണ് ഭൂരിപക്ഷം അപകടങ്ങളും വന്നു ചേരുന്നത്. ഇതിനു കാരണം സപ്ലൈ ഉള്ള ലൈനുകളിൽ കയറി ജോലി ചെയ്യരുത് എന്നത് കർശനമായി പാലിക്കാൻ സാധിക്കാത്തതുകൊണ്ടാണ്.

എല്ലാ ജീവനക്കാർക്കും സുരക്ഷാ ഉപകരണങ്ങൾ എത്തിച്ചുകൊടുത്തതോടുകൂടി സുരക്ഷാ ക്രമീകരണം മുഴുവനായി എന്ന മിഥ്യാധാരണയിലാണ് വൈദ്യുതി ബോർഡ്. ഒരു തൊഴിലാളിയെ ലൈനിൽ കയറി പണിയെടുക്കുവാൻ പറയുമ്പോൾ ആ ലൈനിൽ സപ്ലൈ ഇല്ലെന്നു ഉറപ്പുവരുത്തി ഒരു പെർമിറ്റ് സമ്പ്രദായം കൊണ്ടുവരുവാൻ എത്ര ശ്രമിച്ചിട്ടും നടപ്പാക്കാനാവുന്നില്ലെന്നത് കഷ്ടം തന്നെ. സുരക്ഷാ കമ്മീഷണർ വളരെ ഉത്സാഹത്തോടെ കുറെയധികം കാര്യങ്ങൾ ചെയ്യുവാൻ ശ്രമിക്കുമ്പോഴും അത് ജീവനക്കാരെയും എഞ്ചിനീയർമാരെയും പേടിപ്പിക്കുന്നതിൽ മാത്രം ഒതുങ്ങുന്നു. പ്രായോഗികമായ അപകടരഹിതമായ അവസ്ഥയിലേക്കു എത്തിച്ചേരുവാൻ സഹായിക്കുന്നില്ല. ഈ വർഷം അപകട രഹിത വർഷമായി പ്രഖ്യാപിച്ചുവെങ്കിലും ജീവനക്കാർ പൊലിഞ്ഞുവീഴുന്നത് തുടർ കഥയായി തുടർന്നുകൊണ്ടേയിരിക്കുമ്പോൾ അപകട രഹിത വർഷമെന്ന ബാനറുകൾ നമ്മളെ നോക്കി കൊഞ്ഞനം കുത്തുന്നു.

ചിലന്തിവലപോലെ കിടക്കുന്ന നമ്മുടെ നെറ്റ് വർക്കിനെ സ്റ്റാൻഡേർഡ് ഉപയോഗിച്ച് മാറ്റിയെടുത്ത് റഗുലേഷനുകൾ അനുസരിച്ചുള്ള നെറ്റ് വർക്കാക്കി മാറ്റിയെടുക്കുകയാണ് വേണ്ടത്. പൊട്ടിവീഴാറായ കമ്പികൾ കടലാസിൽ മാത്രം മാറ്റിയതുകൊണ്ടു കാര്യമില്ല. സെക്ഷൻ ആഫീസിൽ നിന്നും വാങ്ങുന്ന സാക്ഷ്യപത്രങ്ങൾക്കും വിലയില്ല. യഥാർത്ഥ വിഷയം പഠിച്ച് പരിഹാരമുണ്ടാക്കണം.

ഒടിഞ്ഞു വീഴാൻ നില്ക്കുന്ന പോസ്റ്റുകൾ മാറ്റാൻപറ്റണം, അതിന് ആവശ്യത്തിന് പോസ്റ്റുകൾ വേണം. ചെരിഞ്ഞു നില്ക്കുന്ന പോസ്റ്റുകൾ നേരെയാക്കാൻ സ്റ്റേകൾ വേണം സുരക്ഷിതമായി പ്രവർത്തനങ്ങളിൽ ഏർപ്പെടുവാൻ വേണ്ടത്ര ഏബി സ്വിച്ചുകൾ ലൈനുകളിൽ ഉറപ്പാക്കാൻ കഴിയണം. പതിനൊന്നു കെ.വി ലൈനുകളിലും ലോ ടെൻഷൻ ലൈനുകളിലും ആവശ്യത്തിനുള്ള എർത്തിംഗുകൾ ഘടിപ്പിക്കണം. ഇതൊന്നു മില്ലാതെ സുരക്ഷിതമല്ലാത്ത നെറ്റ്വർക്കിൽ സുരക്ഷാ ഉപകരണങ്ങളുമായി ധൈര്യമായി ജോലി ചെയ്തോളൂ എന്നു പറയുന്നതിൽ അധികാരികളുടെ ശബ്ദം മാത്രമെ കേൾക്കുകയുള്ളു. കേൾക്കുന്നവർ ഗതികേടുകൊണ്ട് ജോലി ചെയ്യുന്നുവെന്നുമാത്രം.

സുരക്ഷിതമല്ലാത്ത നെറ്റ് വർക്കിൽ നിന്നുണ്ടാകുന്ന അപകടങ്ങൾക്ക് വൈദ്യുതി ബോർഡാണ് സമാധാനം പറയേണ്ടത്. പക്ഷെ ജീവനക്കാരാണ് ക്രിമിനൽ കേസുകളിൽ പ്രതികളായി കോടതി വരാന്തകളിൽ സമൻസുകളും കയ്യിലേന്തി പ്രതികളായി നില്ക്കേണ്ടി വരുന്നത്. സുരക്ഷിതമായി ജോലി ചെയ്യുവാനുള്ള സാഹചര്യം ഉണ്ടാക്കിക്കൊടുക്കേണ്ട ബാധ്യതയും വൈദ്യുതി ബോർഡിനുണ്ടെന്ന കാര്യം മറക്കരുത്. മോഡൽ സെക്ഷൻ എന്ന വാക്കുപയോഗിച്ച് ആരെയും പ്രകോപിതരാക്കുന്നില്ല. എന്നാൽ പല സെക്ഷൻ ആഫീസുകളും പ്രായോഗികമായി പഴയ സെന്റർ മോഡലുകളിലേക്ക് മടക്കയാത്രയിലാണ്. എന്നിട്ടും പാഠങ്ങൾ ഉൾക്കൊള്ളുന്നില്ലെന്നിടത്താണ് വിഷമ സന്ധികൾ ഉണ്ടാകുന്നത്. →

കുറഞ്ഞാൽ തട്ടും, കൂടിയാൽ വെട്ടും

Er. എച്ച്. സുരേഷ് *AEE*

രാജ്യം ഭരിക്കുന്ന രാഷ്ട്രീയപ്പാർട്ടിയാകട്ടെ, സംസ്ഥാനം ഭരിക്കുന്ന പാർട്ടിയാകട്ടെ, അവരുടെ തത്വസംഹിതകൾക്ക് വിരുദ്ധമായ വീക്ഷണമോ, കാഴ്ചപ്പാടൊ ഉള്ളവരെ ഉൻമൂലനം ചെയ്യാനോ, കുറഞ്ഞപക്ഷം ഭീതിയിലാഴ്ത്താനൊ പല രീതിയിലും ശ്രമിച്ചുവരുന്നതാണ് നമ്മൾ കണ്ടുകൊണ്ടിരിക്കുന്നത്. പരസ്പരം അസഹിഷ്ണുത ആരോപിച്ച് തങ്ങളാണ് ഭേദം എന്ന് ഞെളിഞ്ഞിരിക്കാനും ഇവർക്ക് യാതൊരു കൂസലുമില്ല. എന്തായാലും ഈ രാഷ്ട്രീയ പാർട്ടികളെ നെഞ്ചിലേറ്റി നടക്കുന്ന സർക്കാർ ഉദ്യോഗസ്ഥവൃന്ദത്തിലും പലപ്പോഴും നീതിബോധം (ethics) തീരെയില്ലാതായി കാണുന്നു.

നമ്മുടെ കെ.എസ്.ഇ.ബി. ലിമിറ്റഡിലെ ഓഫീസർമാരുടെ പൊതുസ്ഥലംമാറ്റ പ്രക്രിയക്കുവേണ്ടിയുണ്ടാക്കിയ കരട് മാർഗ്ഗരേഖയും (draft guidelines) പിന്നീട് വന്ന അന്തിമ ഉത്തരവും പരിശോധിച്ചാൽ വ്യക്തമല്ലാത്ത നിർവചനങ്ങളും (definitions), ഏതു രീതിയിലും വളച്ചൊടിക്കാവുന്ന വ്യവസ്ഥകളും (norms) ഉണ്ടെന്ന് മനസ്സിലാക്കാം. നിർവചനങ്ങളിലെ (definitions) ക്രമനമ്പർ 6 ആയ flagged post ഇതിനോടകം ഭരണപക്ഷ സംഘടനക്കൊഴികെ മറ്റാർക്കും ദഹിക്കാത്ത ഒന്നാണ്. Flagged post ലേക്കുള്ള posting അതത് domicile station ലേക്ക് ട്രാൻസ്ഫർ കിട്ടാൻ യോഗ്യതയുള്ളവർക്കോ അല്ലെങ്കിൽ അവിടെ തുടരാൻ യോഗ്യതയുള്ളവർക്കോ മാത്രമേ കൊടുക്കുകയുള്ളു. ഇതല്ലാത്ത മറ്റു തസ്തികകളിലും ആവശ്യമായ യോഗ്യതയുള്ളവരെത്തന്നെയല്ലേ Post ചെയ്യുന്നത് ? മാത്രമല്ല ഈ flagged post കളിലേക്കുള്ള posting ഭരണപരമായ സൗകര്യത്തിനുവേണ്ടി (administrative convenience) മാനവ വിഭവശേഷി ഡയറക്ടർ തന്റെ വിവേചനാധികാരം ഉപയോഗിച്ചാണത്രെ നടത്തുന്നത്. ഭരണപരമായ സൗകര്യത്തിനുവേണ്ടിയെന്ന് സൂചിപ്പി ച്ചിരിക്കുന്നത് ബോർഡിന്റേതാണോ അതോ ഭരണപക്ഷ സംഘടനയുടേതാണോ എന്ന് വ്യക്തമാക്കിയിട്ടില്ല. അപ്പോൾ കഴിഞ്ഞവർഷം 2017 ൽ നിർണ്ണയിച്ച flagged post കൾ വന്ന ശേഷം ഭരണപരമായ ഒരു സൗകര്യവും ഉണ്ടായില്ലെന്നാണൊ മനസ്സിലാക്കേണ്ടത് ? ഇനി മറ്റൊന്ന് flagged post കളുടെ പരമാവധി യെണ്ണം ഓരോ തസ്തികയുടെയും 5% ആയി കാണിച്ചിട്ടുണ്ട്.

→

സുരക്ഷാ മാനദണ്ഡങ്ങൾ പാലിച്ചുകൊണ്ടു മാത്രമേ വൈദ്യുതി ശൃംഖലകളിൽ ജോലികൾ ചെയ്യുവെന്ന് നമ്മളോരോരുത്തരും ശഠിക്കേണ്ടിയിരിക്കുന്നു. അല്ലാതെ ജോലി ചെയ്യുവാൻ ഒരാളെയും അനുവദിക്കുവാനും പാടില്ല. എന്നിടത്താണ് സുരക്ഷയുടെ വിജയം.

നമ്മുടെ അനാസ്ഥമൂലം ഒരാൾപോലും പിടഞ്ഞുവീഴാതിരിക്കട്ടെ എന്ന പ്രാർത്ഥനയോടെ....

ഇത് sanctioned strength ന്റെ 5% മാണൊ അതോ posting strength ന്റെ 5% ആണോ അതോ ട്രാൻസ്ഫർ ലിസ്റ്റിന്റെ 5% ആയിരിക്കുമോയെന്ന് വ്യക്തമാക്കിയിട്ടില്ല. ഓരോ തസ്തികയുടെയും ട്രാൻസ്ഫർ ലിസ്റ്റ് ഉത്തരവായ ശേഷം സ്വജനങ്ങൾക്കും മറ്റു വേണ്ടപ്പെട്ടവർക്കും ഭരണപരമായ സൗകര്യ പ്രദമായ ഇടം തരപ്പെടുത്തിയശേഷം എന്തിന്റെ 5% മാണെന്ന് പ്രഖ്യാപിക്കുമായിരിക്കും.

നിർവചങ്ങളിലെ (definitions) ക്രമനമ്പർ 9 ആയികാണുന്ന assigned post ലും അവ്യക്തതയാണ്. ജനറൽ ട്രാൻസ്ഫർ 2017 ൽ ഓഫീസർമാരുടെ ലഭ്യതക്കുറവിനെ എല്ലാ സ്റ്റേഷനുകളിലും (revenue district) തുല്യമായി വീതിച്ച് സന്തുലിതാവസ്ഥ സൃഷ്ടിക്കാനെന്ന വ്യാജേന വളരെയധികം തസ്തികകൾ hris ൽപൂജ്യമാക്കി. ഫലമോ ? പൂജ്യവത്ക്കരിക്കപ്പെട്ട തസ്തികയിലിരുന്നവർ നെട്ടോട്ടമോടേണ്ട അവസ്ഥ വന്നു. പക്ഷേ പൊതു ട്രാൻസ്ഫർ ഉത്തരവും പിന്നീട് വന്ന പല ഉപട്രാൻസ്ഫർ ഉത്തരവുകൾക്കു ശേഷവും പല നിർണ്ണായക തസ്തികകളും ഒഴിഞ്ഞു കിടക്കുന്നു. 2017 ലെ പൂജ്യ തസ്തികകൾ തിരിച്ചുവന്നില്ലെന്നു മാത്രമല്ല 2018 ൽ വീണ്ടും പല തസ്തികകൾ പൂജ്യവത്കരിച്ചു കാണുന്നു. ഒരു ഉദാഹരണം : തൃശ്ശൂർ ട്രാൻസ്മിഷൻ സർക്കിൾ ഓഫീസിലെ രണ്ട് അസി. എക്സി. എഞ്ചിനീയർ (ഇലക്ട്രിക്കൽ) തസ്തികകളിൽ ഒരെണ്ണം 2017 ൽ പൂജ്യമാക്കിയപ്പോൾ അവിടെ അന്ന് സീനിയറായിരുന്ന AEE (E) മാടക്കത്തറ സ്റ്റോറിലെ തസ്തികയിലേക്ക് മാറ്റപ്പെട്ടു. ഇപ്പോഴിതാ 2018 ൽ Madakkathara Store Place പൂജ്യവത്കരിക്കപ്പെട്ടിരിക്കുന്നു. ഇനി ആ AEE എവിടേക്ക് മാറണം ? തൃശ്ശൂർ ഈസ്റ്റ് ഇലക്ട്രിക്കൽ ഡിവിഷനിലെ അയ്യന്തോൾ ഇലക്ട്രിക്കൽ സബ് ഡിവിഷനു പിന്നാലെ കൂർക്കഞ്ചേരി, ഒല്ലൂർ എന്നീ സബ് ഡിവിഷൻ ഓഫീസുകളും 2018 ലെ ജനറൽ ട്രാൻസ്ഫർ സന്തുലിതാവസ്ഥക്ക് വേണ്ടി പൂജ്യവത്ക്കരിച്ചിരിക്കുകയാണ്. ചുരുക്കത്തിൽ 11 സെക്ഷൻ ഓഫീസുകൾക്ക് ആകെ ഒരു സബ് ഡിവിഷൻ മാത്രം. തൃശ്ശൂർ ട്രാൻസ്മിഷൻ ഡിവിഷന്റെ കീഴിലുള്ള കുന്നംകുളം, വിയ്യൂർ സബ്സ്റ്റേഷൻ സബ് ഡിവിഷനുകൾ പൂജ്യത്തിലാണ്. അവിടെയും പതിനൊന്ന് 110 kV സബ്സ്റ്റേഷനുകളുടെ നിർമ്മാണ പ്രവർത്തനം നടത്തുന്ന T.C. സെക്ഷനുകൾക്കും കൂടി ഒരു സബ്സ് ഡിവിഷൻ മാത്രം. PMU എന്ന പരിഷ്കാരത്തിനായി തൃശ്ശൂർ ഇലക്ട്രിക്കൽ സർക്കിളിനു കീഴിലുള്ള 4 ഡിവിഷനുകളിലെ AEE മാരെ സർക്കിളിൽ എത്തിച്ചെങ്കിലും ഇപ്പോൾ PMU വിലും ഒരു AEE യുടെ തസ്തിക റദ്ദാക്കിയതായി കാണുന്നു.

Transfer Norms എന്ന പാർട്ട് - 2 ലെ ക്രമനമ്പർ 10 പ്രകാരമുള്ള protection വിവിധ കാരണങ്ങളാൽ അവശതയനുഭവിക്കുന്നവർക്കും സ്ഥാപനത്തിന്റെ ഭരണപരമായ സൗകര്യത്തിനുവേണ്ടി നിലവിലുള്ള Place ൽ നിലനിർത്തേണ്ടവർക്കും ആവശ്യമായ പരിഗണന നൽകുന്നുണ്ട്. ഈ വ്യവസ്ഥയിലെ a മുതൽ v വരെയുള്ള ഉപക്ലാസുകൾ വായിച്ചാൽ വനിതകൾക്കും പ്രത്യേക പരിഗണനയുണ്ടെന്ന് മനസ്സിലാക്കാം. അപ്പോൾ ഇതിലുപരി കൊടികുത്തിയ flagged post ഏർപ്പാട് ആർക്കു വേണ്ടി ? അതുപോലെ തന്നെ ക്രമനമ്പർ 15 ൽ സൂചിപ്പിക്കുന്നതുപോലെ പുരുഷ : വനിത ആനുപാതം ട്രാൻസ്ഫറിനു മുമ്പും പിൻപും ഒരേപോലെ നിലനിറുത്തും എന്നതും ദൂരസ്ഥലങ്ങളിൽ കൂടുതൽ കാലയളവ് ജോലി ചെയ്തശേഷം ഡൊമിസൈലിലേക്ക് തിരിച്ചുവന്നിട്ടുള്ള പുരുഷ ഓഫീസർമാരോടു കാട്ടുന്ന കടുത്ത അനീതിയാണ്. 2017 ൽ ഈ ആനുപാതം നിലനിറുത്താൻവേണ്ടി പല പുരുഷ

ഓഫീസർമാരും നേടിയെടുത്ത ഇൻഡക്സ് മാർക്ക് പരിഗണിക്കാതെ സ്ഥലം മാറ്റപ്പെട്ടു. ഭരണപക്ഷ സംഘടനയിലെ പുരുഷ കേസരികൾ പലരും ഈ അനീതിയെ ചോദ്യം ചെയ്യാതെ പഞ്ചപുച്ഛമടക്കി കെട്ടും ഭാണ്ഡവുമായി പുതിയ സ്ഥലങ്ങളിലേക്ക് പോയി മുറുമുറുപ്പുമായി കഴിഞ്ഞു കൂടുന്നു.

Transfer norms ലെ ക്രമനമ്പർ 14 അങ്ങേയറ്റം തെറ്റിദ്ധാരണാജനകമാണ്. Norm പ്രകാരം ഒരു ഓഫീസർ ഒരു സ്റ്റേഷനിൽ തുടരാൻ യോഗ്യൻ / യോഗ്യ ആണെങ്കിൽ, പ്രസ്തുത സ്റ്റേഷനിൽ 3 വർഷം കഴിഞ്ഞിട്ടില്ലെങ്കിൽ, കൂടുതൽ ഇൻഡക്സ് ഉള്ള മറ്റൊരു ഓഫീസർ അവിടേക്കു ചോദിച്ചാലും ആദ്യത്തെ ഓഫീസറെ മാറ്റില്ല. എന്താണ് ഒരു സ്റ്റേഷനിൽ തുടരാനുള്ള ഓഫീസറുടെ യോഗ്യത ? ഇൻഡക്സ് അല്ലെങ്കിൽ മറ്റെന്താണ് ? ക്രമനമ്പർ 16 ൽ ഓഫീസർമാരുടെ ഇൻഡക്സ് പ്രകാരമുള്ള സീനിയോറിറ്റി ലിസ്റ്റ് തയ്യാറാക്കപ്പെടുമെന്നും കുറഞ്ഞ ഇൻഡക്സ് പ്രകാരമുള്ള സീനിയോറിറ്റി ലിസ്റ്റ് തയ്യാറാക്കപ്പെടുമെന്നും കുറഞ്ഞ ഇൻഡക്സ് ഉള്ളവർ സ്റ്റേഷനിൽ നിന്ന് പുറത്തേക്ക് ട്രാൻസ്ഫർ ചെയ്യപ്പെടും എന്നതിന് ഘടക വിരുദ്ധമാണ് ക്രമനമ്പർ 14 ലെ വിവരണം. സ്റ്റേഷനിൽ 5 വർഷത്തിലധികമായി ജോലി ചെയ്യുകയും എന്നാൽ ഇതിനിടെ 2 പ്രാവശ്യം സ്റ്റേഷന്റെ പരിധിക്കുള്ളിൽ തന്നെ ഓഫീസുകൾ മാറ്റിപ്പിടിച്ച് 3 വർഷം തികഞ്ഞിട്ടില്ലായെന്ന് ബോധിപ്പിക്കുന്നതിൽ വിജയിച്ച വിരുതർ ഭരണപക്ഷ സംഘടനയിൽ ഉണ്ട്.

എന്തായാലും ഇൻഡക്സ് കുറഞ്ഞ ഓഫീസർമാരെ സ്റ്റേഷനു പുറത്തേക്ക് തട്ടാൻ ബോർഡിന് (ഭരണപക്ഷ സംഘടനക്കും) രണ്ടാമത് ആലോചിക്കേണ്ടതില്ല. എന്നാൽ ചിലരെ ട്രാൻസ്ഫർ ചെയ്യാതിരിക്കാൻ നോക്കുകൂലി വാങ്ങി കൊടികുത്തിയ (flagged post) place ൽ എത്തിക്കുകയും ചെയ്യാം. ഇനി ഇൻഡക്സ് കൂടുതലുള്ള മറ്റു സംഘടനക്കാരെയും ട്രാൻസ്ഫർ ചെയ്യുവാനുള്ള തന്ത്രവുമുണ്ട്. അതാണ് തസ്തിക പൂജ്യമാക്കി വെട്ടുന്ന രീതി. അല്ലെങ്കിൽ വനിതകൾക്കുള്ള അധിക സംരക്ഷണം, പുരുഷ : വനിത ആനുപാതം എന്നൊക്കെ പറഞ്ഞ് കബളിപ്പിച്ചും അനഭിമതരെ ട്രാൻസ്ഫർ ചെയ്യാമെന്നും 2017 ലെ ട്രാൻസ്ഫർ ഉത്തരവുകൾ വഴി തെളിയിച്ചിട്ടുണ്ട്. അതാണ് കുറഞ്ഞാൽ തട്ടും, കൂടിയാൽ വെട്ടും എന്ന് പറയുന്നത്.

ബാക്കി അടുത്ത ലക്കത്തിൽ വിശകലനം ചെയ്യാം.

Letters to the Editor

കത്തുകൾ അയക്കേണ്ട വിലാസം

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മലയാളത്തിലുള്ള ലേഖനങ്ങൾ എഴുതി തയ്യാറാക്കിയോ, *PDF* ഫോർമാറ്റിലോ അയച്ചുതരണമെന്ന് അഭ്യർത്ഥിക്കുന്നു.

ജോലിയിൽ പടവുകൾ കയറാൻ നേടാം പി.എം.പി. (PMP)

വിവേക് വി.എസ്. PMP, MBA

അമേരിക്കയിലെ പ്രോജക്ട് മാനേജ്മെന്റ് (PMI) ഇൻസ്റ്റിറ്റ്യൂട്ട് നടത്തുന്ന സർട്ടിഫിക്കേഷൻ ആണ് PMP അഥവാ പ്രോജക്ട് മാനേജ്മെന്റ് പ്രൊഫഷണൽ സർട്ടിഫിക്കേഷൻ.

ലോകത്തിലെ ഏറ്റവും മികച്ച 10 പ്രൊഫഷണൽ സർട്ടിഫിക്കേഷനുകളിൽ ഒന്നാണ് പി.എം.പി. ഇന്ത്യയിലും വിദേശത്തും ഒട്ടേറെ ജോലി സാധ്യതകൾ തുറന്നു തരുന്ന, ജോലിയിൽ ഉയർച്ച നേടിത്തരുന്ന സർട്ടിഫിക്കേഷൻ ആണ് PMP.

വിവിധ സർവേകളിൽ PMP സർട്ടിഫിക്കേഷൻ ഉള്ള ഉദ്യോഗാർത്ഥികൾക്ക് 25 ശതമാനം വരെയും അധിക ശമ്പളം വാഗ്ദാനം ചെയ്യപ്പെടുന്നു എന്നാണ് കരുതപ്പെടുന്നത്. അന്താരാഷ്ട്ര കമ്പനികളിൽ പ്രോജക്ട് മാനേജ്മെന്റ് ജോലികൾക്ക് PMP ഒരു യോഗ്യതയായി പലപ്പോഴും ആവശ്യപ്പെടാറുണ്ട്.

പ്രോജക്ടുകൾ എങ്ങനെ ശാസ്ത്രീയമായി കൈകാര്യം ചെയ്യാം എന്നതിനെക്കുറിച്ചുള്ള ശാസ്ത്രീയമായ പ്രോജക്ട് മാനേജ്മെന്റ് അറിവുകളാണ് ഈ സർട്ടിഫിക്കേഷൻ വഴി അളക്കപ്പെടുന്നത്.

ജോലിയിൽ തുടക്കക്കാർക്ക് ഉള്ള ഒരു സർട്ടിഫിക്കേഷൻ അല്ല ഇത്. സർട്ടിഫിക്കേഷൻ ലഭിക്കുവാനായിവേണ്ട യോഗ്യതകൾ ഇങ്ങനെയൊക്കെയാണ്. നാലുവർഷ ഡിഗ്രി ഉണ്ടെങ്കിൽ 4 വർഷത്തെ പ്രോജക്ട് മാനേജ്മെന്റ് ജോലി പരിചയം വേണം. ഇതിൽ 4500 മണിക്കൂർ പ്രോജക്ടുകളിൽ തന്നെ ജോലി ചെയ്തിരിക്കണം.

നാലോ അഞ്ചോ വർഷം പ്രോജക്ടുകളിൽ ജോലി ചെയ്യുന്ന എൻജീയർമാർക്ക് സ്വാഭാവികമായും ഇത് ഉണ്ടായിരിക്കണം.

അടുത്തതായി വേണ്ടത് 35 മണിക്കൂർ പ്രോജക്ട് മാനേജ്മെന്റ് വിദ്യാഭ്യാസം ആണ്. പ്രോജക്ട് മാനേജ്മെന്റ് ഇൻസ്റ്റിറ്റ്യൂട്ടിന്റെ വിവിധ ശാഖകളിൽ ഇതിനായുള്ള കോഴ്സുകൾ നടത്തിവരുന്നുണ്ട്. ഏകദേശം 12000 രൂപ ഇങ്ങനെയുള്ള ക്ലാസ്സുകളിൽ പങ്കെടുക്കുന്നതിന് ചിലവാകും. കേരളത്തിൽ ഇതിന്റെ ശാഖ ഉള്ളത് തിരുവനന്തപുരത്തെ മാർ ഇവാനിയോസ് കോളേജ് ക്യാംപസ്സിൽ പ്രവർത്തിക്കുന്ന BHUB എന്ന സ്ഥാപനത്തിൽ ആണ്. ഈ കോഴ്സുകൾ ഓൺലൈനായി, പല വെബ്സൈറ്റുകളിലും ലഭ്യമാണ്. ച്യാപ്റ്ററുകളിൽ ചെയ്യുന്ന കോഴ്സുമായി താരതമ്യം ചെയ്യുമ്പോൾ ഇതിനുള്ള ചെലവ് കുറവായിരിക്കും.

ഈ രണ്ടു കാര്യങ്ങളും കഴിഞ്ഞാൽ നമുക്ക് പ്രോജക്ട് മാനേജ്മെന്റ് ഇൻസ്റ്റിറ്റ്യൂട്ടിന്റെ വെബ്സൈറ്റിൽ കയറി പി.എം.പി പരീക്ഷയ്ക്കുള്ള അപേക്ഷ സമർപ്പിക്കാം.

അപേക്ഷ ലഭിച്ചുകഴിഞ്ഞാൽ പ്രോജക്ട് മാനേജ്മെന്റ് ഇൻസ്റ്റിറ്റ്യൂട്ട് ചിലപ്പോൾ നിങ്ങളുടെ അപേക്ഷ ഓഡിറ്റിന് വിധേയമാക്കാം. നിങ്ങൾ സമർപ്പിച്ച വിവരങ്ങൾ, യോഗ്യതകളെക്കുറിച്ചുള്ള വിശദാംശങ്ങൾ എല്ലാം ഓഡിറ്റിൽ പരിശോധിക്കപ്പെട്ടേക്കാം. നിശ്ചിത ശതമാനം അപേക്ഷകൾ PMI ഓഡിറ്റിനും വിധേയം ആകാറുണ്ട്. അങ്ങനെ

→

ഓഡിറ്റിന് വിധേയമാക്കി കഴിഞ്ഞാൽ നിങ്ങൾ കൊടുക്കുന്ന ഓരോ പരിചയത്തിനും ഓരോ സർട്ടിഫിക്കേഷനും തെളിവ് ഹാർഡ് കോപ്പിയായി അവർക്ക് അയച്ചു കൊടുക്കേണ്ടി വരും. ഇതിലെന്തെങ്കിലും വ്യാജമാണ് എന്ന് തോന്നിക്കഴിഞ്ഞാൽ മൂന്നു വർഷത്തെ വിലക്കാണ് വരുവാൻ പോകുന്നത്.

അപേക്ഷ സമർപ്പിക്കുന്ന സമയത്ത് ഫീസ് അടയ്ക്കേണ്ട ആവശ്യമില്ല. അപേക്ഷ ഓഡിറ്റിന് ആയി തിരഞ്ഞെടുപ്പിൽ എങ്കിൽ നിങ്ങൾ ഭാഗ്യവാന്മാർ. നിങ്ങൾക്ക് നടപടി ക്രമങ്ങൾ വളരെപ്പെട്ടെന്നു തന്നെ കടന്നു കിട്ടും.

നിങ്ങളുടെ അപേക്ഷ ഓഡിറ്റ് ഇല്ലാതെ തന്നെ തിരഞ്ഞെടുക്കപ്പെട്ടു എങ്കിൽ നിങ്ങളോട് ഫീസ് അടയ്ക്കുവാനുള്ള അറിയിപ്പുമായി ഒരു മെയിൽ വരും. അപേക്ഷ സമർപ്പിച്ചു കഴിഞ്ഞ് ഒരു വർഷത്തിനുള്ളിൽ പരീക്ഷ എഴുതണം. ഏകദേശം 555 ഡോളർ (35,000) രൂപയാണ് പരീക്ഷാഫീസ്.

ആദ്യത്തെ ചാൻസിൽ തന്നെ പരീക്ഷ പാസാവാൻ ശ്രദ്ധിക്കണം. പരീക്ഷ പരാജയപ്പെടുകയാണെങ്കിൽ നിങ്ങൾ വീണ്ടും ഒരു ഫീസ് അടയ്ക്കേണ്ടതായി വരും (ഏകദേശം 19,000 രൂപ). ഒരു വർഷത്തിനുള്ളിൽ മൂന്നു തവണ നിങ്ങൾ ഈ പരീക്ഷയിൽ പരാജയപ്പെട്ടാൽ, പിന്നെ നിങ്ങൾക്ക് അടുത്ത ഒരു വർഷം ഈ പരീക്ഷ എഴുതുന്നതിനായുള്ള വിലക്ക് ഉണ്ടായിരിക്കുന്നതാണ്.

PMBOK (Project Management Body of Knowledge) എന്ന അടിസ്ഥാന ഗ്രന്ഥത്തെ ആസ്പദമാക്കിയുള്ള ചോദ്യങ്ങളായിരിക്കും ഈ പരീക്ഷയ്ക്ക് ചോദിക്കുന്നത്.

നേരിട്ടുള്ള ചോദ്യങ്ങൾ തീരെ കുറവായിരിക്കും. നിങ്ങൾ പഠിച്ച അറിവുകൾ സാഹചര്യത്തിനനുസരിച്ച് ഉപയോഗിക്കേണ്ടതായിട്ടുള്ള തരം പരീക്ഷയാണ് പി.എം.പി. PMBOK വിവരങ്ങൾ നല്ലതുപോലെ ഹൃദിസ്ഥമാക്കുക എന്നുള്ളതാണ് ഈ പരീക്ഷ പാസാവാനുള്ള ഏറ്റവും കുറുക്കുവഴി. ഒന്നു രണ്ടു തവണ ഈ ബുക്ക് നിർബന്ധമായും വായിച്ചിരിക്കണം. അതിൽ ഉപയോഗിച്ചിരിക്കുന്ന പദങ്ങളും പ്രയോഗങ്ങളും നടപടിക്രമങ്ങളും വ്യക്തമായി നമുക്ക് മസ്സിലായാൽ മാത്രമേ പരീക്ഷയ്ക്ക് ചോദിക്കുന്ന ചോദ്യങ്ങൾക്ക് കൃത്യമായി മറുപടി പറയുവാൻ സാധിക്കുകയുള്ളൂ.

നാല് മണിക്കൂറാണ് പരീക്ഷ, ഇന്റർനെറ്റിൽ കിട്ടുന്ന അനേകം മോഡൽ ചോദ്യപേപ്പറുകൾ പരിശീലിക്കുന്നതിലൂടെ ഈ പരീക്ഷയിൽ നിങ്ങളുടെ തയാറെടുപ്പും, പരീക്ഷയുടെ നിലവാരവും, നിങ്ങളുടെ പോരായ്മകളും പരിശീലനത്തിലെ വിടവുകളും മനസ്സിലാക്കുവാൻ സാധിക്കും.

Prometric എന്ന സ്ഥാപനമാണ് പിഎൽബി പരീക്ഷ നടത്തുന്നത്. ഒരു കമ്പ്യൂട്ടറിലൂടെ ഓൺലൈനായി മൾട്ടിപ്പിൾ ചോയ്സ് ചോദ്യങ്ങളാണ് പ്രതീക്ഷിക്കേണ്ടത്. കേരളത്തിലുള്ളവർക്ക് പ്രായോഗികമായുള്ള സൈറ്റുകൾ തിരുവനന്തപുരത്തും ബാംഗ്ലൂരും ഉള്ളത്. ദീർഘസമയം ഉള്ള പരീക്ഷയായതിനാൽ ഒന്നും രണ്ടും പ്രാവശ്യം mock പരീക്ഷകൾ ചെയ്യുന്നത് ഉപകാരപ്പെടും.

പരീക്ഷ പാസാകാൻ കുറച്ചു ബുദ്ധിമുട്ടുകൾ നേരിടേണ്ടിവരും. എങ്കിലും പാസായി കഴിഞ്ഞാൽ തൊഴിലിൽ ഉണ്ടാവുന്ന അഭിവൃദ്ധി കണക്കിലെടുക്കുമ്പോൾ ഈ സർട്ടിഫിക്കേഷൻ മികച്ച ഒരു ആസ്തി തന്നെ എന്നു പറയേണ്ടിവരും.

കൂടുതൽ വിവരങ്ങൾക്ക് സന്ദർശിക്കുക.

1. www.pmi.org

2. www.pmikerala.org

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Tips for a Happier Work Place

Er. Krishnakumar M.
Assistant Engineer

We spent at least one third of our active time in a day at our work places. This is a sizeable number. An unhappy work place will badly affect our mental as well as physical health. Being happy at work might not always seem easy, but it is very much possible. Following tips will help you to be happier at work.

1. Avoid negativity in the workplace

No matter how happy you are, negativity, gossip, and complaining coworkers can be a drain on your energy. Instead, try to make friends with coworkers who are positive, collegial, and can provide a good network of support and resources.

Better yet... be that positive, supportive person. Chances are, it will also advance your profession.

2. Make your workspace your own

Since you spend so much time at your workspace, it will go a long way if you make it comfortable, relaxed, and reflective of you. Keep it simple. Badly organized workspace can lead to distraction. Try to keep your table clean with minimum number of files.

3. Set three small daily goals

Sometimes we feel disappointed due to constant interruptions of emails, phone calls, and competing priorities. Realize the fact that these are all part of our job. We may feel that the pre-planned jobs are not progressing well. In this case write down three small things that you would like to accomplish each day - and then crossing them off the list as you do them - you can remind yourself of the great progress you actually are making.

One of the best ways to set and track your daily work is with a Kanban board. A **Kanban board** is a work and workflow visualization tool that enables you to optimize the flow of your work. Physical Kanban boards, typically use sticky notes on a whiteboard to communicate status, progress, and issues. Basic **Kanban board** classifies task as "To Do", "Doing" and "Done". Now software based Kanban Board is available. It's simple, yet effective.

4. Take ownership over your professional development

Professional development will help you feel connected to your career and grow as a professional. Listen to advice from senior engineers but be the leader of your own path. Focus on where you want to be, rather than where you are now. Take steps each day that advance you toward your goal.

5. Be future oriented

Be engaged in the present, but don't lose sight of the big picture. The best way to achieve goals is to have one longer-term (Roughly three years or so) goal . Lay out the steps you need to achieve this goal on a flowchart and establish a timeline for each step. Focus on one step at a time. Make sure your daily task list includes something tangible that moves you toward the next step in your goal process.

AN ENGINEER'S DIARY

Er. Jacob Samuel
Rtd Member, KSEBL

1. Kerala State Electricity Board

My first appointment in KSEB was in Chengulam Power House at Vellathooval. The Minister for Electricity was Mr. M.N.Govidan Nair and the Executive Employees Union was very powerful at that time. I was appointed against the transfer vacancy of a Junior Engineer belonged to that Union who was not willing to be relieved. So I had to work as HD for a few days in the Generation Division, Pallivasal under the Executive Engineer, Sr. John T Jacob. All staff members of Panniar, Chengulam and Nariamangalam Power Houses were staying in Kallarkutty KSEB Quarters. Almost all Junior Engineers working in these Power Houses were from this 71 Batch fresh appointments. So there were many Bachelor Engineers staying in Kallarkutty and so we enjoyed a good life of friendship. Looking back memories crowd in conjuring up with many images and incidents which I want to record here failing which the 31 years of the history of KSEB from 1971 will fade out from the coming generation of Engineers in the Board.

I was fortunate to meet many of my Kallarkutty friends at various periods of my carreer in KSEB. After one year I was transferred from Kallarkutty to Transmission section, Poovanthuruth. Mr. G. Ashokan, Assistant Engineer and Mr. M.M.Cherian, Executive Engineer at that time in Poovanthuruth were the two unforgettable characters in my life. There was a jeep road through the forest area mainly for the inspection and maintenance work of SEP–NEP 110 KV Line. This jeep road was crossing a small canal in which there was some water during the rainy season and it was difficult for crossing the canal at that time with the jeep. So a small wooden bridge was constructed across that canal. When the Bill of this wooden bridge came to the Division office the DA made an objection note that the old bridge was not accounted. Knowing well that this was a new bridge the Executive Engineer wrote on the side of it that the old bridge was washed away by the flood !! Similarly there was another incident at that time which I think is worthy to be noted here. After taking the measurement of a work the Junior Engineer, Koothattukulam Sub Station wrote in the M Book that the measurement was taken as per the directions of the Assistant Engineer. On seeing this, the Assistant Engineer of that Sub Division was shocked and came to the Division office with that M Book and asked the Executive Engineer what could be done for it. Executive Engineer then

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took the pen from Assistant Engineer and completely scratched what was written by the JE not with his pen but with the pen of Assistant Engineer and then asked him who had done this.Assistant Engineer said that Sir it is you who have scratched it. Then the EE told that the M Book belonged to the JE and he alone could write in the M Book and so it was done by him !!

Mr. Ashokan was a man, plain to the point of blunt and had no diplomacy in dealing with others. When Sri. Ashokan was promoted as Executive Engineer, he was posted in the Electrical Division Vaikom. At that time there was the Sports meet of Asiad in Delhi which was being transmitted live in TV. But the TV programs were available only in Trivandrum. He was interested in watching the sports programme of Asiad in TV much more than his profession and so he took nearly one month to come to Vaikom to take charge of his promoted post of Executive Engineer. Like this there were many stories about him. When the Division Office staff made a big protest against the shortage of drinking water, immediately he purchased three or four buckets and asked the peon to fill up the buckets with water from the well every morning and thus simply solved that problem. The Staff who wanted to continue the protest at least for three or four days found no alternative but to stop the protest started by them forthwith. At that time I was in the Transmission Sub Division, Vaikom and he was very friendly with me.

There was one Jacob Sir who had contributed very much for the development of the Electricity Board. The Load Despatch Station was originally started by him with that large campus and quarters as what we see today there in Kalamasserry. I had seen him only once in Chengulam Power House at Vellathooval while I was working there as Junior Engineer in 1972. He was a person with high technical caliber and so many technical problems not only in KSEB but in other companies were also solved by him. Once there was a technical problem in the Hatchery at Chengannoor and they called the TMR Executive Engineer, Pallom to rectify the same. He told them he would send his Engineer and if he could not do it he would come and rectify it and Jacob Sir was sent to the Hatchery and he rectified it. The Executive Engineer had so much of confidence in him and hence he was able to make such a show before them artfully concealing his incapability.

While he was working in the Carrier Sub Division office at Pallom, one day the carrier cubicle was not working properly. He was able to find out the exact problem after checking the circuit of the carrier cubicle which off course had taken some time. Then he went out of the carrier room to the canteen for taking a cup of coffee. When he came back to the carrier room to repair the fault, surprisingly he found that the carrier cubicle was working properly. His Sub Engineer Sri. Sakkaria was found in the room. On asking him, he admitted that he had made the cubicle working by

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giving a few hits on it with his hand. Thereafter this was known as Sakkaria's method.!!

I had to work for nearly 5 years as Assistant Executive Engineer in TC Sub Division, Viakom. The main work was the construction of 110 KV Sub Station at Viakom and Electricity Minister came to Vaikom for the inauguration of 110 KV Sub Station. There was a norm that the local MLA should be the Chairman of such functions and when I told this to our Chief Engineer, he said that why not the KSEB Chairman could sit as the Chairperson of a KSEB function. And so the Chairman of KSEB was the Chairperson of the function. Seeing this on the Invitation card, the Vaikom MLA was very angry and told us that he would conduct a party meeting in front of the Sub Station and nobody would be permitted to enter to attend the function. After a lot of negotiation he agreed to come to the function as a guest speaker and said that he would speak out in front of the Minister about this humiliation of an MLA. We also agreed to it. Though MLA was of opposite party, Minister was seen talking so friendly with him ignoring the Chairman, Chief Engineer and other Officers of the Board when he came there. In the function the MLA spoke in anger for not inviting him as the Chairman of the function. Then the Chairman of KSEB stood up and made a total apology for this. However in the final item of Thanks giving I said it happened because the norms of Politics were not known for the Engineers working only in the technical field. Then I could see an angry look from the Minister.

Sri. C.P.Thomas was the Executive Engineer in Transmission Division, Poovanthuruth while I was working in Vaikom under that Division. There were many contract works on which we always had some differences of opinion. There was a Contractor in Ettumanoor who had contacts with higher officers. Once he was carrying out the concreting work of RCC Posts of the Capacitor Yard at Ettumanoor Sub Station, I directed him to wash the 20 mm metal and remove all the small tiny metals and dirt and use only pure 20 mm metals for concrete. He contacted the Executive Engineer when I left the site and Sri. C.P. Thomas came there and directed the contractor not to obey the instructions given by me. The Assistant Engineer Ettumanoor informed the matter to me. Then again I went to Ettumanoor and asked the contractor why he was not obeying my instructions. He said that he was doing as per the directions of the Executive Engineer. From there I contacted the Executive Engineer over the phone and then he scolded me for purposely making loss to the contractor by giving additional work of washing the metal which was not actually required since there was no dirt but only small tiny pieces of metal which could not harm the strength of concrete. After he gave me a severe firing, I told him that for 1 cubic meter concrete there would be about 0.9 cubic meter metal and the sand added would be filling up the voids in the metal.

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So if small and tiny metal pieces were also included in the 20 mm metal that would fill up the voids of the metal and the sand added would become excess. With the result you would get about 1.5 cubic meter concrete for 0.9 cubic meter metal which means that concrete is week. Immediately he agreed with me and said you could go ahead and I directed the contractor accordingly. That was the personality of Sri. C.P.Thomas.

Another controversy during that period was how to pay for an item to the contractor who did only one part of the work. That item was supply and fitting of U bolts for Cross Arms. The contractor had supplied the full quantity of U bolts as per the agreement. But a few U bolts became excess which were not required for fixing the Cross Arms. The rate was for supply and fitting U bolts which was comparatively very high. The Executive Engineer wanted to make the payment for the excess U bolts after deducting the labour charges from the rate fixed for the item in the agreement. In that case the contractor would get a very high amount for the excess U bolts supplied by him. But I was of the opinion that it was not fair to deduct the cost of work not done by the contractor, but only to pay for the work done by him namely the cost of U bolts supplied in excess. Finally that was also agreed by him. There were many such incidents during that period, but once he was convinced, he would never carry any ill feelings towards me.

One thing he always told me was that the Contractor is the man who has executed an agreement with the Board and so they are equal partners as far as the work is concerned, where as you are only an employee of the Board. Since the agreement conditions of the Board are almost one sided, the contractors cannot easily escape without properly executing the work. So in almost all cases the Executive Engineer had to agree with my decision. But later I understood that one thing what he said was correct that when the contractor went to the court of law, the court would always be on the side of the contractor since the agreement is one sided. Once a Judge has also said that the Court is not only a law court, but it is a law and order court. That means the verdict of the court will be not only according to the law, but will take into consideration the justice of the case also. Once an accident had occurred for the worker of a sub contractor, the verdict of the Judge was to pay him the compensation by the main contractor. When the lawyer of the main contractor objected to it, then the Judge said that any way the poor man has lost his hand and the other man has the money to pay and so let him pay. The Court can make such verdicts, but the officers can go only strictly as per rules. Otherwise vigilance reactions will have to be faced.

A new building attached to the main Substation was constructed at Pallom for fully accommodating the 11 KV Panels newly purchased. Normally the 11

KV Panels were arranged in a straight line. The new building constructed for the 11 KV Panels had no sufficient length to accommodate all the panels. This was a big question at that time and the Chief Engineer came to Pallom to find a solution for this. In the discussion with the Chief Engineer, Sri. C.P.Thomas told a story. He said that the maximum length of an object that could be taken inside a room is the diagonal length of the door. A mathematician saw a servant with a very long broom stick inside the room. He waited there to see how the servant gets out of the room with such a long broom stick. He saw the servant going out of the room holding the broom stick horizontally in his hand. He said similarly the 11 KV Panels could be fitted in the new building in L shape with a dummy panel for the bend portion. Everybody was surprised on hearing his simple solution which had been a headache for others

The construction of Staff Quarters at Vaikom was almost completed. However by mistake there was an excess issue of 20 tons of cement. Nearly 400 tons of cement was used for the work and this 20 tons was only 5% of the total issue. So the contractor wanted to treat it as excess issue and recover from him at the issue rate. I was not agreeable to it and asked him to return the same to the store for giving the final bill. This became a dispute with the contractor and finally he took the same for his work in Edappon. The store keeper at Pallom refused to approve the transaction and finally it became a vigilance case. When the Vigilance Officer came, I gave a statement fully supporting the Assistant Engineer since he was an officer who had very sincerely supervised the work and I had full confidence in him. The Vigilance officer was a Civil Engineer in KSEB and the Assistant Engineer's brother was also a Civil Engineer in the Board and was a friend of this Vigilance officer. I found that the case was slowly moving against me. Then I went to Sri. C.P.Thomas for his advice. Then he told me that the Assistant Engineer would join with the Vigilance Officer and I would become the main target for them. I could not believe it at that time, but it happened. Then I understood that he could make very accurate predictions. Truly speaking he has inherited the fate of Cassandra whom God Apollo has given the gift of accurate prophesy, but later angered and ordained that nobody should believe her. Whenever I said to him about a problem, he always corrected me that it was not a problem, but a task for you. This has very much changed my attitude to deal with such problems

While taking my statement, the Vigilance officer asked me whether the excess 20 tons of cement was available at site. When I said yes, he asked me how you knew that it was available there and had you seen it. Then I understood that he wanted to trap me in the case. So I asked him how you knew that the then Prime Minister of India was Mrs. Indira Gandhi, whether you had gone to Delhi and seen her sitting in the Prime Minister's chair. With that he ended that interrogation. After that Vigilance enquiry Chenganoor

AEE contacted me and informed that I was made the first accused and to meet the Vigilance officer personally to settle the case. However I did not met him, but nothing had happened for nearly 7 years. Later a vigilance enquiry was ordered for the case with a different Presiding officer and Presenting officer. The Vigilance officer came there and spoke a lot of abuses against me as myself a corrupted officer. I said that this was nothing concerned with the case and what he had to say was only my involvement in the case revealed on his enquiry and this kind of statement should not be allowed. The Presiding officer then said what all he said were to be written down and I could ask questions to him the next day. I was a little disturbed and consulted my friend about this. As per his advice the next day I asked him from where he got this information. Such allegations were not present in any of the statements he had taken from the many witnesses for the case. Then he fumbled and did not answer the question and said something else. Again I had to ask the same question about three or four times. Then the Presiding officer told me that he had no answer for the question and so I should stop repeating the question. Then I said the question would be repeated until I get an answer for it. Finally he had to admit that nobody told him anything like that. Then I said ok. Thus I could establish that what all he had said was a lie statement. In this way after so much of trials and tribulations I was able to save myself from that vigilance case. This was the first vigilance case against me in my service in the KSEB. In fact I had very much difficulties to face it in the initial stages. At that time I happened to read the Malayalam translation of the Autobiography of Agatha Christie in Kala Kaumadi Weekly and one paragraph of that gave me the courage to face any adversities like that in life. So still I keep that message in my mind as the holiest of all the Holly Gospels.

The next vigilance enquiry came while I was about to transfer from Vaikom to Kalamasserry. This was about the construction work of a Sub Station in Kottayam Medical College Campus. There was also a story behind this Sub Station. The then Transmission Superintending Engineer Sri. Neelakanta Swami was admitted in the Medical College hospital for a minor treatment. While myself and the Assistant Engineer Vaikom Sri. Saifuddin were returning from Kottayam after looking for a site for a Sub Station in Kumarakom, we met Sri. C.P.Thomas on the road and he said that our Superintending Engineer was admitted in the Medical College and asked us to come and visit him. As per his direction we also went to the Medical College and accidently the Medical College Principal was also present in his room. On hearing about Sub Station from our talk, the Principal said that there were frequent interruptions of supply in Medical College and so a Sub Station was very much required there. Then Sri. C.P.Thomas told him that normally 5 Mega Watt local load was required for constructing a Sub Station, but here we could construct the

Sub Station not for load, but for life if you could provide the required land. The Principal agreed to it and the next day itself we got the required land in the Medical College Campus from the Village office. That was how the Medical College Sub Station had come up. But however the Principal did not get his pension on his retirement for handing over the land to KSEB without Government sanction. What a miserable irony and after math of Government laws!!

The land handed over to us was a slightly hilly area and some leveling work was required for the construction of the Sub Station and the yard for installing the Transformer and other outdoor equipments. The leveling work and the construction of the Sub Station building were awarded to a contractor. There was some low lying area in the plot allotted for us and the excavated earth of the land was intended to fill up the low lying area. At the site of this Sub Station there was no office for KSEB and the work was supervised by the officers from the Ettumanoor section. The contractor started taking the excavated earth from the plot to fill up the nearby paddy field bought by him. My relative was a PWD Engineer whose office at that time was in the Medical College informed this to me and immediately the Ettumanoor officer was directed to go to the Sub Station site and prevent the contractor from doing so. There after this was strictly watched by the Ettumanoor Section and the contractor was not allowed to take any excavated earth from the site. But he had some contact with then KSEB Chairman and as per his direction, the Superintending Engineer asked me why not you allow the contractor for taking the excavated earth from the site. Then I told him that this could be allowed if he could give this in writing. That was the story of the site leveling for the Medical College Sub Station. Almost at the time of my transfer from Vaikom, a Vigilance officer came to the site together with this Superintending Engineer for enquiring about a complaint against me for permitting the contractor to take away the excavated earth from the site. Fortunately before starting the work, the initial levels of the land had been taken. On checking the earth taken for leveling work with those initial levels, the Vigilance officer found that the low lying area was filled with more than the excavated earth taken from the plot. This was because when one cubic meter earth was taken, this would be slightly more than one cubic meter in the loose condition. So the Vigilance officer could not find any blame on me. Then the Superintending Engineer said who knows whether the contractor had taken any earth from here. Remember this was the man who had previously asked me to permit the contractor for taking the excavated earth from the plot. Then I could not control my anger towards him and told him in a harsh tone pointing my finger towards him that you should not say like that.

Note : *Opinions expressed in this article is exclusively attributed to the author and Association has no bearing on this.*

(To be Continued.....)

Voltage Sag Profiles Based Fault Location in High Speed Railway Distribution System

Er.Anoop Vijayan

Operation parameters of the high speed railway distribution system can be obtained from the Remote Terminal Units (RTUs) installed the box-type substations. Therefore, the voltage sag profiles may be utilized for fault location. This paper proposes a novel strategy for fault location in high speed railway distribution system by the measured voltage data of the existing box-type substations. The proposed method makes use of the difference between the calculated voltage and measured voltage at the end of the lines to locate the fault. Assuming that the fault occurs at any possible box-type substations along the lines, the faulted line section is identified with the defined difference sequence. And then the exact fault location can be obtained with a searching procedure in the identified fault section. Considering the effect of equivalent capacitance, each line section is modelled with the model to improve the accuracy of fault location. The validity of the proposed method is tested extensively in the simulation model of a real high speed railway distribution system. The proposed method is not affected by fault type and fault resistance. Furthermore, comparing with the offline detection method of underground cables, it does not need any additional devices and will not interrupt the system operations.

INTRODUCTION - As the electrical power supplies signalling, communications, and other railway integrated electrical equipment, high speed railway distribution systems play an important role in the railway transport. Nowadays, it is common in China to use the underground cables in all the transmission lines for power supply. In order to avoid the grounding fault influence on running equipment, the high speed railway distribution system in China is designed as a low resistance grounded system, as shown in Fig. 1.

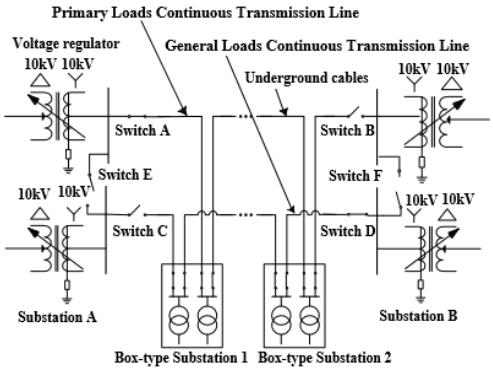


Fig.1 The Structure of the High Speed Railway Distribution System

The railway distribution system has two 10 kV radial transmission lines [1-2]. The primary line supplies railway signal, and the second line supplies communication devices and railway stations. In general, these two continuous transmission lines work and supply separately. Power resource in Substation A is feasible to supply one of the two continuous transmission lines and power resource in Substation B supplies the other one. The two substations are the backup while a fault on one of the lines. The railway distribution system usually built along the tractive power supply system which is the power resource for trains. Due to the high speed railway across many regions, the length of the railway distribution system is always over several hundred kilometers.

In order to overcome the limitation of existing fault location, this paper proposes a fault location method that utilizes the measurement devices have presented in the high speed railway distribution system. The method employed the voltage sag measurement data from the primary substation and the terminal box-type transformer substation at the end of continuous transmission lines. A difference sequence including position information of each box-type substations, is defined to seek for faulted section. Then an iterative step is used to search the exact fault point in the preliminary fault section.

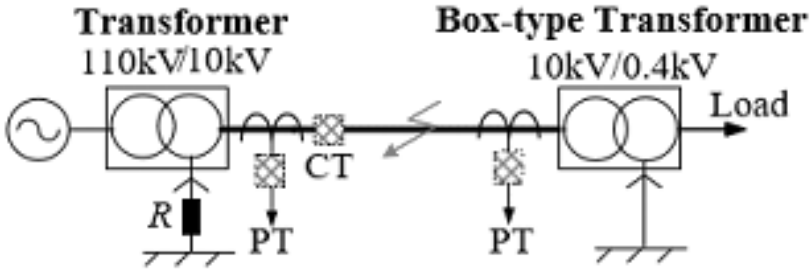
Given the cable characteristics with significant distributed shunt capacitive component, the proposed strategy establishes equation relationships among primary substation positionÿfault point, and terminal box-type substation. Only the voltage amplitude data at the end of the line is demanded in the difference sequence function, so the proposed method does not require any synchronization information more. Furthermore, the proposed method is also applicable for faults with high resistance value without requirements of fault model and fault impendence. Because of that, the proposed method improves the fault location efficiency greatly in the high speed railway distribution system.

VOLTAGE SAG CHARACTERIZATION PROFILES

When a fault occurs on a feeder, voltage sags propagate different characteristics along box-type substations. It is possible to locate the fault by investigating the voltage sag characteristics. Therefore, the proposed method identifies fault location with the measured voltage profiles after a fault happens.

i) Sequence networks

There are many box-type substations with loads taps along continuous transmission lines in high speed railway distribution system. A simplified topology of a segment of the continuous transmission line is introduced to descript briefly, as shown in Fig. 2.



The electrical quantity used in the proposed method is fault components.

$$\Delta \dot{F} = \dot{F}_f - \dot{F}_n \qquad (1)$$

where, F_f is voltage or current phasor during-fault, and F_n is voltage or current phasor pre-fault. When an unsymmetrical fault occurs, cable lines and the transformer need decoupling analysis. The symmetrical component transformation is applied in this paper.

$$\begin{bmatrix} \Delta \dot{F}_{a1} \\ \Delta \dot{F}_{a2} \\ \Delta \dot{F}_{a0} \end{bmatrix} = \frac{1}{3} \begin{bmatrix} 1 & a & a^2 \\ 1 & a^2 & a \\ 1 & 1 & 1 \end{bmatrix} \begin{bmatrix} \Delta \dot{F}_a \\ \Delta \dot{F}_b \\ \Delta \dot{F}_c \end{bmatrix}$$

where, $a = e^{j120}$ ΔF_a, ΔF_b, ΔF_c represent three phase fault components of voltage and current and components of voltage or the current and ΔF_{a1}, ΔF_{a2}, ΔF_{a0} are corresponding to positive-sequence component, negative-sequence component and zero-sequence component. Theoretically, positive-sequence network can be employed in any fault type. In this paper, if there is a grounding fault, zero-sequence network is chosen. Otherwise, positive-sequence network is adopted.

ii) Terminal Voltage Estimation

The sequence network in Fig. 2 can be simplified as shown in fig.3. Usually, the transformers in low voltage side of continuous transmission lines are connected by Δ/Y . For most common single phase to grounding fault or othergrounding fault, loads parameters are not required in the zero-sequence network. Only for two or three phase faults, loads are connected in the positive-sequence network.

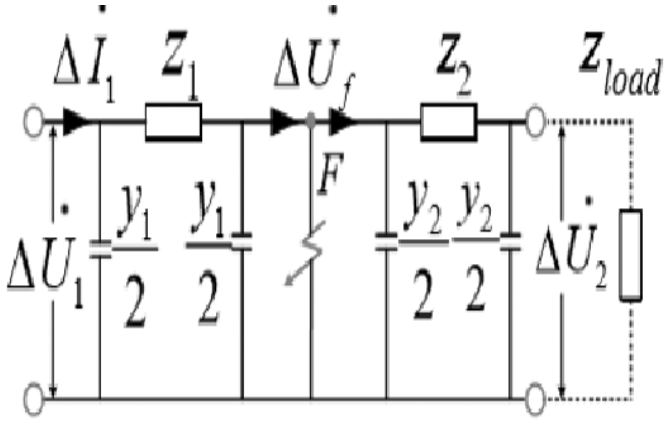


Fig.3. The Sequence Network of the Topology

The voltage Uf at the fault point F and the voltage U2 at the terminal are shown in Eq. (3) and Eq.(4) respectively,

$$\Delta\dot{U}_f = \Delta\dot{U}_1 - z_1 \times \left(\Delta\dot{I}_1 - \frac{y_1}{2} \times \Delta\dot{U}_1 \right) \quad (3)$$

$$\Delta\dot{U}_2 = \Delta\dot{U}_f - z_2 \times \left(\frac{\Delta\dot{U}_2}{z_{load}} + \frac{y_2}{2} \times \Delta\dot{U}_2 \right) \quad (4)$$

$$z_1 = l \times \bar{z}, \; y_1 = l \times \bar{y} \quad (5)$$

$$z_2 = (L - l) \times \bar{z}, \; y_2 = (L - l) \times \bar{y} \quad (6)$$

Where, L is the total line length and l is the fault distance z and y are unit impedance and admittance, respectively. In addition, if it is a zero-sequence network, the end of the transformer just acts as an open circuit.

iii) Terminal voltage comparison with measured one

Then substituting both Eq (5) and Eq(6) into Eq(3) and Eq (4), the amplitude Mc of " can be obtained, as shown in Eq.(7).

$$M_c = abs\left[\frac{z_{load}\times(2+l^2\times\bar{z}\times\bar{y})\times\Delta U_1 - 2\times z_{load}\times l\times\bar{z}\times\Delta I_1}{2\times z_{load} - 2\times\bar{z}\times(l-L)+\bar{y}\times\bar{z}\times z_{load}\times(l-L)^2}\right] \quad (7)$$

The characteristic of voltage distribution is shown in Fig.4.

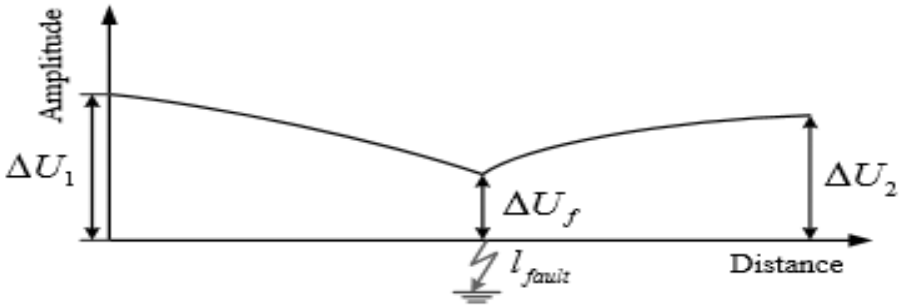


Fig.4. Distribution characteristics of voltage

As shown in Eq.(7), the amplitude M_c of U_2 is a function with the fault distance l_{fault} .Simultaneously, the distribution of voltage is a monotonically decreasing before monotonically increasing after l_{fault} .Combination the effective value of measured voltage at the terminal during a fault occurs on the line, the difference of voltage sags from different distance along the lines can be calculated.

Combination the effective value of measured voltage U_{2M} at the terminal during a fault occurs on the line, the difference of voltage sags from different distance along the lines can be calculated.

$$\theta(l) = \left|M(l) - U_{M2}\right| \quad (8)$$

Therefore, $\theta(I_{fault})$ is equal to zero theoretically, only the distance l matches the fault point l_{fault} . In other words, the distance is fault point when the calculated voltage is equal to the measured one.

THE PROPOSED FAULT LOCATION METHOD

As a result of each station in the railway distribution system with independent power supply and control centre, this paper focuses on the range of fault location between two stations.

i) Framework of the proposed strategy

The proposed fault location method is suitable to the substation centralized scheme. The system framework of the proposed strategy is shown in Fig.5. The frame can be

divided into four parts, including collection from box-type substations, communication network from terminal to station, database for state information and fault analysis in primary substation. In the Fig.5, the control centre is set in the Station A.

Box-type substations can collect the voltage effective value, current effective value and state of switches of the reactive power compensation devices via RTUs. In the normal operation conditions, parameters of equivalent impedances from box-type transformer to loads can be obtained using local voltage and current effective value collected by RTUs. It is inevitable to upload switches state of

compensation device even if the box-type substation is run with reactive power compensation device. All the operation information comprises topology structure parameters, load parameters and switches state updated and stored in the database for invoking during fault location analysis. Where, it assumed that the loads are consistent pre-fault and during a fault in proposed strategy. When a fault occurs in the continuous transmission line, the fault location process will be launched. The fault wave-recording devices could collect the current and voltage by current transformer (CT) and potential transformer (PT) in the primary substation for fault location analysis. And simultaneously the voltage effective value at the end of the line collected by RTUn should be also uploaded to fault location analysis. At last, the notification services will send results of fault location to the control centre.

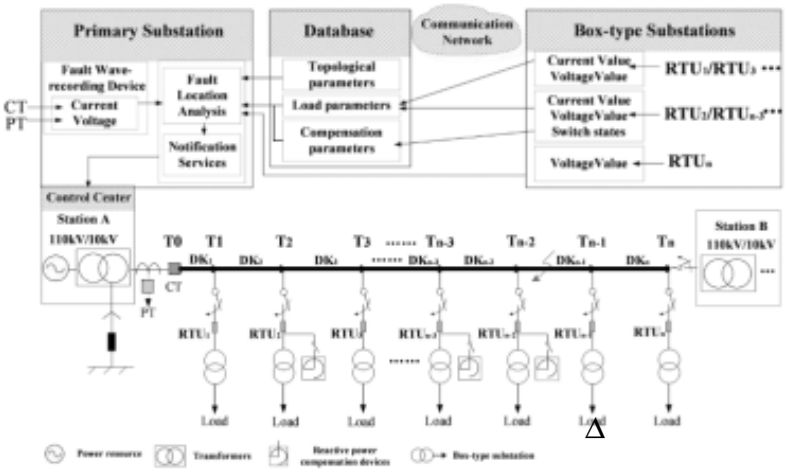


Fig.5. The Schematic Diagram of the Continuous Transmission Line

ii) Fault section location

In terms of fault location in the primary substation, faulted line section is distinguished firstly, and secondly, fault point identified between the two box-type substations such as T_{n-2} and T_{n-1}. As mentioned in Section II, the voltage T_n at the end of the line can be calculated by a function contained the variables of a distance*l* .

Since the position information of box-type substations such as T_1,.....,T_n can be obtained in the database, the voltage n can be calculated by the distances of box-type substations. Therefore, the sequence ∈ is the errors between the calculated voltage U_{nC} at T_n and the measured voltage U_{nM} at T_n . Theposition of box-type substation with the minimum value in the defined difference sequence is one of the two nodes near to the fault, such as the node T_{n-2} or T_{n-1}.As shown in Fig.4, the distribution voltage is amonotonically function no matter whether it is before or after l_{fault} .

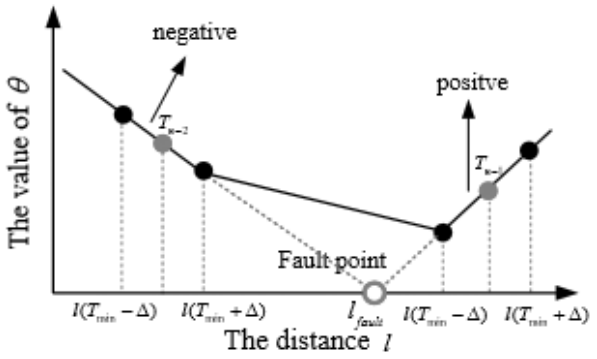


Fig.6. The Schematic Diagram of the fault Location

Hence, the tendency of difference sequence around the node with the minimum value is used to judge the fault in left side or right side, shown in Fig.6. If it has the positive slope, the node is in the left side of the fault. Otherwise, is in the right side of the fault.

iii) Fault point location

After the fault section has been fault po should be searched as the part with red dotted l shown in the Fig.6. When the fault is between the nc Tn-2 and node Tn-1 , the more detail curve of ∈(with the distance between l_{Tn-2} and l_{Tn-1} i calculated to find the fault point with ∈(I_{fault}) = ,approximately. The circuit node described as same Fig.3. The algorithm is composed by following step

CASE STUDIES - The proposed method was test on a simulation model of a real station with 31.56l

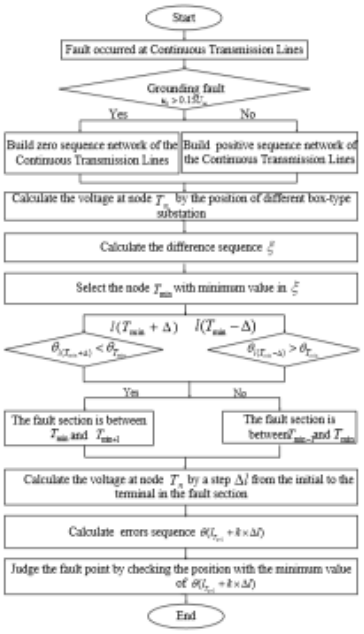


Fig. 7 The flow chart of the proposed fault location algorithm

Continuous Transmission Lines in the high speed railway of China. The detailed information is in Table I. There is a shunt reactor with 114kVAR at DK_9. The PSCAD/EMTDC is utilized to model the network in order to provide the data regarding the pre-and during-fault information for the substations. The proposed method, implements in MATLAB, with the data from PSCAD/EMTDC to estimate the fault position. The error of fault location is evaluated as:

$$E_{error} = \left| l_{real} - l_{estimate} \right| \qquad (18)$$

This station has 14 sections, from DK_1 to DK_{14} and the corresponding nodes are from T_1 to T_{14}. The tests were conducted with single-phase-to-ground fault (including Ag, Bg and Cg), two-phase-to-ground fault (including ABg, ACg and BCg), two phase fault (including AB, AC and BC),) and three phase fault (ABC). For grounding faults, zero sequence network is utilized to avoid involving loads. For other short circuit faults, positive sequence network is applied. The sampling rate in the PSCAD/EMTDC is 800 samples/second which is the same as RTUs installed in the box-type substation. Fourier Transform with 16 samples is used to calculate the voltage and current phasor in primary substation. If the A-phase-to-ground fault occurs in the DK4 at 0.4s, 1000m away from the T_3, $\in$ is presented in Fig. 9(a).

$\in$ = [5.4851; 2.8211; 0.6178; 0.6438; 1.5739; 3.2343; 3.5324; 4.8621; 6.5081; 7.7848; 9.1221; 10.7351; 12.2534; 13.9285].

It can be found that 0.6178 at the node T_3 with the minimum value in $\in$. Then the right neighbor zone is chosen to calculate the change trend $\in(I)$. The value of neighbor is 0.6116 which is less than it at the node T_3. Therefore, based the Step (3) in Section II B, the fault is in between T_3 and T_4, that means DK_4 is the faulted section.

After that, the iteration step of 1m is employed from T_3 to T_4 to search the fault point. As shown in Fig.9 (b), 16 moving data windows in two cycles during the fault are utilized. The result in the first data window is 937 and the last data window is 993m. Therefore, the average fault point estimated is 987.00m.

i) Testing with Different Fault Scenario

In this section, the proposed method is tested by changing fault section, fault type and fault distance. Table II, Table III, Table IV and Table V bring summary of results for test cases in DK_3, DK_8, DK_{10} and DK_{14}. The fault resistance is 5 and fault time is 0.4s. As shown in Table II, if Ag fault occurs at 500m in DK_3, T_2 is the node with minimum value 0.3272 in difference sequence and the trend of the difference value is decrease on the right neighbor area because neigbor is 0.3252. According to the curve of (l) in

Fig.6, fault section is T_2-T_3. Furthermore, the average estimated fault distance is 513.25m. As shown in Table IV, if ACg fault occurs at 1400m in DK_{10}, T_{10} is the node with minimum value 0.1343 in difference sequence and the trend of the difference value is increase on the right neighbor area because neigbor is 0.1369. So, fault section is T_9-T_{10}. Searching the fault point in DK_{10} by iteration step, the average estimated fault distance is 1433.3m.Therefore, the proposed methods can correctly identify fault section by judging the variation trend of T in the min defined difference sequence in all cases. Errors of fault location in all the cases are not over 50m. Due to the total length of this station is 31.56km, the associated fault location error for each case demonstrates the relative error of proposed method is within 0.2%.

ii) Impact of fault resistance

To test the advantage of the proposed algorithm for the fault resistance,the comparison results of the proposed method with the impedance method [28], one of the most commonly used in practice. Taking A phase-to-ground fault in DK_6 for an example, the fault distance is from 0.5km to 2.5km with fault resistance 0 Ω, 5 &! and 10 Ω , respectively. As shown in Fig 10, when the fault resistance is close to 0 Ω, the errors of two methods are similar, that are within 10m fault resistance, the comparison results of the proposed. But when the fault resistance reaches 10 Ω , the error of method with the impedance method [28], one of the most impedance method is over 200m in Fig.10 (a).

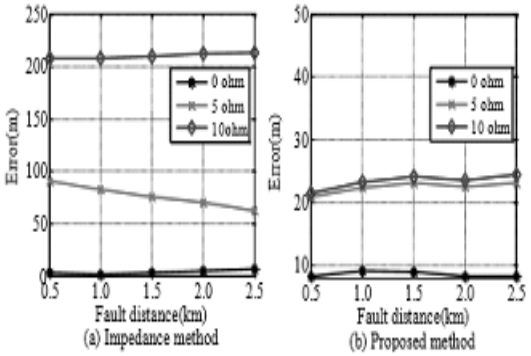


Fig .10 The comparison results between the impedance method and the proposed method

As shown as commonly used in practice. Taking A phase-to-ground fault Fig.10 (b), the error of proposed method maintains 20-30m in DK_6 for an example, the fault distance is from 0.5km to although the fault resistance reaches 10. Hence, the 2.5km with fault resistance Ω, 5Ω and 10Ω respectively.

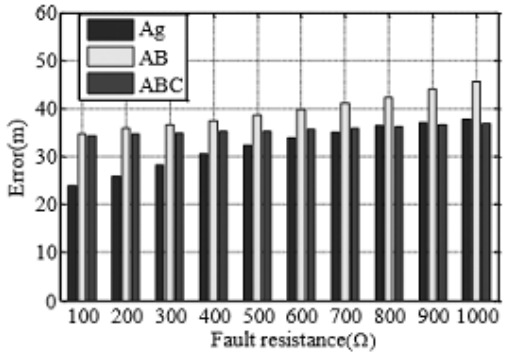


Fig. 11. The results of the fault location with different fault resistance

Considering that the most faults in underground cable with high fault resistance value, Fig.11 tests the scenarios with different fault resistance from 100to 1000 . A-phase to ground fault, AB-phase fault and ABC-phase fault have occurred in DK6 with 1km away from T5, respectively. For A-phase to ground fault (Ag), the range of the errors is from 24m to 37.9m while the fault resistance varies from 100 to 1000. For AB-phase fault (AB), the range of the errors is from 34.7m to 45.7 m. And for ABC-phase fault, the range of the errors is from 34.3m to 36.8 m with the same variation fault resistance. The results indicate that the fault resistance has not obvious impact on the estimation of the proposed method.

iii) Impact of signals with noise

In this section, the measured data with different noise levels are tested for the proposed method. BC phase fault occurs in DK_{13} at 0.4s with 1km away from T_{12}. The fault resistance is 5 Ω The signals to noise (S/N) ratio is 70dB, 60dB, 50dB, 40dB, 30dB and 20dB, respectively. The results of fault section location are shown in Fig.12 and the results of fault point location are shown in Fig. 13. As shown in Fig. 12, T_{12} can be identified as T_{min} by difference sequence under the condition of different noise levels. And the trend at T_{12} is decreasing on the right neighborhood in all cases.

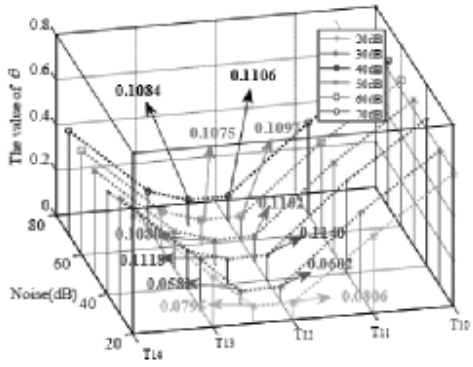


Fig.12. The result of the fault section location in the condition that the signals contain noise

So, the results show that the fault section DK_{13} can be obtained accurately. As shown in Fig. 13, the stable fault point location results can be obtained at S/N ratio of 70dB, 60 dB, 50dB and 40dB.

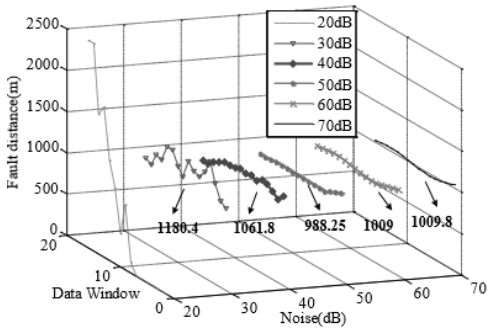


Fig.13.The result of the fault section location in the condition that the signals contain noise

The average estimated fault distances are 1009.8m, 1009m, 998.25m and 1061.8m, respectively. The estimated result fluctuates little with the data window movement when the S/N ratio is 30dB and the estimated average fault distance is 1180.4m. While the S/N ratio reaches 20dB, the estimated positions are not stable so that the results are unreliable. The reason is that serious measurement errors would lead to phasor estimation inaccuracy in the primary substation. A longer data window is recommended to calculate phasors to improve the performance in the strong noisy environment for fault pinpoint.

CONCLUSION - In this proposed fault location algorithm for the high speed railway distribution system the fault location is determined with the voltage sag between the primary substation and the remote terminal during a fault. The method employed the defined difference sequence to identify the faulted section. After the fault section is located, an iterative step is used for searching the accurate fault point in the preliminary fault section. The simulation model of a station with 31.56km continuous transmission lines is established by parameters of railway distribution system.

The fault location algorithm has the following features.

(1) The formulations for relationships among primary substation, fault point, and terminal box-type substation, considering the cable characteristics with significant distributed shunt capacitive component are established in the method.

(2) The method is not involved fault model and fault impendence. Therefore, it is not affected by fault type and its robustness against the high fault resistances value is better than the traditional impedance method.

പരിസ്ഥിതി സംരക്ഷണ വകുപ്പ്

Er. ഇ.എം. നസീർ

കാലാവസ്ഥാ വ്യതിയാനം, ആഗോള താപനം എന്നിവയെ നിയന്ത്രിച്ച് പ്രകൃതിയുടെ സന്തുലിതാവസ്ഥ നിലനിറുത്തി ഭൂമിയിലെ ജീവജാലങ്ങളുടെ ആവാസവ്യവസ്ഥ സംരക്ഷിക്കുകയെന്നതാണ് പരിസ്ഥിതി സംരക്ഷണം കൊണ്ട് ലക്ഷ്യമിടുന്നത്. അതിനുവേണ്ടി ഉയർന്ന ശമ്പളത്തിൽ ഉദ്യോഗസ്ഥരും, മുന്തിയ തരം വാഹനങ്ങളും, നക്ഷത്ര സൗകര്യങ്ങളുള്ള കാര്യാലയങ്ങളും അടങ്ങിയ പരിസ്ഥിതി വകുപ്പും നമുക്കുണ്ട്.

ഈ വകുപ്പിനുവേണ്ടിയുള്ള ചെലവുകളും അതിന്റെ പ്രവർത്തനങ്ങളും, അതുകൊണ്ടുള്ള പ്രയോജനങ്ങളും വിലയിരുത്തിയാൽ അത് തകർന്നുകൊണ്ടിരിക്കുന്ന ട്രാൻസ്പോർട്ട് കോർപ്പറേഷന്റെ എത്രയോ പിന്നിലാണെന്നുകാണാം.

പ്ലാസ്റ്റിക്കിന്റെ ഉൽപാദനവും ഉപയോഗവും പരിമിതപ്പെടുത്തേണ്ടതാണെന്ന കാര്യത്തിൽ ആർക്കുംതർക്കമില്ല. പക്ഷേ അതുകൊണ്ടുള്ള ഉൽപ്പന്നങ്ങളുടെ ഉൽപാദനം കൂടുന്നതല്ലാതെ കുറയുന്നില്ല. ഉപയോഗ്യമല്ലാത്ത പ്ലാസ്റ്റിക് ഉൽപ്പന്നങ്ങൾ റീസൈക്ളിംഗിലൂടെ പുനരുപയോഗത്തിന് സജ്ജമാക്കാമെങ്കിലും അത് വളരെ ഭാഗികമായേ ചെയ്തുവരുന്നുള്ളു. ഉപേക്ഷിക്കപ്പെടുന്ന പ്ലാസ്റ്റിക് പാഴ് വസ്തുക്കൾ പൂർണ്ണമായും സംഭരിച്ച് റീസൈക്ളിംഗ് കേന്ദ്രങ്ങളിലെത്തിക്കാൻ മുൻകൈ എടുക്കേണ്ടത് പരിസ്ഥിതി വകുപ്പുതന്നെയാണ്. ആരുടെയും ഒത്താശയില്ലാതെ ആക്രിശേഖരണക്കാർ ഈ പണി ചെയ്യുന്നതുകൊണ്ട് റോഡുകളും പുരയിടങ്ങളും കുറച്ചൊക്കെ പ്ലാസ്റ്റിക് വിമുക്തമാകുന്നുവെന്നേയുള്ളു.

ഇതുപോലെ തന്നെയാണ് ഉപയോഗശൂന്യമായ കണ്ണാടിക്കുപ്പികൾ, ബൾബുകൾ, ട്യൂബ് ലൈറ്റുകൾ ഇലക്ട്രോണിക് ഉപകരണങ്ങൾ എന്നിവയുടെ കാര്യവും. ആക്രിക്കാർക്കുപോലും വേണ്ടാതെ എവിടെയും വൻഭീഷണിയായി ഇവയുടെ സാന്നിദ്ധ്യം കാണാം. അതേസമയം ചില്ലുകൊണ്ടുള്ള നിരവധി ഉൽപ്പന്നങ്ങൾ ഉൽപാദിപ്പിക്കപ്പെട്ടും,

→

(3) The method can resist noise. To some extent, the result of fault pinpoint is still influenced whenthe S/N ratio reaches 20dB. Longer data window in the process of phasor estimation is suggested to use for improving anti-noise performance.

(4) Although the method employs two-terminal data of the continuous transmission lines, only the effective value of voltage at the end of the box-type substation is involved. Therefore, there is no requirement for synchronization between primary station and the box-type substation at the end.

(5) Unlike the offline detection method of underground cables, the proposed method does not interrupt the healthy system operations. It provides fast and accurate fault location information to help utilities minimize the time to locate the fault.

Source: IEEE article by Shu Zhang, *Student Member, IEEE*, Zhengyou He, *Senior Member, IEEE*, Wei-Jen Lee, *Fellow, IEEE*, and Ruikun Mai, *Member, IEEE*

ഉപയോഗിക്കപ്പെട്ടും വരുന്നു. ഉപയോഗ ശൂന്യമായ പൊട്ടിയതും അല്ലാത്തതുമായ ചില്ലുൽപ്പന്നങ്ങൾ തരംതിരിച്ച് ശേഖരിച്ചോ, ശേഖരിച്ച് തരം തിരിച്ചോ ഇവയുടെ ഉൽപാദന - റീസൈക്ലിംഗ് കേന്ദ്രങ്ങളിലെത്തിക്കാൻ പരിസ്ഥിതി വകുപ്പിന് കഴിയില്ലെങ്കിൽ, ഇങ്ങനെയൊരു വകുപ്പിന്റെ ആവശ്യമെന്തെന്ന ചോദ്യത്തിന് പ്രസക്തിയേറുന്നു.

നാം പാഴാക്കിവരുന്ന ഒന്നാണ് മേച്ചിൽ ഓടുകൾ. മുൻകാലങ്ങളിൽ സമ്പന്നവീടുകളുടെ മുഖമുദ്രയായിരുന്നു ഇവ. പുത്തൻ പണക്കാരുടെ ആധുനികതാ സങ്കൽപ്പങ്ങൾ ഇവയ്ക്ക് ഭ്രഷ്ട് കൽപ്പിച്ച് പുറം തള്ളി വരുന്നു. പഴയതലമുറക്കാർ മാത്രം ഇവയുടെ മൂല്യത്തിൽ അഭിമാനിതരായി ഇന്നും പ്രയോജനപ്പെടുത്തുന്നു. മുൻതലമുറ കളിൽപ്പെട്ട ദരിദ്രരായ തൊഴിലാളികളുടെ ചോരയും വിയർപ്പും കണ്ണീരുംകൊണ്ട് ജന്മം കൊണ്ടവയാണ് ഇവ. ഇവയ്ക്കു വേണ്ടിയും അക്കാലത്ത് പ്രകൃതിയെ വേട്ടയാടിയിട്ടുണ്ട്. ഒട്ടനവധി സർക്കാർ ഓഫീസുകൾ, വിദ്യാഭ്യാസ സ്ഥാപനങ്ങൾ തുടങ്ങിവയൊക്കെ ചോർന്നൊലിക്കുന്നു. ഉപേക്ഷിക്കപ്പെടുന്ന മേച്ചിലോടുകൾ ഇവിടെയൊക്കെ വളരെ ലാഭകരമായി ദീർഘകാലം പ്രയോജനപ്പെടുത്താവുന്നതേയുള്ളു. വേണ്ടവിധം സംരക്ഷിക്കപ്പെട്ടാൽ ഇവയുടെ ആയുസ്സ് പ്രവചനാതീതമാണെന്ന കാര്യം പ്രത്യേകം പരിഗണിക്കപ്പെടണം. നമ്മുടെ വെയിറ്റിംഗ് ഷെഡ്ഡുകൾക്കൊക്കെ ഇവയെ ഉപയോഗിക്കാം. തണൽ വൃക്ഷങ്ങളില്ലാത്ത പാതയോരങ്ങളിൽ, വിശേഷിച്ചും വിലയേറിയ നടപ്പാതകളിൽ, ഇവയെ തണലുപാധിയായിട്ടുപയോഗിക്കാം.

മഴക്കാലത്ത് ഉയരത്തിലുള്ള പുരയിടങ്ങളിൽ നിന്നും പാർശ്വപാതകളിൽ നിന്നുമൊക്കെ പ്രധാന റോഡുകളിലേക്ക് ഒലിച്ചിറങ്ങി വന്നുപെട്ട് അപകട ഭീഷണിയുയർത്തിവരുന്ന ചെറുതും വലുതുമായ മണൽകൂനകൾ നിത്യകാഴ്ചയാണ്. അതിരൂക്ഷമായ മണൽക്ഷാമമുള്ള നമ്മുടെ നാട്ടിൽ ഈ മണൽ സംഭരിച്ച് പ്രയോജനപ്പെടുത്താൻ ആർക്കും താൽപര്യമേയില്ല.

നമ്മുടെ വർക്ക്ഷോപ്പുകളിൽ നിന്നും മറ്റും പുറംതള്ളുന്ന ഓയിലുകൾ, ബാറ്ററി ഭാഗങ്ങൾ, ബാറ്ററിയിൽ നിന്നുള്ള ദ്രാവകങ്ങൾ ഒക്കെ ഹാനികരങ്ങളായ വസ്തുക്കളാണ്. പ്രത്യേക നിഷ്കർഷയോടെ ഇവയെല്ലാം ശേഖരിച്ച് റീസൈക്ലിംഗിന് വിധേയമാക്കി പുനരുപയോഗത്തിന് വിധേയമാക്കാവുന്നതാണ്.

മാലിന്യങ്ങൾ എന്ന പേരിൽ പുനരുപയോഗ പ്രദമായ വസ്തുക്കളുടെ നീക്കം ചെയ്യൽ തദ്ദേശ സ്വയംഭരണ സ്ഥാപനങ്ങളുടെ മാത്രം ഉത്തരവാദിത്വമാക്കി മാറ്റുന്നത് ശരിയായ രീതി അല്ല. ഇത് പരിസ്ഥിതി വകുപ്പിന്റെ മാത്രമോ ആ വകുപ്പിന്റെ ഉത്തരവാദിത്വത്തിൽ തദ്ദേശ സ്വയംഭരണ വകുപ്പുമായി ഏകോപിപ്പിച്ചുകൊണ്ടോ ചെയ്യേണ്ട കാര്യമാണ്.

പെയിന്റുകളുടെയും അച്ചടിമഷികളുടെയും ഉപയോഗം നിയന്ത്രിക്കാൻ ആരുമില്ലാതായതുകൊണ്ട് പാരിസ്ഥിതിക ആരോഗ്യ പ്രശ്നങ്ങൾ നിരന്തരം ഉടലെടുക്കുന്നു.

സർക്കാർ നിർമ്മിതികൾക്കായി സംഭരിക്കുന്ന പാറക്കല്ലുകൾ, മെറ്റൽ, മണൽ എന്നിവയ്ക്ക് മൂല്യമുള്ളത് അവ നൽകുന്ന കോൺട്രാക്റ്റർമാരുടെ പേയ്മെന്റിനുമുമ്പായി അവയുടെ അളവ് തിട്ടപ്പെടുത്തുന്നതുവരെ മാത്രമാണ്. ഇവ സർക്കാർ വകയായിക്കഴിഞ്ഞാൽ സംരക്ഷിക്കാനാരുമില്ലാതെ ഏറെക്കുറെ പാഴായിപ്പോവുകയാണ്. പ്രകൃതിയെ ചൂഷണം ചെയ്തെടുക്കുന്ന ഇവ പാഴായിപ്പോകുന്നതിൽ പ്രകൃതി സംരക്ഷണവകുപ്പിന് ഒട്ടും ദുഃഖമില്ല !

വാഹനങ്ങളുടെ ഉപയോഗം പാരിസ്ഥിതികപ്രശ്നങ്ങളുണ്ടാക്കുമെന്ന കാര്യം ഏവർക്കും അറിയാവുന്നതാണ്. അവയുടെ ഉപയോഗം കുറയ്ക്കാൻ പരിസ്ഥിതി വകുപ്പിൽ നിന്നെന്തെങ്കിലും നടപടികളുണ്ടായതായി അറിവില്ല. വാഹനപ്പെരുപ്പത്തിനൊത്ത് റോഡുകൾ വലുതാകുന്നില്ലെന്ന്, വേണ്ടിവന്നാൽ വിലപിക്കും! പൊതുയാത്രാ സംവിധാനങ്ങൾ പ്രയോജനപ്പെടുത്താതെ കഴിയുന്നത്ര

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(Rtd. Chief Engineer)

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No. KSEBEA/Regulatory/2018 Dated: 23/04/2018

To

The Chairman & Managing Director
KSEB Limited.

Sub: Utilisation of KSEBL Assets by a Joint Venture Company named as KFON project (KeralaFibre Optic Network project) in contradiction with the provisions in the Electricity Act 2003 and its Subordinate Regulations.

Sir,

Kerala State Electricity Board Limited (KSEBL) is a Limited company, incorporated by theGovernment of Kerala (GOK) under the provisions of the Companies Act 1956 read with Sections 131,132,133 and 134 of the Electricity Act 2003. It is a fully government owned company which has to perform the functions of the State Transmission Utility(STU), the Transmission Licensee, the State Load Despatch Centre(SLDC) and the Distribution Licensee owning generating assets. It is the successor to the erstwhile Kerala State Electricity Board, which was constituted under the provisions of the Electricity Supply Act, 1948.

സ്വകാര്യ വാഹനങ്ങൾ ഉപയോഗിക്കും; ഈ വകുപ്പിലെ ഉദ്യോഗസ്ഥർ!

എയർക്കണ്ടീഷണറുകൾ, റെഫ്രിജറേറ്ററുകൾ എന്നിവയിൽ ഉപയോഗിക്കുന്ന വാതകങ്ങൾ വലിയ പാരിസ്ഥിതിക പ്രശ്നങ്ങൾ ഉണ്ടാക്കുന്നവയാണ്. ഉപകരണങ്ങൾ കേടാവുമ്പോൾ ഇവ തിരിച്ചെടുക്കാറേയില്ല. ഒരിക്കൽ നിറച്ചുകഴിഞ്ഞാൽ പിന്നെ അന്തരീക്ഷത്തിൽ ലയിച്ചാകും അവയുടെ അന്ത്യം . ഈ ഉപകരണങ്ങളുടെ ഉപയോഗം ഒഴിവാക്കണമെന്നോ കുറയ്ക്കണമെന്നോ, ഒരു പരിസ്ഥിതിവാദിയും പരിസ്ഥിതി വകുപ്പ് ഉദ്യോഗസ്ഥനും ഇന്നേ വരെ പറഞ്ഞിട്ടില്ല. മറിച്ച് എയർക്കണ്ടീഷൻ ചെയ്ത മുറികളിൽ താമസിച്ച് അത്തരത്തിലുള്ള വാഹനങ്ങളിൽ സഞ്ചരിച്ച് സമാന സ്വഭാവമുള്ള ഓഫീസുകളിൽ സമ്പൂർണ്ണ വിശ്രമം നടത്തി, ശീതീകരിച്ച ഓഡിറ്റോറിയങ്ങളിൽ സെമിനാറുകൾ നടത്തി പരിസ്ഥിതി സംരക്ഷണ ബോധവൽക്കരണം തുടർന്നു കൊണ്ടേയിരിക്കുന്നു !

ഏറെ കൊച്ചു കൊച്ചു കാര്യങ്ങൾ ചെയ്തു പരിസ്ഥിതി സംരക്ഷിച്ച് വൻനേട്ടങ്ങൾ കൊയ്യാമായിരുന്നിട്ടും പരിസ്ഥിതി വകുപ്പ് നിതാന്ത നിദ്രയിലാണ് എന്നത് നിർഭാഗ്യകരമെന്നേ പറയാനാകൂ.

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KSEBL hast to function strictly in accordance with the provisions of the relevant rules framed by the Central and the State Governments, the regulations framed by the Central and State Electricity Regulatory Commissions and the mandatory standards framed by Central Electricity Authority.

In accordance with the provisions of the Electricity Act 2003 (hereinafter referred to as the Act), GOK had issued the First Transfer Scheme as per GO (Ms) No, 37/2008/PD, dated 25.09.2008 notified the Kerala Electricity First Transfer Scheme, 2008. Accordingly, the properties, rights, liabilities and interests of the erstwhile KSEB were transferred and vested in GOK. After the incorporation of KSEBL, the GOK has issued the Second Transfer Scheme, as per GO (P) No. 46/2013/PD (SRO. No. 871/2013) dated 31st October 2013. As per the provisions of the Second Transfer Scheme, the entire properties of the erstwhile KSEB, were re-vested in KSEBL from GOK. In accordance with the provisions of the Second Transfer Scheme, the assets, liabilities,

rights and interests of KSEB have been transferred to three financially and functionally independent Strategic Business Units (SBU) namely SBU-Generation(SBU-G), SBU – Transmission(SBU-T) and SBU- Distribution(SBU-D). The SLDC is also working under the SBU-T.

The SLDC and the Transmission Sub-stations are the nerve centres of the Electricity Grid and the transmission lines are the nervous system which transmit electricity to every nook and corner in the state. The commercial and functional independence of these institutions are of utmost importance in the independent function of the power sector, and that is why as per Section 31(2) read with 39(10) of the Electricity Act, it is mandated that, STU or SLDC shall not engage in the business of trading of electricity. Again, it is mandated that the STU must be neutral, fair, transparent, and accountable in discharging their duties. As per regulation 4 & 5 of IEGC 2010 framed by CERC, it is the responsibility of the STU to provide the Grid data from the various locations or nodes of the state Grid to the SLDC/RLDC by maintaining proper data logging facility and communication systems. According to Clause 6 of Schedule (Part-I) & Part-III of CEA (Grid Connectivity Standard) regulation2007, STU shall ensure proper implementation of the protection system and proper relay coordination as required by the state grid. Again, STU shall coordinate with CTU for protection coordination of the ISTS lines and important State Grid element. Similarly, for data communication, STU shall coordinate with CTU for data communication and

data logging to SLDC/RLDC. Thus, it is important that the data logging system / SCADA communication system as well as the Protection system of the state Grid need to be well coordinated and organized as a functional group for the entire State Grid. Thus, its exclusivity, ownership and communication shall not be compromised at any cost.

The standards and discipline of the construction, maintenance and operation of the transmission lines shall be in accordance with the CEA Grid Standard, 2010 read with the regulations in Indian Electricity Grid Code (IEGC), 2010 framed by CERC. The operation and maintenance of the transmission lines shall be under the direction and control of the SLDC, which is the apex body to ensure the integrated operation of the power system in the state as per sub - section (1) of section 32. SLDC has to perform the functions such as optimization of scheduling and dispatch of power, monitoring of grid operations, energy

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accounting of the transacted energy (both intra-state and inter-state), supervision and control of intra-state transmission system, realtime operations for grid elements and generation control; as stipulated in Section 32(2). Kindly note that the effectiveness, efficiency, and accuracy of these operations are very much depends on the "Visibility of the Grid" possible through the data communication system in place, using these exclusive fibre optic networks and other exclusive communication networks maintained by State Transmission Utilities in coordination with Central Transmission Utility.

Recently the National Grid has become a reality, which is functioning under the control of the National Load Despatch Centre(NLDC) constituted under section 26 of the Act. NLDC is the apex body for the country, which ensures integrated operation of the national grid, through the

Regional Load Despatch Centres (RLDC) constituted under Section 27 of the Act. The functions of the RLDCs are stipulated in Section 28 of the Act. It may be seen from Sections 29 and 33 of the Act that RLDCs shall comply with the directions of the NLDC and the SLDCs shall comply with the directions of the RLDCs. In fact, most of the 220 kV and 110 kV lines in our state are under the joint control of the SLDC and the Southern RLDC (SRLDC). In order to achieve optimum generation, scheduling and dispatching of power and to maintain safe, integrated and efficient operation of the grid, the functional and financial independence of Load Despatch Centres have been ensured by law. Therefore, it may please be seen that no outside agency can be permitted to conduct any operation in the sub-stations or on the transmission lines.

As such, the Electricity Act envisaged a fully owned communication, data logging and protection system under STU with latest communication infrastructure that include the optical fibre network for real time and coordinated operation of the Grid with other STUs, CTU, RLDCs & NLDC. Any dilution in the ownership of the communication infrastructure shall lead to the compromise of the various cyber security and Grid security aspects.

As per Section 41 of the Electricity Act; "A transmission licensee may, with prior intimation to the Appropriate Commission, engage in any business for optimum utilisation of its assets:

Provided that a proportion of the revenues derived from such business shall, as may be specified by the Appropriate Commission, be utilised for reducing its charges for transmission and wheeling: Provided further that the transmission licensee shall maintain separate accounts for each such business undertaking to ensure that transmission business neither subsidises in any way such business undertaking nor encumbers its transmission assets in any way to support such business: Provided also that no transmission licensee shall enter into any contract or otherwise engage in the

business of trading in electricity."

According to Section 51 of the Electricity Act; "A distribution licensee may, with prior intimation to the Appropriate Commission, engage in any other business for optimum utilisation of its assets:

Provided that a proportion of the revenues derived from such business shall, as may be specified by the concerned State Commission, be utilised for reducing its charges

for wheeling: Provided further that the distribution licensee shall maintain separate accounts for each such business undertaking to ensure that distribution business neither subsidises in any way such business undertaking nor encumbers its distribution assets in any way to support such business.

According to Section 182 (2) (o & y) of Electricity Act, the proportion of revenues from other business to be utilized for reducing Transmission & wheeling charges under proviso to section 41 & 51 shall be decided by State Regulatory Commission.

As such the communication network developed by the STU or Distribution Licensee for the data communication, protection and integrated operation of the Grid must be an integral part of the STU or Distribution licensee. It is cannot be sold or utilised as an asset of any another entity registered under company act. But it is permitted that, these assets may be used for other business by the licensee to ensure optimum utilisation, with the approval of the Honourable Commission.

To summarise; Communication systems are essential to facilitate secure, reliable and economic operation of the grid. It is also an important pre-requisite for the efficient monitoring, operation and control of power system. For integrated operation of all India Grid, uninterrupted availability of the real time data of various Power System elements assumes utmost importance. With the increase in the size and complexity of the grid, the communication needs of the power sector have increased drastically. Supervision and monitoring of grids call for transfer of real time operational data such as voltage, frequency, real and reactive power flow, energy, and status of circuit breaker & isolators positions, transformer taps and other parameters from their station to Data Collection Point (DCP) of CTU. The data is required to be automatically updated cyclically (typically every ten seconds) at the load dispatch centre for giving up to date information about the health of power systems on round the clock basis for enabling efficient and effective monitoring, supervision and control of the power system.

As the provisions related to the communication for the power sector have been spelt out in various regulations, the honourable CERC have a new Regulation named the Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) regulations, 2017 has been framed covering the afore mentioned aspects and duly taking in to consideration the new developments and emerging requirements of the grid operation and control such as Smart Grid/Smart Metering/ Automatic Generation Control, PMUs, solar roof top and other RE sources for proper forecasting, scheduling, operation and control.

As per regulation 5(i) of the above regulation; "These regulations shall apply to the communication infrastructure to be used for data communication and tele -protection for the power system at National, Regional and inter-State level and shall also include the power system at the State level till appropriate regulation on Communication is framed by the respective StateElectricity Regulatory Commissions."

Again, as per regulation 7 (1); (i) CEA shall formulate communication planning criterion and guidelines for development of reliable communication system for power system of India duly considering requisite route redundancy, capacity, as well as requirements of smart grid and cyber security.

(ii) CEA shall formulate and notify technical standards, cyber security requirements in accordance with the Cyber Security Policy of the Govt of India from time to time, protocol for the communication system for Power Sector within the country including the grid integration with the grid of the neighbouring countries.

(iii) CEA shall constitute and notify a Standing Committee for Communication System in Power Sector. The Standing Committee shall be responsible to:

a. Prepare perspective plan for communication duly considering optimal utilization of transmission assets for communication purposes having regards to the transmission planning carried out by CEA through Standing Committee on Power System Planning.

b. Carry out periodic review of the perspective plan.

c. Monitor and facilitate timely completion of schemes and projects for improving and augmenting the associated communication system along with transmission system in the power sector.

As such establishment of any communication network using the assets of the power system must be in compliance with the rules and regulation in power sector and require approval from relevant institutions and authorities meant for evaluation of its technical, security and safety issues.

It is reliably understood that GOK is proposing to constitute a company for the establishment and operation of optic fibre network for providing internet connectivity to the public and to the government offices, utilizing the sub stations infrastructure, the transmission lines and the distribution network of the KSEBL. It is proposed to constitute a joint venture company (JV) to implement the project which is named as KFON project (Kerala Fibre Optic Network project). It is most respectfully submitted that such operation by another company in the transmission and distribution system of KSEBL shall not be permitted. The optimum utilisation of the licensee's assets shall be allowed only in accordance with the statutory provisions specified in the Act and the regulations made there-under.

Handing over of the Licensee's communication assets for the operations of such a company will jeopardize the entire Cyber Security of Licensee's IT systems and shall have far reaching consequences on safety and security of the Grid operations. The optimum scheduling and despatch of power and the integrated operation of the power system is very much depending on the exclusive ownership of the communication network and its prioritisation in with respect to the data communication for Grid Operation without profit motive. Utilization of the communication network and optical fibre assets of the transmission and distribution system of the KSEBL by any other agency cannot be permitted without detailed evaluation of various data communication and coordination aspects with agencies like SRLDC & NLDC in the power sector, and explicit sanction of the Honourable Commission.

As per regulation 19(4) of CEA safety, 2010; "Every telecommunication line on supports carrying a line of voltage exceeding 650 V but not exceeding 33 kV shall, for the purpose of working thereon, be deemed to be a line of voltage exceeding 650 V." This

means, any work on the telecommunication system is to be done only by a competent and licensed electrical contractor under the supervision of the competent electrical supervisor. Central Electricity Authority has introduced such a regulation with a view to ensure safety of the public and personals working on the line and the distribution system. As such, the installation and maintenance of the communication system or optical fiber network with duel ownership on the "HT/LT line support"or distribution network will create safety issues and hence cannot be allowed. It is most respectfully submitted that the SBU-T of KSEBL performs the functions of both SLDC and State Transmission Utility (STU). The functions of SLDC are stipulated in Section 32 of the Act. Grid Coordination, safe operation and energy accounting are few of the functions of SLDC. As per the provisions of Section 39(2)(d), STU has to provide non-discriminatory open access to the consumers. Real time accounting of power is absolutely inevitable for proper implementation of open access. The optical fibre communication System of KSEBL was initiated under ULDC project by PGCIL as per the direction of CEA. This is implemented for monitoring grid parameters by SLDC & RLDC. KSEBL is paying back the amount through tariff. Further KSEBL is expanding its communication network for better visibility of grid parameters through which optimal efficiency in LD operations is achieved. The new Joint Venture Company is a communication service provider whose aim is maximum utilisation of communication infrastructure. This company is proposed to utilise the communication potential of the fibre laid by KSEBL for integrated Grid operation, Grid control and protection applications. This will dilute the grid security aspects as the real time availability of data band for the growing data communication and protection signal communication requirement in power system applications may be compromised. That is, the KSEBL & the Communication JV shall have conflict of interest which will affect the efficiency of Grid operations and grid security. Eventually, this will result in compromising the power quality and reliability, lead to great financial losses and even can end up with serious grid failures.

It is most respectfully submitted that the functions of STU are stipulated in Section 39 of the Act and the functions of the transmission licensee are stipulated in Section 40 of the Act. SBU-T of KSEBL performs the duties and functions of both STU and the transmission licensee. The functions of the STU include intra-state transmission, planning and co-ordination with Central Transmission Utility, State Governments, generating companies, Regional Power Committees, Central Electricity Authority and licensees. The fibre optic communication system of KSEBL is mostly OPGW (Optical Ground Wire), which is ground wire of the transmission lines which also contains optical fibre. The ground wire is the integral part of the transmission system and is very critical with respect to the protection and the safety aspects of the transmission system and the Grid. The maintenance of OPGW can only be done by the KSEBL due to safety & security reasons and as specified by relevant regulations. Moreover, transmission and distribution systems are continuously getting upgraded with respect to voltage levels and current levels, which require frequent dismantling and erection works through the same Right of Way (ROW). A duel ownership of assets over the same supports shall lead to conflict of interest between KSEBL and the communication company.

It is most respectfully submitted that development of renewable energy is mandatory for generating companies and distribution licensees. By and large, renewable energy is infirm energy. Forecasting, scheduling and imbalance handling of renewable energy, are very difficult processes. With the larger integration of the Renewable Energy Sources (RES) to the grid, maintaining the Grid Stability through "Load Generation Balance" has become a tough task for Grid operators. The availability of real time data from every generating station including the Renewable Energy Sources are essential to ensure grid stability in real time.

The Grid need to be managed as specified in IEGC (Indian Electricity Grid Code) read with relevant regulations issued by Central Electricity Regulatory Commission (CERC) and State Regulatory Commission. Accordingly, the generation schedules including that of RES and various other relevant data from various locations of the grid need to be monitored and corrected in real time for implementing the Availability Based Tariff (ABT) regime for the generators. Forecasting of power requirements of various licensees, regulating generation of conventional energy, scheduling of power from generating stations, forecasting availability of renewable energy, scheduling renewable energy, energy accounting, scheduling maintenance and shut down operations of sub-stations and transmission lines require proper Supervisory Control and Data Acquisition (SCADA) system, for which continuous data collection and processing are inevitable.

As such, a dedicated communication system is unavoidable for integrated operation of the State Grid by the SLDC in coordination with STU and other licensees in the state. Moreover integrated operation of the southern grid and national SRLDC and NLDC level is also a part of the scheme. MOP is giving financial assistance for expanding state's communication network up to the level of 110kV transmission level under the new 'Reliable communication project'. If the security and reliability of the SCADA system is compromised due to any reasons, it will adversely affect the integrated grid operation of the state grid as well as the national grid.

Various Special Protection Schemes (SPS) for the grid security in National, Regional and State level for avoiding the grid collapse is also put in place with the availability of this optical fibre network. Automated load management for grid security by the automatic switching operations of the feeder elements during over drawing of power than allocated share also being implemented through the coordinated data communication using fibre optical networks. Hence this system should be maintained at highest security level. Any intruder accessing the national power communication network can be considered as a threat to the National Security. Hence, ownership of

an external agency in STU's OPGW network shall not be permitted under any circumstances due to the security and financial reasons. Thus, the question of change in ownership of the fibre assets of KSEBL to some other company cannot be considered at all.

It is most respectfully submitted that the transmission lines and substations are high risk installations. The safety of these installations is highly important from the point of view of the public safety, the safety of workers and the safety of electric lines and other installations. Section 53 of the Act deals with safety and electric supply and it empowers the CEA to issue regulations for this purpose. Therefore, the safety of the transmission

lines and the sub-stations, must be ensured in accordance with the provisions of the CEA regulations relating to safety and electric supply. Moreover, all persons working Substations, generating stations and transmission lines shall be qualified, trained, and certified as per CEA regulations. No other company personnel can be provided free access in Substation, transmission line and Generating stations as per the regulation. Duel ownership of assets KSEBL's EHT substation and Generating station will certainly unsettle the present safety environment and accountability of the working system.

It is most respectfully submitted that the envisaged JV Company is an independent company. The activities of the said company will be governed by the decisions of its Board of Directors. Therefore, KSEBL will not have any control over the activities of the JV Company. It is proposed to allot fifty percent of the shares of the said JV to KSEBL. As per the provisions of law, the shareholders are not the owners of the company. In a limited company, the liability of the shareholder will be limited to the value of the shares held by him. Therefore, the shares in the JV Company will not increase the assets of KSEBL. On the other hand, it would only increase the liability of KSEBL. In the first implementation meeting of KFON was conducted at the Chief Secretary's office on 14.09.2017, it is reported that "The committee recommended KSEBL shall not lease/extend ROW along its Transmission & Distribution infrastructure and shall renew any lease/permission only with the explicit approval of the core committee/restructured KSITIL". This recommendation is clearly an illegal incursion over the KSEBL's assets by the communication company.

It is also respectfully submitted that KSEBL is collecting Pole rentals from cable TV operators for drawing their cables over distribution poles. At present KSEBL is getting Rs.18 crores on this account. Annual increase of 5% is assured in this revenue. KSEBL will lose revenue on this account due to the formation of JV Company.

It is also respectfully submitted that KSEBL is earning revenue by leasing out excess fibres on OPGW (Optical Ground Wire) which were laid over the EHT towers for KSEBL's LD operations and system protection purposes. At present KSEBL is getting Rs.3Crores on this account. Annual increase of 5% is assured in this revenue. The existing fibre leasing process does not affect any STU's function as KSEBL is leasing out excess fibres in such a condition that KSEBL can take back these fibres after the lease period, which is usually 3 – 5 years and the external agency is not authorised to work in KSEBL's optical network infrastructure. It is also respectfully submitted that KSEBL has decided to draw 3600km of OPGW under 'Reliable Communication Project' under the PSDF schemes funded by GoI. This project is for providing reliable communication and SCADA system up to the level of 110kV Substations. The approval

from MOP is obtained for 50% grant. With the same rate of income by leasing out excess fibres (dark fibres), KSEBL will get Rs.21Crore revenue when the project is completed. KSEBL will lose this revenue by the formation of the JV Company.

It is also respectfully submitted that the JV the company is proposed to use 43,000 km LT/HT Distribution infrastructure for drawing optical fibre. The pole rent to be given to KSEBL on this account at the existing rates is around Rs.44Crores. KSEBL will lose this revenue by the formation of this JV Company.

It is also respectfully submitted that, in the present scenario, the existence of every telecom company is in difficulty. The survival of even private operators is challenged. This

communication company may not become profitable as its main objective is providing free internet to BPL families and Government institutions. As this communication company is a joint venture with 50% share of KSEBL, if the company is on loss, the loan liability will also come on company's assets. The main asset of the company is OPGW, which is the integral part of transmission system for lightning protection, cannot be removed from the tower. Hence KSEBL will likely to pay the liabilities for protecting its assets for conducting the main business of the company. Even if the company makes profit, KSEBL has no right to get profit share. The only thing KSEBL can get is dividend, which is to be decided by the director board of JV Company.

It is also respectfully submitted that, as per section 41 & 51 of Indian Electricity Act 2003, which is about "other business" of Transmission & Distribution licence, a portion of the revenue shall be utilised for reducing the charges for Transmission open access and wheeling. It also directs the licence to ensure that, the "other business" neither subsidises in any way such business undertaking nor encumbers its transmission/distribution assets in any way to support such business. It is under

stood from the above that KSEBL have no right of revenue from JV and at the same time will lose revenue on account of fibre lease charges and pole rental charges. Moreover, JV Company will encumber KSEBL assets. Hence the JV company formation with KSEBL as partner is in contrary to the provisions of EA 2003.

It is also respectfully submitted that KSEBL requires optical fibres for its system protection applications also. The CEA is improving its standards continually. The new proposal with respect to switching over from present "distance protection standard" to "line differential standard" will multiply the fibre usage by KSEBL. Now, KSEBL is presently leasing out fibre only for incidental benefit as per the Act and its subordinate regulation. This will be taken back at any time whenever the system necessity arises. Hence KSEBL cannot give optical fibre over the line for unconditional usage of JV Company on any grounds.

Hence it is requested that action may please initiated to:

1. To freeze all the activities towards formation of the JV company with optical fibre network through KSEBL supports
2. Not to consider doing other business by KSEBL in conflict with Section 41 & 51 of Electricity Act 2003.
3. Not to consider joining of KSEBL as a partner in the proposed JV Company.
4. Not to consider handing over of any of the assets of KSEBL to the JV Company.
5. Not to spare any of its employees earning salary from KSEBL, to the works of the JV company, unless they are properly deputed for the job through relevant procedures
6. Do not permit dual ownership of the KSEBL assets with the JV Company in KSEBL's EHT Substations & Transmission lines considering safety & security issues as it comes under protected area notification.
7. Do not permit any other agency to operate OPGW network without explicit concurrence from CEA, SRLDC, NLDC, SERC & CERC

President

State Level Seminar series competitions held...

22 teams from all over Kerala participated in the event. 40 Students presented their ideas on the topic " Electric mobility and Power utilities - Challenges and solutions"

Function was inagurated by Er. V Sasi , Electrical Engineer and Honorable Deputy speaker of Kerala Assembly. Our president Dr. E Mohammed Shereef presided over the function. Er.K. Radhakrishnakumar delivered welcome speech Er. Suhair A.K, Chair, IEEE PES Kerala Chapter felicitated and Er.G Shaj Kumar expressed vote of thanks. Dr. Bolly Philip, Er Manju B and Er.K.R Venugopal judged the competition.

Winners

First – Mr. Amrin Kareem & Ms. K.S Athira of Govt. Model Engineering College, Thrikkakkara

Second - Mr. Leenjo Leenus & Mr. Faheem Muhammed of Calicut University Institute of Engineering and Technology, Thenjippalam, Malappuram

Third – Mr. Rohit Nair Ramesh & Ms. Gopika Assi of Muthoot Institute of Technology & Science,Eranakulam

Best Innovative award - Mr. Mohanakrishnan K & Mr. Sarath M V of NSS college of Engineering, Palakkad

Unit Meeting held at Thiruvananthapuram

Sent - off given to Er. Jayakumari K.K on retirement as Chief Engineer from KSEBL

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65th Annual General Body meeting of KSEB Engineers' Association & National Seminar

" Electricity Bill Amendment – Implication on Power Sector "

Venue : **Fine Arts Hall, Ernakulam**

Date : **13th May 2018 (Sunday)**

- ☞ **Exhibition cum Technical Trade Fair is arranged.**
- ☞ **Engineers Marathon will also be conducted in the morning of 13th May 2018.**
- ☞ **Central & State Ministers and other eminent Technologists have confirmed their presence.**

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