



# HYDEL BULLET



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

## Supply Interruptions: Tackling Quality, Reliability & Safety Issues in Distribution

Electricity is the backbone of modern society and nearly the entire activities of the modern society are now driven by electricity. Its relevance in normal life of every human being has become too complicated to define and describe by a third person. An interruption on the availability of electricity shall make every activity to a stand still and can even lead to the instant death of every social activity. With the urbanisation of the Kerala Society during the past decades, dependency on electricity in the normal life of an average Keralite have grown manifold and even the domestic consumers in the State cannot afford to have few minutes of supply interruptions at their home. As a consequence, the engineers and employees in the distribution wing are under tremendous pressure to maintain the supply at any cost and risk.

In spite of the centrally aided projects like RAPDRP, IPDS, RGGVY & DDUGJY, the available distribution network in the State is aged and obsolete. Actually the present network is evolved not according to the network plans based on electrical engineering principles or statutory construction standards; but according to the requirement of the service connection application from the consumers. Actually, these works are executed under pressure with scarce resources available at site, at that point of time and get extended as per requirement without any evaluation of standards and criterion. At present, the electricity is being supplied in the State through a distribution network which is compromised with safety standards and construction standards and thereby has ended up in compromising the quality and reliability of electricity supplied to the consumer.

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## Inauguration of Association activities for the year 2018-19





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In addition to the substandard network issues, we have terrains and vegetation which enjoy its interference with the normal delivery of electricity through the distribution network. Adding to the woes of the field engineers, the natural calamities and undisciplined drivers in the public roads have prioritised their first target on KSEBL poles and lines.....!! Moreover, in addition to the shortage of staff in the field, the new transfer policy of the HRM department; which provide no relevance to the experience, skill and expertise of engineers and supervisors in managing supply interruptions, is playing havoc in the field.

According to the present HRM policy, anybody can do any job at any place and at any time as if, the individuals are automatically and instantly empowered with the all the required skills and expertise for the job on the strength of the transfer order issued by the HRM...!! To aggravate the situation, the Safety Commissioner also started issuing "text book orders" at frequent intervals to drain out the confidence of the field engineers and supervisors.

As such, we may point out that there is no appropriate environment in KSEBL to ensure the quality and reliability of electricity supplied to the consumers. In spite of all these ground realities, State Government, KSERC & KSEBL assures 24 x 7 electricity to all the consumers in the State..! Thus the field engineers are mercilessly left to face the wrath of the public within this adverse environment

with incompetent - unskilled field staff & scarcity of resources.

It is observed that, instead of a systematic long term pragmatic approach to improve the working environment through proven management tools and relevant technologies, the management is bogged down with real time crisis management through gimmicks and propaganda. In fact, the energy and resources, including the HR used for such gimmicks, are sheer waste of time and money. Actually it helps only to divert the focus from the real issues that are to be tackled in the field. Consequently, the issue get aggravated due to lack of focus. Instead of complying with the recommended planning criterions and mandatory standards specified by Central Electricity Authority, we are experimenting with crazy norms evolved in crazy dreams of crazy individuals with no accountability. Actually, due to the variety of geographical conditions, terrains and consumer density in the State, the optimum network requirement of each geographical area is different and it warrants engineers with relevant talent and vision to the job. Actually a right mix of OH line, UG cables, Arial Bunched Cables (ABC) and Covered Conductor need to be identified for the optimal techno-economical solution for the issues related to the quality and reliability of supply along with safety. Again the concept of Transformer Stations need to be replaced with the concept of Distribution Sub-Stations and needs to get



it standardised with relevant equipment and panels that suits to the present requirement of reliability and safety. But Instead of utilising the engineers and supervisors with competency, talent, expertise and vision and allowing them the freedom to devise the network for the geographical area, a bunch of so called “think tanks” are entrusted with the PMU to ensure manipulation and implementation as per their whims and fancies...!!

It is needless to highlight that interruption and safety, the major concerns in the distribution sector, is primarily the consequences of the nonstandard network and incompetent work force. But it is a sad part that KSEBL have not taken any concrete steps till date to ensure mandatory standards in construction of its networks nor the mandatory competency requirement of its work force. Instead, it is noticed that there are concerted efforts from the relevant corners to dilute the mandatory requirements in construction standards and safety standards. Moreover, it is observed that the standards are always compromised, when it matters to withstanding external pressure.

If we have a real intention to improve the quality and reliability of electricity supplied to the consumers, we need

1. A road map with merit order and priorities to standardise the existing network with the adoption of relevant technology and proper mechanisation of the O&M works.

2. Stringent enforcement of construction and safety standards in all new works.
3. A stringent independent mechanism to enforce the safety standards and construction standards along with quality of the network in the field.
4. An HR policy without discrimination that ensures continuity of the system with skilled technicians, competent supervisors and engineers with expertise and vision.
5. A safety policy in tune with the mandatory safety regulation and an exclusive functionally independent safety team with competent safety engineers to ensure compliance of safety.

We are for sure that only an open approach without prejudice is the pre-requisite for adoption of modern technologies in power sector. Again choosing the right person with right talent and relevant experience is very much important in the performance of the specific function and task. The insensitivity of the management towards these critical aspects are creating havoc in the field now and shall prove more costly in future, if the lessons from the ongoing issues are not understood properly. The technical issues being faced by the organisation are to be handled only by adopting the right technical solutions. We sincerely hope that wisdom will prevail upon the management and proactive steps will be taken to resolve this technical issue.

✱



# മിച്ച്

# മെച്ചമരല്ല



Er. എൻ.ടി. ജോബ്

കാലാവസ്ഥക്കാർ പറയുന്നതിനനുസരിച്ച് മഴപെയ്യുവാൻ തുടങ്ങിയപ്പോൾ പലരും കണക്കുകൂട്ടാൻ തുടങ്ങി. ഇതുവരെ നമ്മൾ കാണാറുള്ളത് കാലാവസ്ഥക്കാർ കനത്തമഴ പ്രഖ്യാപിച്ചാൽ അന്ന് മാനത്ത് ഒരു തുണ്ട് കാർമേഘംപോലും ഉണ്ടാവില്ല. പക്ഷെ ഇന്നങ്ങനെയല്ല.കാലാവസ്ഥക്കാർ പറഞ്ഞാൽ അച്ചാണ്. മഴയെന്നു പറഞ്ഞാൽ മഴയോടു മഴ. കാലാവസ്ഥക്കാരുടെ കണക്കുവെച്ച് നമ്മളും കണക്കുകൾകൂട്ടിയെടുത്തു. ഇത്തരമുള്ള വൈദ്യുതിമിച്ച്മുള്ള ഏക സംസ്ഥാനമായി നമ്മൾ മാറും; എൻപതുകോടി യൂണിറ്റുവരെ വൈദ്യുതി സംസ്ഥാനത്തു മിച്ച്മാവും എന്നൊക്കെ; ഈ മിച്ച്മാവുന്ന വൈദ്യുതി എങ്ങിനെ മെച്ചമാക്കി മാറ്റാമെന്ന ഗവേഷണത്തിലാണെല്ലാവരും.

അപ്പോൾ വാങ്ങുന്ന വൈദ്യുതി അത്രയേ അധികമുണ്ടാകൂ എന്നു സാമാന്യ ബോധമുള്ള ആരെങ്കിലും ചോദിച്ചാൽ അതു വിവരക്കേടാകും. അതുപാടില്ല. നമുക്കു മിച്ച്മാക്കി പുറത്തേക്കു വിറ്റാലേ ബുദ്ധിയുടെ ലക്ഷണമാകുകയുള്ളൂ. ഈ മിച്ച്മാവുന്നതിന്റെ ഗുട്ടൻസ് അന്വേഷിച്ചു പോകുമ്പോഴാണ് ഗട്ടറുകൾ പലതും മൂന്നിൽ പ്രത്യക്ഷപ്പെടുന്നത്. പുറമെ നിന്നു വാങ്ങുന്ന വൈദ്യുതിയും കേന്ദ്രവിഹിതമായി നൽകുന്നതിന്റെ അളവും വെച്ചു നോക്കുമ്പോൾ രണ്ടായിരത്തി മൂന്നുറുമെഗാവാട്ടുവരും. പകൽ നമുക്കാവശ്യമുള്ള വൈദ്യുതിയുടെ അളവ് അതിലും താഴെയാവുമ്പോൾ നമുക്കു സ്വന്തമായുള്ള ഒരു ജനറേറ്റർ

പോലും പകൽ സമയങ്ങളിൽ ഓടിക്കേണ്ട ആവശ്യമേയില്ല. അത്രയ്ക്കു വാങ്ങിക്കൂട്ടുന്നുണ്ട്. അങ്ങിനെ നമ്മുടെ ജനറേറ്ററുകൾ ഓടിക്കാതെ വരുമ്പോൾ ആ വെള്ളം ഡാമിൽ കിടക്കും. അതിനെ നമുക്കു മിച്ച് വൈദ്യുതിയുടെ ഗണത്തിലേക്കു മാറ്റിയിടാം. ഒരു രൂപയിൽ താഴെ മാത്രം ചെലവുവരുന്ന ജലവൈദ്യുത പദ്ധതികളൊന്നും ഓടിക്കാതെ നാലുരൂപയ്ക്കും അഞ്ചുരൂപയ്ക്കും പുറമെ നിന്നും വൈദ്യുതി വാങ്ങി നമുക്ക് ആഘോഷിക്കാം; വൈദ്യുതി മിച്ച്മായെന്നു കൊട്ടിഘോഷിക്കാം. ഇത്തരം കച്ചവടത്തെ എന്തെങ്കിലും പേരിട്ടു വിളിക്കാമോയെന്നറിയില്ല.

കോടിക്കണക്കിനു രൂപ മുതൽമുടക്കി ഉണ്ടാക്കിയെടുത്ത ബ്രഹ്മപുരം പദ്ധതിയും കോഴിക്കോട് പദ്ധതിയും പേരിനുപോലും ഓടിക്കാതെ, കോടികൾ മുതൽമുടക്കിയത് പാഴാക്കുന്നത് ചോദിക്കുവാൻ ആരുമില്ലെന്നിടത്താണ് നമ്മുടെ പരാജയം. കായംകുളത്തെ കാര്യവും വ്യത്യസ്തമല്ല. സ്വകാര്യമുലധനമാണ് ഇറക്കിയിരുന്നതെങ്കിൽ ഈ രണ്ടു താപനിലയങ്ങൾക്ക് ഫിക്സഡ് ചാർജിനത്തിൽ എത്ര കൊടുക്കേണ്ടിവരുമായിരുന്നുവെന്ന് വലിയ ചോദ്യമാണ്.

ജലവൈദ്യുത പദ്ധതികൾപോലും ഓടിക്കാതിരിക്കുവാനുള്ള ഗവേഷണങ്ങൾ തകൃതിയായി നടക്കുമ്പോൾ താപവൈദ്യുത



നിലയങ്ങൾ പോലെ ജലവൈദ്യുത പദ്ധതികളും പ്രേതകുടീരങ്ങളായി മാറുന്നത് നമ്മൾ കാണേണ്ടിവരും.

എത്ര ഐശ്വര്യത്തോടെയാണ് ബ്രഹ്മപുരം പദ്ധതിയും കോഴിക്കോട് നിലയവും നമ്മൾ കണ്ടുകൊണ്ടിരുന്നത്. പ്രതാപകാലത്ത് ഈ നിലയങ്ങളിൽ ജോലി ചെയ്തിരുന്നവർക്ക് ഇന്നത്തെ അവസ്ഥ കണ്ടു പരിതപിക്കുന്നുണ്ടാവും. ഇത്തവണത്തെ വേനൽക്കാലത്തുപോലും ഈ നിലയങ്ങൾ ഓടിച്ചില്ല എന്നത് വലിയ ചോദ്യമാണ്. ഒരു ദിവസമോ രണ്ടു ദിവസമോ ഓടിച്ചതിനെ അംഗീകരിച്ചുകൊണ്ടുപറയട്ടെ, ഇതു ക്രൂരതയാണ്. ഇത്രയും പേർ കാവലായി ഇവിടെയൊക്കെ ജോലി ചെയ്ത് ശമ്പളം വാങ്ങുമ്പോൾ അവരുടെ യെല്ലാം മനസ്സുകളിൽ നല്ല അപകർഷതാ ബോധമുണ്ട്; മറ്റുള്ളവരെ കാണുമ്പോൾ.

കർഷകന്റെ മനസ്സാണ് ഇതിനുവേണ്ടത്. അദ്ദേഹം കൃഷി ചെയ്തുണ്ടാക്കുന്ന വിലകൂടിയ ഇനങ്ങളോടും വിലകുറഞ്ഞ ഇനങ്ങളോടും സ്നേഹം ഉണ്ടാവും. എല്ലാത്തിനെയും ഒരേപോലെ കാണാൻ ശ്രമിക്കും. എന്നാൽ നമ്മുടെ ചിന്താഗതി അങ്ങിനെയല്ല. വിലകുറഞ്ഞ വൈദ്യുതിയുണ്ടാക്കുന്ന ജലവൈദ്യുതിയോടും സ്നേഹമില്ല; വിലകൂടിയ താപവൈദ്യുത നിലയങ്ങളോടും സ്നേഹമില്ല. സ്നേഹമുള്ളത്, പുറമെനിന്നു വാങ്ങുവാനും പുറത്തേയ്ക്കു കൊടുക്കുവാനും. ശരിക്കും സംസ്ഥാന താല്പര്യം ഒട്ടുമില്ലാത്ത തരത്തിലുള്ള കച്ചവടങ്ങൾ.

സംസ്ഥാനത്തിനകത്തെ പീക്ക് ഡിമാന്റ്. കുറച്ചു കൊല്ലത്തെ സ്ഥിതി ഇങ്ങിനെയാണ്.

2012-13	3262 MW
2013-14	3573 MW
2015-16	3594 MW
2016-17	3996 MW
2017-18	3884 MW

ഉപയോഗ ക്രമമനുസരിച്ച് ഓരോ വർഷവും ഉപയോഗിച്ച വൈദ്യുതിയുടെ അളവ്.

2012-13	20391 MU
2013-14	21052 MU
2015-16	22127 MU
2016-17	23194 MU
2017-18	24502 MU

ഈ പട്ടികകൾ പരിശോധിക്കുമ്പോൾ നമുക്കുകാണാനാവുന്നത് പീക്ക് ലോഡ് ഡിമാന്റും വാർഷിക ഉപയോഗത്തിലെ വർദ്ധനവും ശരാശരി ഇപ്പോൾ മൂന്നുശതമാനത്തിൽ താഴെ മാത്രമെ ഉണ്ടാകുന്നുള്ളൂ. വ്യാവസായിക മാന്ദ്യവും ബൾബുകൾ മാറി എൽ.ഇ.ഡി. ലൈറ്റുകളായതിന്റെ ഗുണഫലവുമാകാം. ഇവിടെ നമ്മൾ ശ്രദ്ധിക്കേണ്ടത് ഏതു സംസ്ഥാനത്തിന്റെയും വികസനത്തിനു ആക്കം കൂട്ടുന്നത് വൈദ്യുതിയാണ് എന്ന വസ്തുതയാണ്. മുൻകാലങ്ങളിൽ പത്തുശതമാനത്തിലേറെ വർദ്ധനവ് ഉണ്ടായിരുന്നത് ഇപ്പോൾ മൂന്നുശതമാനമായി കുറയുന്നത് വികസനങ്ങൾ പിന്നോട്ടടിക്കുന്നു എന്നതിന്റെ തെളിവാണ്.

നമ്മുടെ നാടിന്റെ വൈദ്യുതി ആവശ്യകതയെ ഇപ്പോൾ നേരിടുന്നത് കേന്ദ്രവിഹിതവും പുറമെ നിന്നും വാങ്ങുന്ന വൈദ്യുതിയും കൊണ്ടാണ്. പുറമെനിന്നും വാങ്ങുന്ന വൈദ്യുതിയുടെ കരാറുകൾ ഇരുപത്തഞ്ചു വർഷം വരെയുള്ളതുണ്ട്. വൈദ്യുതിയുടെ കമ്പോളവില കുറഞ്ഞുകൊണ്ടിരിക്കുമ്പോഴും കരാറിലേർപ്പെട്ട വൈദ്യുതി ഒരേനിലയിൽ ഇരുപത്തഞ്ചു വർഷത്തേക്കും വാങ്ങേണ്ടിവരുമെന്നുള്ളതാണ് വിഷയം. 25 x 30 x 365 x 24 എന്ന രീതിയിൽ കണക്കാക്കിയാൽ ഒരു യൂണിറ്റിന് മൂന്നുരൂപ മുതൽ അഞ്ചുരൂപ വരെ കണക്കാക്കി അഞ്ചുലക്ഷം കോടി രൂപയാണ് ഇരുപത്തഞ്ചു വർഷം കൊണ്ട് കേരളത്തിനു പുറത്തേക്കൊഴുകുക. കരാറിലേർപ്പെട്ട



വൈദ്യുതി വേണ്ടെന്നു പറഞ്ഞ് തിരിച്ചേല്പിച്ചാൽ കൊടുക്കണം ഒരു യൂണിറ്റിനു ശരാശരി നാലുരൂപ. അപ്പോൾ തിരിച്ചുകൊടുക്കുന്നതും ശരിയാവില്ല.

കേന്ദ്ര വിഹിതവും പുറമെനിന്നും വാങ്ങുന്ന വൈദ്യുതിയും കൂടിയാൽ പകലുണ്ടാകുന്ന ലോഡിന് സമാനമാവുകയും ചെയ്യും. ജലവൈദ്യുത പദ്ധതികളും നിർത്തിവെയ്ക്കേണ്ട സ്ഥിതിയാണുള്ളത്. ഇങ്ങനെ ആർക്കോവേണ്ടി ഓടുന്ന ജലവൈദ്യുത നിലയങ്ങൾ രാത്രികാലങ്ങളിലേക്കു മാത്രമാണ് സംസ്ഥാനത്തിനകത്തുല്പാദിപ്പിക്കുന്ന വൈദ്യുതിയുടെ ആവശ്യം വരുന്നത്. ഇനി രാത്രികാലങ്ങളിലേക്കുള്ള വൈദ്യുതിയുടെ കച്ചവടവും ഉറപ്പിച്ചാൽ പിന്നെ സംസ്ഥാനത്തിനകത്തുള്ള എല്ലാ വൈദ്യുതി നിലയങ്ങളും അടച്ചു പൂട്ടാം. എന്തൊരു സുഖം; എല്ലാ വൈദ്യുതിയും പുറമെ നിന്നുവാങ്ങാം. എന്തൊരു സുന്ദരമായ കാലമാണ് വരുവാൻ പോകുന്നത്. ഇങ്ങിനെ ആവശ്യത്തിൽ കൂടുതൽ വൈദ്യുതി വാങ്ങുന്നതുകൊണ്ട് ഡാമുകളിലെ വെള്ളം മിച്ചമാവും; ഇങ്ങിനെ മിച്ചമായാൽ അതും കൊട്ടിപ്പോഷിക്കും. വളരെ നല്ലരീതിയിലുള്ള വാട്ടർ മാനേജ്മെന്റു കൊണ്ടാണ് വേനൽകാലത്ത് ഡാമുകളിൽ വെള്ളം മിച്ചമായതെന്ന്, അങ്ങിനെ അതും കൊട്ടിപ്പോഷിക്കുവാനുള്ള വിദ്യയായി മാറ്റാനുള്ള സർവ്വതന്ത്രങ്ങളും അറിയാവുന്നവരാണ് ഇതെല്ലാം കൈകാര്യം ചെയ്യുന്നത്.

ഇങ്ങിനെ മിച്ചവും മെച്ചവുമൊക്കെയോണെങ്കിലും ഏതെങ്കിലും ജനറേറ്ററുകൾ അറ്റകുറ്റപ്പണികൾക്കാവശ്യപ്പെട്ടാൽ കിട്ടില്ല, വാർഷിക അറ്റകുറ്റപ്പണിക്കുള്ള ദിവസങ്ങൾ കുറയ്ക്കണം. മാസാമാസങ്ങളിലുള്ള അറ്റകുറ്റ പണികൾ രണ്ടുമാസം കൂടുമ്പോൾ പോരെ, മൂന്നുമാസം കൂടുമ്പോൾ പോരെ, എന്ന ചോദ്യങ്ങളുമായി രംഗത്തു വരുമ്പോൾ നമ്മളൊക്കെ വിചാരിക്കും ജല വൈദ്യുത

പദ്ധതികൾ വളരെ അനിവാര്യമാണ്. അതില്ലാതെ വൈദ്യുതിയുടെ ആവശ്യം നിറവേറ്റാനാവില്ല എന്നൊക്കെ. എന്നാൽ ഈ അറ്റകുറ്റപ്പണികളൊക്കെ തകൃതിയായി നടത്തി സർവ്വീസിലേക്കിട്ടാൽ കാണുന്നത്, ഈ ജനറേറ്ററുകളൊക്കെ നോക്കുകുത്തികളായി ഓടിക്കാതെയിടുന്നതാണ്, അപ്പോൾ നമ്മളൊക്കെ ആലോചിക്കും ഈ ധൃതിയും വെപ്രാളവും എന്തിനായിരുന്നുവെന്ന്. അതൊക്കെ സുന്ദരമായ നാടകങ്ങളായിരുന്നുവെന്നും നമ്മളൊക്കെ അതിലെ സ്വാഭാവിക കഥാപാത്രങ്ങളായിരുന്നുവെന്നും മനസ്സിലാക്കുമ്പോൾ ചോദ്യങ്ങൾ കൂറെ ബാക്കിയായി അടുത്തരംഗം ആരംഭിക്കും.

പന്തീരായിരം കോടി രൂപ വാർഷിക വരുമാനമുള്ള സ്ഥാപനത്തിൽ നിന്നും എണ്ണായിരം കോടി രൂപ വൈദ്യുതി വാങ്ങുവാനായി ചെലവാക്കുമ്പോൾ തന്നെ ഡാമുകളിലെ വെള്ളം മിച്ചം പിടിച്ചുണ്ടാക്കി അടുത്ത മഴയിൽ ഡാമുകൾ നിറഞ്ഞു കവിഞ്ഞു കളയുവാനനുവദിക്കുകയും ചെയ്യുന്നത് എന്ത് തത്വത്തിന്റെ അടിസ്ഥാനത്തിലായാലും സാമ്പത്തികമായി നല്ലതല്ല.

ഇരുപത്തഞ്ചു കൊല്ലത്തേക്കുള്ള കരാറുകളും വെച്ച് ഓരോ വർഷവും വലിയൊരു തുക തന്നെ വൈദ്യുതി വാങ്ങുവാൻ നൽകിക്കൊണ്ടിരുന്നാൽ നമ്മുടെ ഖജനാവിൽ മിച്ചമൊന്നുമുണ്ടാവില്ല. വികസന പ്രവർത്തനങ്ങൾക്ക് കേന്ദ്ര സർക്കാരിന്റെ മുന്നിൽ കൈനീട്ടി ഭിക്ഷാപാത്രവുമായി നിരന്നു നിൽക്കാമെന്നുമാത്രം.

പന്തീരായിരം കോടിരൂപയുടെ വരുമാനത്തിൽ നിന്നും വൈദ്യുതി വാങ്ങുന്ന പൈസ തട്ടിക്കിഴിച്ചാൽ പിന്നെ വരുന്ന മിച്ചം കൊണ്ടുവേണം ശമ്പളവും പെൻഷനും നൽകുവാൻ.

ഇതിനിടയിൽ ഇത്രയും വൈദ്യുതി മിച്ചമാവുമെന്നു കൃത്യമായി അറിയാവുന്ന നമ്മൾ തന്നെ പകൽ സമയങ്ങളിൽ കൂടുതൽ





കൂടുതൽ വൈദ്യുതി ഉണ്ടാക്കി നഷ്ടത്തിന്റെ ആക്കം കുട്ടാൻ പുരപ്പുറ സോളാറും, സോളാർ പ്ലാന്റുകളുമായി മുന്നോട്ടുപോയി കോടികൾ പാഴാക്കുവാൻ രംഗത്തിറങ്ങി ഓടി നടക്കുന്നു. കഷ്ടമാണ് ഇത്തരം ആസൂത്രണങ്ങളുമായി മുന്നോട്ടു പോകുന്നത്.

ആകെയുള്ള വരുമാനത്തിൽ നിന്നും ഇനി ഒരാവശ്യവുമില്ലാതെ സ്ഥാപിക്കുവാൻ പോകുന്ന സോളാർ പദ്ധതികളിൽ നിന്നുണ്ടാക്കുന്ന വൈദ്യുതിക്ക് വലിയ ഒരു തുക നൽകേണ്ട സ്ഥിതിയും വരുന്നുണ്ട്. രാത്രികാലങ്ങളിലാണ് വൈദ്യുതിയുടെ കുറവ് നേരിടുന്നത്. അതിന് പകൽ സമയങ്ങളിൽ മാത്രം ലഭിക്കുന്ന സൗരോർജ്ജ നിലയങ്ങൾ കൊണ്ട് എന്തുകാര്യമാണുള്ളത്. ഇപ്പോൾ പ്രഖ്യാപിച്ചിരിക്കുന്ന ആയിരം മെഗാവാട്ട് സോളാർ പദ്ധതികൾ നടപ്പിലാക്കിയാൽ ഒരു വർഷം നൂറ്റി അൻപതു കോടി യൂണിറ്റ് അധികമായി പകൽ നേരങ്ങളിൽ ഉൽപ്പാദിപ്പിക്കും. ഇതിനു റെഗുലേറ്ററി കമ്മീഷൻ നിശ്ചയിക്കുന്ന താരിഫ് നൽകേണ്ടിവരും. ഇപ്പോഴത്തെ നിരക്ക് നാലുരൂപയ്ക്ക് അടുത്താണ്. അങ്ങിനെ കണക്കാക്കിയാൽ പ്രതിവർഷം അറുന്നൂറുകോടി രൂപയുടെ അധിക ചെലവാണ് ഒരാവശ്യവുമില്ലാതെ വൈദ്യുതി ബോർഡ് ഏറ്റെടുക്കുവാൻ പോകുന്നത്.

രാത്രികാല ഷോർട്ടേജ് ആണ് നമ്മൾ പരിഹരിക്കേണ്ടത്. അല്ലെങ്കിൽ ചങ്കുറ്റത്തോടെ നിലവിലുള്ള കരാറുകളിൽ നിന്നും പിന്മാറി സന്ധ്യാസമയങ്ങളിലേക്കു മാത്രമായുള്ള കരാറുകൾ അധിക സാമ്പത്തിക ബാധ്യത വരാത്ത തരത്തിൽ ഏറ്റെടുക്കണം.

വൈദ്യുതിയുടെ കച്ചവടങ്ങൾ ഇപ്പോഴുള്ള രീതിയിൽ മുന്നോട്ടു പോയാൽ ഏറ്റവും ആദ്യം നിലക്കുവാൻ പോകുന്നത് ശമ്പളവും പെൻഷനുമായിരിക്കും. ഓരോ വർഷവും രണ്ടായിരം കോടി രൂപയിലേറെ നഷ്ടം നേരിടേണ്ടിവരുമ്പോഴും വൈദ്യുതി വാങ്ങുന്നതിൽ ഒരു കുറവും വരുത്താതെ ആസൂത്രണങ്ങളുടെ രീതികളും മാറ്റാതെ മുന്നോട്ടു പോകുന്നത് അപകടമാണ്. കെ.എസ്. ആർ.ടി. സി.യുടെ പിന്നിൽ കെട്ടിവലിക്കേണ്ട വണ്ടി കെ.എസ്.ഇ.ബി. ആയി മാറും.

ഇങ്ങനെയൊക്കെ ആണെങ്കിലും ഇത്തവണത്തെ അധികമുള്ള വെള്ളം കൂടുതൽ വിലയ്ക്കു വിൽക്കുവാനായി സിസ്റ്റം ഓപ്പറേഷനിലുള്ളവർ ശ്രമിക്കുന്നുണ്ടെന്നുള്ളത് എടുത്തു പറയേണ്ടകാര്യമാണ്. ഇപ്പോഴത്തെ സാഹചര്യത്തിൽ അത്രയെങ്കിലും ചെയ്യുന്നത് നല്ലകാര്യമാണ്. എന്നാൽ വാങ്ങുന്ന വിലയേക്കാൾ കുറഞ്ഞ വിലയ്ക്ക് വിൽക്കേണ്ടി വരുമ്പോൾ എത്ര മിച്ചമുണ്ടായാലും മെച്ചമില്ലാതാകും എന്നതാണ് സത്യം.

\*

# Obituary



**Er. Anantha Subramanya Iyer** (popularly known as Aundi Sami)  
Retired Chief Engineer

He was at his residence in Chennai. He was an expert in the transmission field of KSEB, a great engineer and a loyal member of our Association.

**We offer our deepest and most sincere condolences.  
May his soul rest in peace...**

## 24 x 7 Supply: Are we ready...?!



Er. C. P. George  
*Deputy Chief Engineer*

### Introduction

With the urbanisation of the Kerala Society during the past decades, even the domestic consumers in state cannot afford to have few minutes of electricity supply interruptions in their home and the engineers in the distribution wing is under tremendous pressure to maintain the supply at any risk and cost.

The present distribution network in the state was not constructed according to the electrical engineering principles complying mandatory standards but have been evolved based on the requirement of the service connection applications received from the consumers in the state. As such, the electricity is being supplied through a distribution network compromised with safety standards and construction standards and this has ended up in compromising the quality and reliability of electricity supplied to the consumer.

In addition to the substandard network issues, we have very difficult terrains with thick vegetation all over the state that makes maintaining the electricity supply a lifelong challenge for the field engineers. The scarcity of resources and competent staff to ensure quality of works and timely restoration of supply is another challenge to recon with. The frequent natural calamities including thunder storms and monsoon storms during every season is a network design

engineering problem that need to be solved with appropriate design and technology with enough redundancy. The undisciplined vehicle drivers who have prioritised their first target to the KSEBL Lines and poles are another menace that to be managed in time to ensure reliable supply...!! In short, it is observed that the environment for 24 X 7 supply does not exist in the state now and hence need to be created with systematic investments for standardisation along with automation and mechanisation. The capacity enhancement of the human resources along with quality improvement programs is another aspect that need special attention.

In spite of all these ground realities, State Government, KSERC & KSEBL have offered 24 x 7 electricity to all the consumers in the state! Consequently, the field engineers are left to face the wrath of the public within this adverse environment with incompetent & unskilled field staff and scarcity of resources.

If we are serious about providing quality electricity with reliability to the consumers, we need to do a lot of introspection about the present state of affairs in the organisation. So far, we have



not properly segregated the transmission and distribution function. The point of interfacing between transmission and distribution function need to be fixed at every substation for the functional clarity as well as the asset / investment accounting. This will ensure proper energy audit and accounting which in turn provide the real picture of cost effectiveness of the investment requirements.

We need to have the real data on the type of interruptions that happens at various voltage levels and its reasons. The interruptions at HT levels are affecting the maximum number of consumers and need to be tackled with much more seriousness and urgency. We need to ensure that all the 33kV substations satisfy the n-1 conditions with required redundancy of feeders and equipments. All the 11kV feeders need to be designed as ring mains to ensure possibility of redundant feeding for every distribution transformer with ensured back feeding facility from a predetermined source and this will ensure safety.

We need to have the data on requirement of extra investment in transmission and distribution to achieve the goal. We need to have HR with appropriate skill and appropriate level of mechanisation and automation to ensure proper results during the specified time. We need to have clear cut plans and well-defined programs to meet the targets. We need to know that no plans and no program can be implemented in a fine morning without proper homework and preparations! Plans & programs need to

be conceived by the implementing officers in the field for proper implementation as envisaged. Hence the plans need to be devised with enough transparency, discussed at various stages and modified to the perfection.

With the declaration of the 100% electrification of the state, state have practically achieved the major goal and target of providing **access to the electricity for all**. Now it is time to think & plan about the quality and reliability of electricity supplied to the consumers. Quality and reliability means heavy investments in the network and for the financial viability of the sector, the level of quality and reliability requirement need to be linked to the energy charge/ fixed charge and make the consumer accountable for the cost.

It for the engineers in the sector to go for innovative ideas with appropriate technology in the distribution network to minimize the supply interruptions and make consumer accountable for the additional investment required for improving quality and reliability of the distribution network.

### **Reducing Frequent Supply Interruptions**

The distribution of electricity involves only the installation of some distribution transformers, conductors and switching stations. As such **no rotating parts are involved in the system**; it should require less maintenance and need to be reliable if designed according to the requirement. If we forget about the complicated of electrical engineering aspect in the network, we have some permanent metallic connections which should



normally last 10 - 15 years (if done properly) and some switching devices (*fuses, AB switches & Circuit breakers*) & transformers which need some close monitoring based on the technology used and the stress subjected. In the end, the quality & reliability of the supply depends on the quality of network design (*never considered in normal environment*), the connections, the quality & reliability of the transformer stations and the quality & reliability of the switching devices. We need to combine the technology with innovative ideas that suits our local requirement to design a feasible and viable distribution network.

**1. 11 kV network Related.**

- Interruptions due to Planned works in the Network
  - i. Design and construct /convert the local distribution network into a "ring-main" that suits to the requirement of local supply needs and affordability of the interruption.
  - ii. The planned works along any stretch in the ring feeder arrangement shall not affect the remaining portion as the supply is being fed from two sources at both ends
  - iii. All the radial branches emanating from the ring need to be connected through a circuit breaker & isolator to restrict the fault and work in the branch from affecting the "main ring".
- Interruptions due to Unplanned work / Break down works
  - i. **Present Status:** Entire feeder is affected due to tripping at the Sub Station end

- **Restricting / Reducing the consequence of the fault:** New techniques and methods
  - i. By automatic isolation of faulty portion by introduction of Breakers (Auto re-closers) for branch lines and at suitable locations with grading the relay tripping according to the upstream settings
  - ii. Locating the fault
    - a. **Present Status**
      - i. Patrolling
        1. Patrolling large area is time consuming, labour intensive and able to detect visible fault only.
        2. Failure of insulators and cable faults cannot be identified through normal patrolling methods
      - ii. Test Charging
        1. Repeated test charging will cause charging the line to the fault, further damages the weak points and drastically reduce the life of the elements in the system and hence not recommended. But it is being used widely and repeatedly in our system
    - b. **New techniques & methodologies**
      - i. Branch line Circuit breakers shall provide the area of the fault
      - ii. **Install fault indicator to pin point the location of the fault and isolate the faulty portion. This reduce the risk of charging to the fault**
- **Isolating the fault**
  - c. **Present Status**
    - i. Isolation through AB



- ii. Isolation through removing the bridging

**d. New Techniques & Methodologies**

- i. Automatic isolation by breakers
- ii. Remote controlled off load isolators

● **Energising the healthy portion**

a. Present Status

- i. By energising the feeder from Substation after isolating the faulty portion through opening AB or removing the bridging

b. New Techniques & Methodologies

- i. By automatic isolation of the faulty portion and energising the healthy portion through relays
- ii. Remote isolation of the faulty portion from a control room and energisation of healthy portion (through SCADA or DCS)

● **Locating and Rectifying the fault**

i. Faults-OH

a. Direct and Visible

- i. Remove the fault and rectify the damages ( eg. Natural calamities, physical damages due external forces like dashing of vehicle, human intervention etc )

b. Indirect and invisible

- i. Failure of insulators/insulations due to surges, lighting, aging etc.
- ii. Failure of equipment/elements like transformers, Las, cable

● **Restoring/Normalising the network**

- i. Rectification of fault and manual operation

- ii. Locating the fault through equipments measuring parameters, automatic isolation of fault, rectification of fault as per convenience planned and restoration of the system.

2. **Transformer & Transformer Station:**

Increasing the reliability and reducing the transformer failure

**a. Transformer Failure: Status & reasons**

- i. Transformer Oil contamination due to moisture absorption through breathing.
- ii. LT bush failure due to lose contact or improper connections from LT bush
- iii. Over loading due to LT short circuit and LT fuse protection system is inadequate to prevent the failure
- iv. Inadequate & Non-Standard LT distribution system and transformer protection

**b. Reducing the Failure and increasing the reliability**

- i. Go for breather less transformer (Transformer with conservator air bag and hermitically sealed)
  - ii. Go for transformer with synthetic Transformer oil having less moisture absorption
  - iii. Go for *transformer with in-built distribution panel & MCB/MCCB protection*
1. shall protect the transformer from over load



2. shall reduce the cost and space
3. standardise the distribution panel in a transformer station
4. Standardise the connections from the transformer bush; eliminate loose connection and reduce transformer failure rate

**c. Transformer Mounting Structure**

- i. Go for *single pole mounted platform design* with pre -fabricated technology for foundation-Pole - Platform to minimize the space, less inconvenience for public while constructing along the road, better aesthetic look

**d. Standardisation of Transformer Station and**

- e. **Transformer Station “kit”** along with the transformer allocation

**3. Pole Fabrication and Pole erection.**

- i. Every Pole (PSC Pole / Tubular Pole / A-Pole / Steel Pole) need to be fabricated with the concept of mechanised handling and erection.
- ii. Earthing / grounding is of foremost importance in safety and reliability in distribution system. Hence all PSC poles need to be fabricated with internal earth wire and all metallic poles need to be provided with enough “earth boss” for proper grounding
- iii. All tubular poles and A poles may be designed and supplied in such a way that it can be mounted on a pre-fabricated foundation with enough studs or bolts.

- iv. Pre-fabricated concrete foundation may be designed and supplied with each tubular and A-Poles so that the mechanised erection of the poles and accessories are feasible.

**4. High Voltage Distribution System** for better reliability, reducing the interruptions for individual consumers & loss reduction

- i. According to CEA Construction Standard for 11/0.433 kV Distribution Substation; distribution transformers from 6.3 kVA to 2500 kVA is allowed. This means we can distribute electricity to most of the consumers with exclusive transformers and increase the reliability and reduce the rate interruption of the individual consumer drastically consumers in addition to the 3-4% loss reduction in the LT side.

Hence KSEBL need to go for a wider range of transformer rating to suits the consumer load range and the purchase policy need to be modified accordingly.

To Conclude, I may state that, the distribution of reliable supply with quality to the consumers demand an entirely different attitude from the management and employees with professional approach to create appropriate environment which is pre-requisite for promoting enough investment in the sector and to promote competent engineers and skilled staff. We may roll out a road map with a vision and clear milestones to ensure that the goal is achieved as a part of vision within a period of 5 -10 years





## ELECTRICITY (Amendment) BILL 2014 – NOT IN THE PUBLIC INTEREST

### Electricity Act 2003– Failed in it's objective – Needs Review

Er. Shailendra Dubey

Chairman

All India Power Engineers Federation (A I P E F)

### The primary objective of arresting losses has not been met

Electricity Act 2003 Act replaced the Electricity (Supply) Act 1948 notwithstanding the seminal role played by the Electricity (Supply) Act of 1948. The 1948' Act had transformed the nature and the outreach of the power sector by integrating the erst-while licensees with limited operations into State Electricity Boards that became the prime movers of rural electrification and the resultant all round economic development across the length and the breadth of the country.

The main justification for changing legislation was reduction of financial and line losses. The financial crisis has worsened, even a decade after the Act coming into force. That is clearly indicated by the data in the table given below:

(₹ Lakh Crore)

	2013-14	2014-15	2015-16
Accumlated loss	3.06	3.50	4.14
Total outstanding loan	3.65	4.03	4.22

UDAY and the NPAs of Banks and Financial institutions indicate the gravity and urgency of the financial crisis. There is nothing to indicate that change in legislation resulted in reduction of line losses. Line losses have reduced only due to improvement in both technology and investment.

### Consequences of structural changes in the institutions supporting the supply industry

The Electricity Act 2003 changed the structural character and charter of vital institutions like Central Electricity Authority and the State Electricity Boards.

### Removal of Techno- Economic approval of CEA

Experience has shown that as consequence of removal of approval by CEA has resulted in

- a) Unplanned growth and capacity addition, particularly the thermal capacity (coal and gas-based) by the private sector has accentuated the already acute hydro-thermal mix of generation. This has a steep decline in the thermal PLF resulting in



stressed assets. In addition, the State Electricity Boards have been forced to back down and even shut down their stations to provide load against load guarantees given in the PPAs through regressive deemed generation clauses

- b) Besides creating problems for the power sector, the stressed assets are threatening the health of Banks and Financial Institutions like the Power Finance Corporation and Rural Electrification Corporation.
- c) Faulty fuel linkages, particularly in the case of import of coal has resulted not only in high prices but also recent shut down of ultra-mega power plants. Also over-invoicing of imported coal is under investigation by the Directorate of Revenue Intelligence. The lack of supply of Natural gas has resulted in several stations, including new ones, being shut down.
- d) Government's bias in favour of private gas companies resulted in unconscionably high prices for gas being conceded in their favour, which in turn resulted in a sharp increase in the price of electricity, imposing losses on PSU utilities. The inability of the private gas companies to deliver sufficient quantities of gas led to serious power shortages, especially in the Southern States.
- e) Excess import of capital goods resulting in losses to the Indigenous manufacturers. Imported power equipment has also added to the cost of electricity.
- f) Load guarantees in PPAs forcing State units to back down or even shut down.
- g) Long-term "Deemed Generation" and / or "Capacity Charges" clauses incorporated in the PPAs not only for coal and gas-based private thermal power plants but also for private centralized solar power developers.
- h) Under the guise of power trading, private licensees were allowed to cherry pick remunerative loads at the cost of viability of the PSU utilities, accentuating the latter's inability to cross-subsidize unremunerative consumer groups.

It is unfortunate that not only has the role of CEA been watered down, but it is not being allowed to function efficiently. In non-compliance of Section 70 of the 2003 Act, a Chairman has not been appointed in CEA since the beginning of this year and several posts are lying vacant against 14 members stipulated in the section.

### **Unbundling of State Electricity Boards**

The creation of multiple companies in a State, has not improved the service, but instead it has added to the overhead costs and lack of clear policy for the States as a whole. Partial measures like UDAY only reduce the intensity of the financial and technical crisis but do not resolve it.

Starting with Odisha, the policy of privatization of distribution has failed. Delhi's privatization has not been a financial success and it is only the "low hanging fruits" where there has been reduction of AT&C losses. What is worrying is the huge regulatory assets that the private DISCOMS in Delhi and Mumbai have accumulated. This is a "Tariff Sword Of Damocles" hanging on the consumers in Delhi and Mumbai. We





fail to understand why a public utility, that too a monopoly should be exempted from public scrutiny in the form of RTI and CAG Audit. The franchisees in Agra, Nagpur and Aurangabad have failed. It is truly shocking that inspite of mounting evidence the Niti Ayog advocates immediate and extensive privatization

Even in developed countries there is a debate on restoring vertical integration in the power sector. In India, the experience of unbundling has been very unsatisfactory. There is a need for a serious introspection and course correction by way of integrating power utilities. It is time to review the success or failure of the Electricity Act 2003.

### **Electricity (Amendment) Bill 2014**

The core issue is that the Bill envisages segregation of carriage and content. This has far reaching implications not only for the industry but also the consumer. Some of the critical concerns are:

- The Amendment Bill recognizes the need for a Government licensee, so that the loss making sector of the supply industry can be served by the tax payer's company, while the private licensees cream of the high paying sections.
- There is a shift in emphasis of the prime interest that is to be safeguarded. While Section 61 D of the Electricity Act 2003 stipulates: *"the principle of safeguarding of consumers interest and at the same time recovery of the cost of electricity in a reasonable manner"* Section D of the Amendment Bill 2014 safeguards the interest of the licensee *"Safeguarding the consumer interests and at the same time recovery of cost of electricity by the licensees without any revenue deficit"*
- With respect to tariff fixation, the Amendment Bill enables the Central Government officials to usurp the purpose and powers of the regulatory commissions and thereby undermined the consultative process. Whereas the Electricity Act 2003 stated *"In discharge of its functions, the Central Commission shall be guided by the National Electricity Policy, National Electricity Plan and Tariff policy published under section 3."* The Amendment Bill 2014 states, *"Notwithstanding anything contained in this Act, the provision of Tariff Policy shall be followed by the appropriate Commission for the purpose of Tariff determination. What is the purpose of ARR and stakeholder consultations if the quasi-judicial commissions "shall follow" the policy formulated by the executive. Even the Hon'ble Supreme Court order in the Adani Tariff Case dated 11th April 2017 has relied upon the Statement of objects and reasons for the Electricity Act 2003 wherein distancing of government from determination of tariffs is stated.*
- The burden of serving the unviable PPA would be the responsibility of the intermediary company, while exempting the private licensee. This would ensure that the intermediate company is born and survives as a sick unit. The provision of Fixed Cost payment enforced by the PPAs has proved not only very costly but also



counter-productive. State after State are annually paying private Independent Power Producers thousands of Crores of rupees only as capacity charges, even when not a single unit is consumed by the state. There is a need to re-examine the PPA and ensure that such payments are not made.

- Even the present open access has worsened the financial health of power companies and made it difficult for DISCOMS to serve the agricultural and domestic consumers. To overcome this, in any states, additional surcharge has been levied, making electricity more costly.
- Implementing segregation of wire and content would require huge investment in metering, computerization and Information Technology. This cost burden would be passed on to the consumers who even today do not have the paying capacity.

A misguided analogy is made with consumer choice in mobile phones. Whereas the mobile tariff is based on cost to serve and the tariff is the same of all class of consumers that is not applicable for the electricity supply industry. Also mobile is a wireless system, whereas electricity is a wired system.

NCCOEEE demands Government of India to put on hold the proposed electricity amendment Bill till the modified draft of the Bill is discussed in detail with all the State Govt's and other stake holders including power engineers & power workers and their concerns are addressed. NCCOEEE also demands review of power policies of last 25 years before going on for any further amendments & experiments in already ailing power sector.

Government of India should recognize and accept that the conditions prevailing in the power sector are not at all favorable for introducing far reaching changes in distribution. The major issues which includes turnaround of financial health and restoring financial viability , curbing / minimizing of thefts of electricity , development of energy accounting, metering and IT systems and last but not the least the practical impossibility of successful operation by the Intermediate company should be examined in detail before processing the amendments in electricity bill.

**However power engineers & employees have to be watchful and vigilant on any unilateral move of Central Govt to pass Electricity (Amendment) Bill 2014 and for this all power engineers and power workers will have to campaign and mobilise for LIGHTNING ACTION whenever it is required.**

### **Integration of state power utilities**

With the enactment of Electricity Act 2003, different states re-structured the State Electricity Boards as per their own whims. While in some states there were multiple distribution Companies like Karnataka (5 DISCOMS), UP (5 DISCOMS), MP (3 DISCOMS), Haryana (2 DISCOMS), other states retained the entire state under one DISCOM as in Maharashtra & Utrakhand. In case of Punjab and Tamil Nadu genera-



tion and distribution were retained as one company while transmission was separated out. In case of Kerala and Himachal Pradesh the integrated structure of generation, transmission and distribution was retained.

1. It is seen that there is no uniformity and wide diversity in structure of state power utilities across the country.
2. The experience since 2003 has however shown some results and lessons which are summarized.
  - a) One common argument for creating multiple DISCOMS within a state was that smaller DISCOMS would be more efficient and better managed. This has not been proved as correct. On the other hand multiple DISCOMS with their separate Board of Directors create coordination and inter-organization problems within the state.
  - b) The other argument for multiple DISCOMS was that it would create competition and peer pressure to improve performance has not been proved practically for example if the T&D losses in different DISCOMS are widely different it is explained by the type of consumer mix-for example a DISCOM with higher industrial load would have lower losses as compared to a DISCOM with higher agricultural load.

#### **FACTORS IN FAVOUR OF INTEGRATED STRUCTURE**

- i) Every state has one SLDC where the entire state is considered as one control area. This gives SLDC a clear advantage to manage load dispatch over the state as one entity. For example if there is load crash in one portion of state (due to rain, storm etc.) SLDC can order additional supply or loading in other areas of state to offset load crash, so that overall drawl by State remains without deviation.
- ii) With one state DISCOM concept the state thermal and hydro generation can be optimally dispatched by SLDC in the most economic and optimum manner.
- iii) Manpower and HR functions are performed more efficiently and with uniformity with one organization as opposed to multiple companies. In some states, like Karnataka the entire engineering manpower is under TRANSCO, i.e. KPTCL while the DISCOMS draw their manpower requirement from KPTCL. IF there is only one DISCOM instead of 5 the problem is automatically solved.
- iv) In regulatory matters of state level, and dealing with SERC, it is practically effective with one DISCOM and generation and transmission combined. Creation of multiple units only complicates SERC issues.
- v) Similarly, in dealings with CERC and APTEL etc. it is practically possible and justified considering the state as one entity in case of Rajasthan, for example, it is only on paper that the three Discoms are shown as separate parties.
- vi) IN several states a separate coordination body has been created which is the controlling body of multiple DISCOMS. This body is the URJA VIKAS NIGAM. In



states like Gujarat, MP, Rajasthan the Urja Vikas Nigam has been established it is opined that instead of having multiple companies in distribution, generation and transmission controlled has Urja Vikas Nigam, It would be more effective, coordinated and economical to have one organization integrating the functions of distribution, generation and transmission as in case of KSEB Ltd and HPSEB Ltd.

AIPEF therefore is of firm opinion that GOI should introduce a separate section in National electricity Policy whereby the objective to integrate the state power sector is contained. The objective of combining generation, distribution and transmission under one integrated in one company is stated as a matter of policy for the States to adopt. Even without a provision in National Electricity Policy the States are empowered and at liberty to re structure their respective power utilities so as to achieve the objective of integrated operation since Electricity is a Concurrent subject.

### **Shutting Down Of State Thermal Power Stations**

The policy of Govt. of India as contained in the Electricity Act 2003 has resulted in deregulation of thermal power generation whereby a project developer does not need any permission from CEA or Ministry of Power or any other Govt. for setting up a new thermal power station anywhere in the country. However, two related issues are vital for the setting up of the thermal station. First is that no developer is willing to take the risk of finding a purchaser for the power in case the power station is to be setup as merchant plant. As a result most or majority of the new or private power plants are setup on the basis of a long term power purchase agreement which could be with the state in which the power plant is setup or also with any other purchaser in the country through long term open access. The second condition for setting up of the plant is the long term coal linkage. While the project developer can source the coal supply from anywhere in the country on spot purchase basis or even import the coal from any source outside India, the generator or developer generally minimizes the fuel risk by securing a long term coal linkage through Coal India Limited.

The availability tariff regime is in force throughout the country wherein capacity charges are to be paid on the basis of declared capacity whereas energy charges (fuel charges) are payable on the basis of scheduled energy.

With uncontrolled and unplanned capacity addition by private sector developers several states in the country are now having surplus generation capacity available with the result that a considerable percentage of thermal power capacity in the state sector is being shut down for extended periods going upto six months or more even every year in order to accommodate the private sector plants to enable these plants to operate at high PLF by which they can maximize their profits.



The principle generally adopted is summarized as under

- a) Fixed charges representing capital investment in the project are payable (as per declared capacity) irrespective of energy scheduled. In the extreme case in case the purchaser gives a generation schedule of NIL, the power station would be entitled to the capacity charges even if it is completely shut down due to NIL schedule.
- b) Fuel charges or variable charges determine the merit order of the station. Those stations with better heat rate and / or lower fuel cost have a better merit order in terms of  $\text{₹. Per Unit}$ . On the other hand stations with lower efficiency (higher heat rate) and / or higher cost of fuel would be having a variable rate on the higher side.

The state generally schedules the various power stations in the merit order with the stations having lower / lowest variable charges are given the full schedule and this process is carried out in the ascending order of variable charges which becomes the merit order for that state.

1. There are instances when private sector plants having higher variable charges and lower schedules are still allowed to run to full capacity while the state thermal plants having lower variable charges may be kept shut down to enable the private plants to run.
2. The following steps are required to be taken in the situation of surplus capacity resulting in prolonged shut down of the state thermal stations.
  - a) Merit order scheduling procedure to be followed strictly without giving any undue preference to private sector plants for keeping this plants in operation while shutting down state thermal capacity. This proposal is within the prevailing ABT regime and principle of merit order scheduling.
  - b) The present PPA's signed between the state DISCOM and private / IPP developer need to be amended as under
    - i) The state DISCOM / State must be given the option to give the monthly MW requirement from that IPP station and the capacity charges for that month should be payable only up to the requisition or requirement given for that month. The surrendered MW capacity is at the disposal of the IPP / developer who should be free to sell power from that surrendered capacity to any purchaser at any rate, as a merchant sale or a third party sale. The fixed charges for that surrendered capacity should not be payable by the state DISCOM.

In case the IPP / developer do not agree to this monthly requisition procedure, the state govt. should take measures for cancellation of the PPA totally. A consensus amongst all states must be developed so that a common procedure can be evolved to be followed for cancellation of PPA's under these circumstances.

✱



## WHY are Electricity workers and engineers opposing the Electricity (Amendment) Bill 2014?

Prepared by K. Ashok Rao and released in public interest

### Basic facts about electricity

Electricity has to be consumed when it is generated almost instantaneously (since electricity travels at a speed of almost three lakh kilometers per second (299 792 458 m/s). That means that there can be no storage or finished goods inventory. Movement of electricity has to be measured at every stage, electronically and through computers recording it to enable accounting. There are several stages at which the billing has to be done, How much the generator produced and gave to the transmission companies, how much was given to the distribution companies and how much to the supply licensees company and finally to the consumer will have to be measured and recorded. **This will require fresh and large investment in metering and computerization thereby making electricity more complex since many states have large number of unmetered connections in agriculture and other segments.** Large expenditure would also have been incurred on feeder separation schemes. Electricity is bound to be come costlier and unaffordable, even today majority of the people do not have the purchasing capacity.

Cost and price of electricity changes continuously, since demand and supply electricity changes, due to electricity having to be consumed when generated

and vice-verse. Separate rates are charged depending in the time of consumption. This is called "time of day metering". Many states have already implemented time of day metering for the big consumers. Sooner or later this will also be introduced for the household and agriculture sector. This means the cost of electricity would depend on the time at which it is used. Most residential consumers use electricity during peak hours which is the costliest.

Electricity has to be carried by wire upto the point of consumption. There are three aspects - generation, transmission and distribution. All these were organizationally linked into one organization - State Electricity Boards (or in some places like Mumbai and Kolkata by private organizations)

### What is the aim of the Electricity (Amendment) Bill 2014?

The law Electricity (Supply) Act 1948 was replaced by Electricity Act 2003 in order to unbundle and separate these functions in order to enable privatization. This present Bill would further divides distribution into wire and content. This means that like transmission, even distribution licensee will be only deal with the physical flow of electricity and another organization - the supply licensee- will deal with the sale of electricity. The



distribution company will carry electricity to the point of consumption (house hold, shop, factory or a tube-well). The final act of selling electricity to the consumer and collecting cash would be done by the selling company the supply licensee.

The Bill would enable, in any area, multiple licensees. The supply licensees could buy electricity from the distribution company or buy directly from the generating company (and pay wheeling - current carrying - charges to the transmission and distribution companies and sell to final consumer at the best terms and rates. The objective of the Bill is that if you are a consumer, a household or a factory, many supply licensees will compete to provide electricity to you. In reality how many supply licensees would compete to sell electricity to a household, small establishment or a pump set? They would be interested only in large consumers.

**The motive of the Bill is to separate profitable segments, like sale of electricity to industry, railways and commercial establishments, from the loss making segments, like rural households and pump sets. And then to hand over the profitable segments to the private sector, keeping the loss making segment in the public sector. The Bill institutionalizes this separation by stipulating that at least one of the supply licensees has to be a Government owned company.**

**More importantly, this creates a distinction between supply areas under publicly owned and privately owned distribution companies. In case of areas such as Mumbai, Delhi, Kolkata, Surat and Ahmedabad etc., which are currently under privately owned distribution**

**licensees, the government will have to proactively take up the responsibility of also being the incumbent supply licensee for all the loss making areas. Invariably, the privately owned company may choose to keep the wires business and just be a subsequent supply licensee, which caters to only a certain select group of profitable consumers thus absolved itself of universal supply obligation.**

**If there can be many service providers for mobile phones, why not for electricity?**

It is often argued that mobile phone has so many service providers and so a consumer can shift from one to another without changing the phone number. As a result the service has improved. Similarly, when there will be several supply licensees who will compete and make the consumer a king.

The fallacy in this argument is that mobile telephone is a wireless system, but electricity has to be a wired system. This physical difference changes the complexity and flexibility of operation as well as the investments required. But more than this, the basic distinction is that whereas in the mobile service the cost to serve is recovered and Ambani pays the same rate as a rickshaw puller. In the case of electricity most of the households and agricultural pump sets pay below the cost to serve and the service is provided at a loss. Loss making segment will become unsustainable and supply will be cut. In many countries like South Africa electricity was sold through meters that are charged to the extend you pay. So if you have paid certain amount and consumed that amount is 10 days instead



of one month, the remaining 20 days you stay in darkness. This resulted in rioting. A large part of Indian population does not have the purchasing power and similar rioting would be inevitable.

PWC report for regulators bemoans that “tariffs that are not commensurate with costs of supply, and considerations of socio-economic & political sensitivity” Is it possible for a basic infrastructure, which today is a basic and essential necessity not to be politically sensitive in a democratic system.

### **Can there be competition in shortages?**

Competition is possible when there is surplus. In a shortage situation, only black marketing is possible, with competition in black marketing. Since the Bill separates the profit making and loss making segments, it would not be possible to ensure transparent and equitable distribution of shortages when ever power cuts are inevitable.

Government has been claiming that the days of surplus power has arrived. The Central Electricity Authority in its report has claimed that India was expected to become ‘power surplus’ in 2016-17. Data shows that the all-India ‘power deficit’ has gradually been easing. From 8.7 per cent in 2012-13, the shortfall fell to 2.1 per cent in 2015-16. This claim of surplus is based on existing number of consumers, whereas as many as 30 crore people across the country do not have access to power, that is one-fourth of population is without power. The number of persons without power will increase since power is increasingly becoming unaffordable.

The percentage of urban and rural households in Bihar without power connection stands at 33 per cent and 87 per cent, respectively. The corresponding figures for UP are 19 per cent and 71 per cent, respectively. The two states are trailed by Assam (16 per cent urban and 66 per cent rural), Jharkhand (12 per cent urban 63 per cent rural) and Odisha (17 per cent urban and 52 per cent rural) respectively. The other states include Meghalaya, Manipur and Madhya Pradesh.

### **Has multiple generators brought competition or increased the cost?**

Before the amendment of the law and the introduction of private sector generation the Central Electricity Authority (CEA) used to exercise due diligence in regulating additions to thermal capacity so as to minimize the backing down of thermal plants, thereby minimizing the need to back down<sup>1</sup> Since the PPAs provide load guarantees, State Electricity Boards generating stations have to back down, thereby losing revenue

Mr. EAS Sarma, former Secretary Power Govt. of India in a letter to CAG wrote, “*The liberalised regime of 2003 discontinued such a regulatory oversight, opening the floodgates to proliferation of private thermal generation capacity across the States. Instead of assuming the risk of finding alternate consumers for the power generated by them, the private developers setting up thermal power plants took undue advantage of the over exuberance displayed by the States in inviting investments and forced them to sign PPAs with a deemed*





*generation clause, thereby transferring the risk of finding an outlet for their power to the States. Power Purchase Agreements with private companies with a "deemed generation" clause that forces them to pay for the power they may not consume during the off-peak hours. The losses to the public exchequer on account of the "Deemed Generation" clause in the PPAs are mindboggling large. These are amounts that public sector utilities are forced to pay to private companies and indirectly, the huge cost burden is passed on either to the electricity consumers in the State".*

### **Enacting legislation without data and rules would ensure litigation.**

Electricity (Amendment) Bill 2014 requires that existing PPAs will get transferred to an intermediary whose functions will be determined by the Govt. of India. Various states have signed PPAs with various terms and conditions, how the intermediary will ensure that all the conditions are met and at the same time generation is based on least cost principle; another gigantic problem will be assigning priority for the lowest cost generation to the supply licensee since all the licensees would want the cheapest power.

*PWC report for regulators states, "Due to unavailability of voltage wise data on cost and distribution losses, state regulators have to allocate costs and losses between the wheeling and retail distribution licensees' functions on the basis of assumptions. Moreover, in the absence of proper data, cost of distribution licensees cannot be properly determined which affects the estimation of cross subsidy surcharge"*

**Lack of authentic data and lack of clarity regarding the functioning of the intermediate company and clear and unambiguous rules would be an open invitation to litigation. The existence of several organizations will ensure that disputes and litigations would multiply. Essentially, courts and lawyers will become the true regulators of electricity.**

An overriding Constitutional question that needs to be answered: Is the Constitutional status of electricity as a concurrent subject being subverted by this central legislation? Since all PPAs would be administered by a central agency, it would become impossible for load dispatch centers to be managed by the state governments. There is bound to be legal disputes between central and state governments.

### **Where is the consumer awareness?**

It is well established in economics that information asymmetry distorts competition. Unlike industrial buyers, householder or farmers have neither the information nor the skills to bargain terms to their advantage. The Electricity Act 2003 created independent regulators and power utilities have to file the mandatory Annual Revenue Requirement (which contains relating to costs along with tariff proposals). The Act provides that any and every consumer could represent to the regulator and seek amendments to the ARR. But in actual practice how many farmers, householders or small traders or their representative associations have the ability to understand the contents of the ARR? Competition in a complex commodity like electricity is merely a theoretical concept for a majority of the consumers



### Why the employees are opposing the legislation?

1. It should be obvious from the above narrative that the motive behind the legislation is to privatize the profits and nationalize the losses.
2. When the loss making sector is separated and handed over to the Government supply licensee, it would only add to the existing losses of more than Rs.3 lakh Crores.
3. A point has already reached where the State can no longer bear the losses. The result would be imposition of supply cuts on sections of consumers such as farmers, small households, and small commercial establishments.
4. There is little focus on supply and service quality issues, which are at the heart of consumers concerns
5. Due to the preferential load guarantees given in PPAs signed with private generators, public owned power stations are compelled to back down and reduce or stop production resulting in revenue loss.
6. Huge investments would have to be made in electronic metering and computer data logging in addition to and feeder separation, thereby adding to the cost. Electricity is systematically being made costlier.
7. Electricity cannot be compared to mobile phones. Unlike in electricity, every user of mobile phone pays the same price which is above the cost to serve. Consumer's lack of knowledge of electricity negates competition.
8. Legislation is being enacted without working out the details and setting the rules which will result in litigation. Since the Electricity Act 2003 there has been an exponential rise in litigation and private companies have earned more from litigation than generation.
9. While State Electricity Boards were dismantled on grounds that integrated systems lead to inefficiencies, the three or four big private players like the TATA, Reliance, Adani etc. are doing just that building integrated systems. Private monopolies will replace public monopolies.
10. State's Government's autonomy is being eroded and the Constitutional provision of electricity being a concurrent subject is being subverted with systematic centralization

**" THE ELECTRICITY EMPLOYEES ARE FIGHTING TO SAVE THE INDUSTRY AND CONSUMERS INTEREST "**

Electricity demand and supply licensees keep on varying during the day and seasons. Therefore, during off peak hours when the demand is low some of the generating units have to reduce their generation. This is known as backing down.





## Best Power Scene Award



Won by Ernakulam Unit and the award was presented during the 65<sup>th</sup> Annual General Body meeting held at Ernakulam

## Best Unit Award



Won by Kasaragod Unit and the award was presented during the 65<sup>th</sup> Annual General Body meeting held at Ernakulam



### Kasargod Unit Activity



### കാസർഗോഡ് യൂണിറ്റിന്റെ ആഭിമുഖ്യത്തിൽ അനാഥ കുട്ടികൾക്കുള്ള പഠനോപകരണങ്ങൾ വിതരണം ചെയ്തു

കേരളാ സ്റ്റേറ്റ് ഇലക്ട്രിസിറ്റി ബോർഡ് എഞ്ചിനീയേഴ്സ് അസോസിയേഷൻ, കാസർഗോഡ് യൂണിറ്റ്, നീരോളിഗയിൽ പ്രവർത്തിക്കുന്ന അനാഥ കുട്ടികൾക്കുള്ള ശ്രീമാതാ സേവാശ്രമത്തിലെ കുട്ടികൾക്കു വേണ്ടിയുള്ള പഠനോപകരണങ്ങൾ വിതരണം ചെയ്തു. ഒൻപതോളം അനാഥ പെൺകുട്ടികൾക്കായുള്ള സേവാശ്രമം പൊതുസമൂഹത്തിൽ മാതൃകാപരമായി പ്രവർത്തിക്കുകയും ജനോപകാരപ്രദമായുള്ള പ്രവർത്തനങ്ങൾ

നടത്തിവരുകയും ചെയ്യുന്നു. ഈ പരിപാടിയിൽ പഠനോപകരണങ്ങൾ കെ.എസ്.ഇ.ബി. എഞ്ചിനീയേഴ്സ് അസോസിയേഷൻ സംസ്ഥാന വൈസ് പ്രസിഡന്റ് Er. ജയകൃഷ്ണൻ വിതരണംചെയ്തു.ശ്രീ. ശ്രീറാം ആൽവ അദ്ധ്യക്ഷത വഹിച്ചു. Er.സുരേന്ദ്രൻ. പി, Er. നാഗരാജ ഭട്ട്, Er. അബ്ദുൾ ഖാദർ, Er.അജിത് കുമാർ, Er.സൂര്യ എന്നിവർ സംസാരിച്ചു. യോഗാചാര്യൻ ശ്രീ. പുണ്ടരീകാഷ, ശ്രീ. നാരായണ ഭട്ട് എന്നിവർ പരിപാടിയിൽ പങ്കെടുത്തു.



### Letters to the Editor

**കത്തുകൾ അയക്കേണ്ട വിലാസം**

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മലയാളത്തിലുള്ള ലേഖനങ്ങൾ എഴുതി തയ്യാറാക്കിയോ, PDF ഫോർമാറ്റിലോ അയച്ചുതരണമെന്ന് അഭ്യർത്ഥിക്കുന്നു.



**Er. Joseph P.T**

Retired as Executive Engineer  
Transmission Division, Vadakara  
Date of Retirement: 30.04.2018

**Er. Mohammed Abdul Latheef S**

Retired as Executive Engineer  
Electrical Division Adoor  
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**Er. Unnikrishnan A**

Retired as Executive Engineer  
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**Er. Nissar A**

Retired as Assistant Executive Engineer  
Paruthippara Line Maintenance Subdivision, Tvpm  
Date of Retirement: 31.05.2018

*KSEB Engineers' Association wishes you all  
the best on your life after this retirement*

# BUYING GUIDE – Home UPS



*Er. Anoop Vijayan*  
Assistant Engineer

**P**lanning to buy a new UPS or upgrade the existing one? Whatever be the reason, it is very important to first understand which is the right UPS and battery for your home. Let us go through the frequently asked questions with a hope to cover all relevant points in choosing the perfect UPS and battery for your homes.

## UPS AT A GLANCE

### What is a UPS?

A UPS is a device which converts DC current into AC current. A UPS comes of use in homes when there is a power cut. A UPS works on a battery so when power is available, it stores current in a battery but when electricity goes off, it supplies current from the battery to all the required appliances.

### What are the different types of UPS?

From the technology point of view, there are two types of UPS available in the market

- Pure Sine wave : A pure sine wave UPS provides grid like power. It reduces noise from fans, fluorescent lights, amplifiers, television and are

better suited to sensitive items such as laptops, computers, stereos and laser printers.

- Square wave: A square wave UPS is baseline UPS which provides electricity when power is not available.

### What is the difference between 12, 24, and 48 volt UPS?

Every UPS is rated in VA and Volt . VA is the capacity of a UPS to run peak load and volt is the number of batteries required to connect with the UPS. The battery which is used in UPS application is of 12 Volt. Hence, a 12 Volt UPS means = 1 battery is required and 48 Volt UPS = 4 batteries are required.

### What is the difference between ECO mode & UPS mode in UPS?

Usually there are two modes given in a UPS

- Eco mode: In eco mode, the UPS supplies wider range of voltage from 100V - 290V.
- UPS mode: If you want quality power and no fluctuation in your home then



keep your UPS on UPS mode. All the sensitive appliances requires input voltage from 180 V - 260 V. So keep UPS mode on for running sensitive appliances.

### What is the difference between Eco Watt, Eco Volt, Rapid Charge, Shakti Charge & Zelio UPS?

Each UPS has a unique value proposition and their aspects are given as follows:

- An Eco Watt is a basic UPS
- The Eco Volt is a sine wave UPS
- The Rapid Charge is suitable for those who wish to run a load upto 1200 watts on single battery
- The Shakti Charge provides higher charging current which means it can charge the battery in 6-8 hours while batteries in other UPS get charged in 10-12 hours
- Zelio has a backup time display whenever electricity goes off, you can see how many hours of backup can be taken on the UPS.

## POWER REQUIREMENT

### 1. What is my power requirement?

One of the most important things that you must know before buying a UPS is your "power requirement". In simple words: What all electrical appliances (like CFL, tube lights, fan, television, computer, refrigerator etc.) will you run at the time of power cut. Power requirement is addition of the power consumed by various electrical appliances.

### 2. How do I calculate Power Requirement?

Suppose you want 3 Fans, 3 Tube lights, 8 LED lights, 1 television & 1 refrigerator to operate at the time of power failure. The power consumed by these items will be total of the power consumed by these individually:

1 Fan	- 70 Watts
1 tube light	- 40 watts
1 led light	- 7 watts
1 led television	- 70 watts
1 Refrigerator	- 140 Watt

Therefore your total power requirement is  $(3*70 + 3*40 + 8* 7 + 1*70+ 1*140) = 596$  watts.

### 3. What all appliances can I run on my UPS?

A UPS is usually recommended for running energy backup for lights, ceiling fans, computers, television etc. If you wish to run the refrigerator, washing machine, air conditioner etc. you need to buy higher capacity UPS.

## VA RATING FOR UPS

### 1. What is VA?

VA stands for Volt Ampere rating. It is the voltage and current supplied by the UPS to the equipment.

### 2. How do I find the VA rating of the UPS I need for my home ?

Your appliances need more VA than the power requirement in Watts due to the nature of the devices. The ratio is called Power factor. Hence Power supplied (or



VA rating of UPS) = Power requirement (power consumed by equipment in watts)/ Power factor. Usually at homes, power factor ranges from 0.65 - 0.8, taking 0.7 for the calculations,

Power of UPS (VA) = 596/0.7 = 851 VA  
So a UPS with 900 VA will be the right choice for your home.

**3. What is the difference between Volt Amperes & Watt?**

The UPS Capacity is measured in VA which is Voltage Ampere. Higher the VA, higher the capacity of the UPS to run peak Load. Usually, to find wattage, we multiply VA rating by 0.8 (power factor of UPS). i.e. 900 VA means 720 watt.

**BATTERY FOR UPS**

**1. Why does a UPS need a battery?**

The performance of a UPS largely depends on the battery. Battery stores the energy needed to run your appliances during power cut.

**2. How much backup will a UPS provide?**

This is determined by battery capacity. It is expressed in Ah (Ampere Hours).

**3. How do I finalize which one I would need from my home ?**

To find this out let's do a reverse calculation. Consider that you need a battery that provides backup for 2 hours for running appliances of load 851 VA (596 W).

Battery capacity = [Power requirement (in VA) \* Back up hours (in hrs)] / Battery Voltage (in volts)

For lead acid battery, battery voltage = 12V.

Battery Capacity = (851 \* 2) / 12 = 142Ah

In reality battery performance degrades with usage, so you are recommended to buy 5-10% higher capacity battery. Therefore a battery with a capacity of 150 Ah will work for you.

So if you want to run 3 Fans, 3 Tube lights, 8 LED lights 1 television & 1 refrigerator for 2 hours during power failure you would need 900 VA UPS and 150 Ah battery.

**4. Would I need a Single battery or a Double battery?**

Now suppose your power back up requirement is 4 hrs for the same power load.

Battery Capacity required = (851\*4) / 12 = 284 Ah ~ 300Ah

Since batteries are available between 60-200Ah, you will need 2 battery of 150Ah (in series) to provide 300 Ah. Two batteries together create 24 V output, hence you need to choose UPS which supports 24V input.

**5. What are the types of Batteries that are available?**

Lead acid batteries come in flat plates or tubular (rod shaped) plates.

- Flat plate batteries: Flat plate batteries come in small height containers, and are suitable for low power cut areas as their designed cycle life is low.
- Tubular Plate batteries: Tubular batteries come in small as well as tall containers, they typically have longer





**എർമ്മോ**

**എക്സിക്യൂട്ടീവ് കമ്മിറ്റി മിറ്റിംഗ്**

ഒരു സംഘടനയുടെ എക്സിക്യൂട്ടീവ് കമ്മിറ്റിയുടെ ചർച്ചയിൽ ഉയർന്നുവന്ന ചില നിർദ്ദേശങ്ങൾ.



Er. ഇ.എം. നസീർ

“ സംഘടനയുടെ ആനിവേഴ്സറി രണ്ടു കൊല്ലത്തിലൊരിക്കലാക്കണം”.

“ രണ്ടു വർഷത്തെ ഒരു പഞ്ചവത്സര പദ്ധതിയിലൂടെ പുതിയ ഓഫീസ് കെട്ടിടത്തിന്റെ പണി പൂർത്തിയാക്കിയേ തീരൂ.”

“ സെക്രട്ടറിക്കെതിരെയുള്ള അഴിമതി ആരോപണങ്ങൾ നാലംഗങ്ങളുള്ള ഒരു ഏകാംഗ കമ്മീഷനെ കൊണ്ടന്വേഷിപ്പിക്കണം.”

“ ഇന്ന് ഇവിടെ നടക്കുന്ന ചർച്ചയുടെ വിശദാംശങ്ങൾ ഇവിടെയുള്ള ഏഴുപേരല്ലാതെ മൂന്നാമതൊരാൾ അറിയാനേ പാടില്ല.”

“അടുത്ത മാസം സെക്രട്ടറി സ്ഥാനമൊഴിയുന്ന എന്റെ ഒറ്റയ്ക്കുള്ള ഒരു ഗ്രൂപ്പ് ഫോട്ടോയെടുത്ത് പുതിയ ഓഫീസിന്റെ ഭിത്തിയിൽ തൂക്കണം.”

“ ഇമ്മിണി ബല്യകാര്യം എനിക്ക് പറയാനുള്ളത്; മാസത്തിൽ ഏതെങ്കിലും ഒരു വെള്ളിയാഴ്ച സെക്കന്റ് സാറ്റർഡേ ആക്കി അവധി പ്രഖ്യാപിക്കാൻ സർക്കാരിനോട് ആവശ്യപ്പെടണം എന്നാണ്.”



design life, suitable for all areas. Due to the longer life, they are replacing flat plate batteries in UPS battery applications.

- Plates should be constructed from highly pure lead alloy with high pressure casting machines to ensure low maintenance and long life..

**OTHER FEATURES**

**What are the other important features that I would need to consider before buying a UPS?**

The other important features that you would need to consider before buying a UPS are as follows:

- Warranty: Higher warranty indicates longer life and superior quality. Typically, warranty on batteries range from 12 months to 48 months.
- Float indicators & vent plugs: Batteries have conveniently placed visible float indicators, so that you don't miss topping up water when needed. Vent plugs should be designed to ensure that the gas pressure inside the battery is regulated.
- Terminal Protectors: Batteries should come with terminal protectors to ensure utmost safety to the consumers. These protectors prevent chances of accidental electrical shock.

Source: <https://www.luminousindia.com>





## Stories that Inspire...

By Amey Hegde

Inspire us to dream big  
N urture new ideas and visions  
Summarise complex concepts  
P rovide us with a new perspective  
I nfuse positive energy  
Reveal the mindsets of successful people  
Encourage us in times of despair



### Positive Attitude

#### The Shoe Salesmen

Many years ago two salesmen were sent by a shoe company to Africa to find out if there was a market for shoes.

The first salesman reported back, "There is no market there - nobody wears shoes".

The second salesman reported back, "There is huge market there - nobody wears shoes".

You can look at the same situation in two different ways - negatively or positively. The first salesman looked at it as a problem; the second one looked at it as an opportunity.

Next time we face a problem, let us ask ourselves "how can I do it?", rather than simply saying "it can't be done."

#### The Two Brothers

There were two brothers. One was a drunk who beat his family. The other one was a respected and successful businessman and was loving and caring towards his family. How could two brothers from the same parents, brought up in the same environment be so different? When asked they gave the following answers.

The first one replied "I became like this due to my childhood. When I was a little boy, I used to see my dad drunk and doing all the wrong things. So I became like this."

The second brother replied "I became like this due to my childhood. When I was a little boy, I used to see my dad drunk and doing all the wrong things. I decided that that is not what I wanted to be."

It is not the situation that determines our life, but how we respond to it. What happens to us is just 10% of life. How we respond to the situation decides 90% of our life. We have no control over 10% of what happens to us. However, we have control over the other 90%. We can always choose how we respond.





## Letter by Association



# KSEB ENGINEERS' ASSOCIATION

TC 26/1300, Engineers House, Panavila, Thiruvananthapuram-695001

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**Er. N.T. Job**

*General Secretary*  
**Er. Sunil K.**

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*Secretaries*  
**Er. M. Muhammed Rafi (HQ)**  
**Er. Anilkumar G. (S)**  
**Er. Sajithkumar (N)**

KSEBEA/Letters/2018-19/3

04.06.2018

**To**

**The Chairman & Managing Director  
KSEB Limited**

Sub: - General Transfer Policy and its consequences on the Availability of Hydro Generators.

Sir,

The major Hydro Power Stations in Kerala were commissioned during the period from 1940 to 1987. Though the machines and control systems in some hydro stations have been renovated for extending their life, the water conducting systems in most of the stations are yet to be renovated or replaced. As per CERC/SERC norms the useful life of a Hydro Electric Plant is 35 years and most of the power stations in KSEBL have completed their useful life. Most of our stations are now operated under extended life and it warrants continuous evaluation of the health of various systems in the plant.

This calls for close monitoring and intensive maintenance of the various systems in the plant by engineers, supervisors and technicians with better expertise and skill. With the introduction of the automation and SCADA for better visibility and control of the power station from SLDC/SRLDC/NLDC, the requirement of experienced engineers with expertise in the specific field is of great relevance to ensure reliability and availability of the machines.

On evaluation of the statistics during the last year, it is observed that the outage time and the trouble shooting time required for the generators have increased in comparison with the previous years. Even though all the Generating station equipment



works in almost same principle, each power station is different with specific technologies, different manufacturers and the different philosophies. With renovation and modernisation, most of the stations are now controlled through system of SCADA and the remaining power stations also need to follow the suit as it is mandatory now as per standards. Since the equipment of all the stations are not similar, an experienced hand from a particular generating station may not be able to identify the failure of other stations. The operation and maintenance of power stations cannot be compared with that of the Transmission and Distribution systems.

The periodicity of many issues that occurs in a generating station may go beyond one year. Accordingly, it requires service beyond the span of one year in that particular station to atleast earn some experience in troubleshooting equipment/issues/problems. The extra years of experience put in by an Engineer in a particular station will make him an expert and thereby will be more beneficial to the organisation. This experience and expertise earned by him from the station makes him competent enough to guarantee minimum period of outage in that station. Knowledge transfer will also be possible if enough expert engineers are retained in these stations when fresh hands join.

In this context, we request that the present policy of transfer in and out of generating stations in the online transfer system need to be closely evaluated . It is observed that, most of the experienced engineers working in the generating stations will be forced out of the station within two general transfers. This will lead to a scarcity of engineers with expertise and skill in the generating stations. Most of the remaining engineers will be having an experience of one year or less and will not be well versed with many of the issues inherent in the relevant power stations.

It is observed that, most of the officers and staff are now opting for the generation to avoid the transfer to the North/Malabar and also for earning better index. Their intention is to spend one year in the station and return to the domicile places without much contribution to the station and to the organisation. We may point out that creation of such an environment and philosophy in the utilisation of the HR shall have adverse impact on the availability of the machines and the future of the organisation. This philosophy do not encourage the engineers and staff to observe and learn the technologies, circuits and functions in depth, but will spend the tenure with less involvement until next transfer. We may point out that this can also adversely affect the safety environment in the station. Kindly note that the errors in the operations or lack of perfections in the operations of the machine will have serious consequences on



the life and availability of the stations. These may also lead to the prolongation of the outage time or maintenance activities.

We may also point out that, the move to reduce the duration of Annual maintenance of machines shall be decided with utmost care. The maintenance of a machine is a sequential operation. Based on experience in each stations, a schedule has been fixed, on which works to be carried out are prioritised. Then only the total work could be completed with minimum time. Contrary to popular belief, increase in manpower may not shorten the duration of maintenance, as the possible number of HR that can be engaged for a work is limited. Some activities like filtering, winding cleaning etc. can be outsourced, but these activities will also take its own minimum time irrespective of the manpower. As such, we may point out that an increase in manpower may not help to reduce the maintenance time of a machine and it very much depends on various factors specific to the station.

Providing over time to the workers is considered as an option to minimise the time. This strategy cannot be applied universally and is practically possible and successful only for specific works. Desirable output will not be obtained by engaging workers continuously for overtime beyond a limit. In short, we may point out that the availability of the hydroelectric machines and quality of maintenance very much depends on the experience, skill and expertise of the engineers and staff working in the stations. The compression of the maintenance schedule is not practically possible without affecting the quality of the maintenance which in turn can lead to the increase in the outage in future.

To conclude, we request that the present general transfer policy applied to the generating stations may be reviewed to encourage the creation of an environment for enhancing the experience, expertise and skill of the engineers and staff in the generating station. And we guarantee that this will ensure huge returns to the organisation with better availability of the generating stations through better quality in operation and maintenance of the stations. We shall also be given an opportunity in sharing our views regarding the comprehensive HR requirements in generating stations.

Yours faithfully

Sd/-

For Engineers' Association  
General Secretary



# KSEB ENGINEERS' ASSOCIATION

TC 26/1300, Engineers House, Panavila, Thiruvananthapuram-695001

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**Er. Anilkumar G. (S)**  
**Er. Sajithkumar (N)**

KSEBEA/Letters/2018-19 /

18-06-2018

To

**The Chairman & Managing Director**

**Kerala State Electricity Board Ltd.**

Sir,

Sub : Online General transfer guidelines – Flagged posting of Officers & reduction in posting strength –concerns-reg.

Ref : 1. BO(FTD)No.555/2018(PS-1(A)/13/General Transfer/Officers/2018) dated 01.03.2018

2. Our suggestions dated 29-01-2018 & 03-02-2018 ,submitted to the CPO.

3. Hon.High Court Judgment dated :31-05-2018 in WP(C)10286 OF 2018

This is to bring your kind attention regarding the implementation of **Flagged postings** and the unjustified **reduction in posting strengths** in General Transfer 2018, without following any justifiable norms. This is in line with the judgment vide ref(3) directing the parties to try to resolve the matter mutually.

Even after several deliberations with the Associations of officers and subsequent submissions regarding flagging and posting strength, the Board has insisted flagging of 5 % posting strength in all cadres and all Districts. This has given unilateral and biased protection to some of the officers, without following any specific norms, during GT 2018. This will jeopardise the intention of OLT and hence is violation of natural justice. Association had raised objections against the clandestine proposal of **flagging**, in all the available forums, and submitted our suggestions, to the CPO and other higher-ups, in which we had explained our stand and opinion regarding the flagged posts.

KSEBEA has also submitted objections against the unscientific reduction in posting strength , that also without any norms/ orders. It is submitted that arriving posting strength based on the working strength would spoil the whole objective of arriving a need based posting strength in KSEBL. We are of the opinion that the need based sanctioned strength should be considered for posting and the remaining may be filled through promotions / recruitments.



The places chosen for posting strength is also a matter of concern since these are getting arbitrarily chosen and is being shifted at will. After applying to a post and after closing application process, one suddenly finds out that the posting strength has been reduced or there is no posting strength to the applied place. This creates an unfair situation for the applicants and they are left to fend for themselves. No higher officer is getting consulted regarding the posting strength and needless to say complaints regarding this are pouring in demoralising the whole work force.

Though, we, along with other five associations of officers, submitted representations against flagging and unscientific reduction in posting strengths in KSEBL, the Board had implemented both in GT 2018, without considering the genuine objections raised, in this regard.

We had no other options other than approaching the Hon.High Court for a justice against the negligence shown by the Board and filed petition against the same, but after several hearings judgment referred (3) above was issued by the Hon.High Court by considering some of the information filed in this regard. But, judgment has allowed us to approach the Board and submit the grievance once again for consideration and redress.

Hence, we once again submit the following grievances regarding the same for your favourable consideration.

**Clause -I(6)**, provision for flagged posts, shall be excluded. The concept of flagging will definitely spoil the good intention of service index and the eligibility gained by the employee while selecting his place of choice.

KSEBL had claimed that flagging is for retaining experienced personnel or choosing apt persons in technical wings of KSEBL such as Relay, Load Dispatch etc. But a look at the flagging clearly suggests another pattern. Flagging is presently everywhere and places in Electrical Sections, Office places in Divisions, Circles, Places in Vaidyuthi Bhavans etc are flagged and there seems to be no norm other than some vested interest in these places being chosen. Many genuine requests to these places are being flagged down

It may be noted that there is provision in the guidelines, for **Administrative Protection** as per **Clause -10(p)** in the guidelines, referred (1) above, defining specific purpose for the same. Further in, **Clause-20** of the General Conditions, there is provision for posting of Engineers/Officers to any post in exigency of service and as decided by the Board of Directors. So, the purpose of "Administrative Convenience" can easily be achieved through **Clause 10(p) and/or Clause-20** of the General Conditions. **Hence, the need for flagged post is unnecessary and redundant and we strongly demand that the unfair clause of flagged posts be removed from the guidelines**, to ensure transparency and smooth implementation of Online transfer process.

Therefore, we once again earnestly request that the **transfer guidelines of officers, may be modified by excluding Clause -I(6)**, the concept of FLAGGED POST. We also request that the matter of fixing posting strength may be made transparent.

Yours faithfully

Sd/-

**GENERAL SECRETARY**



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**Er. Anilkumar G. (S)**

**Er. Sajithkumar (N)**

No. KSEBEA/Service/2018 -19/8 Dated: 18/06/2018

To

The Chairman & Managing Director  
KSEB Limited.

Sub: Tampering with the service seniority & experience- Posting of junior Deputy Chief Engineers in critical posts with full powers of the Chief Engineers.-reg  
Sir,

The present system enforced in KSEBL entails that the career prospects of Engineers recruited through Public Service Commission is determined by the PSC rank and the service seniority. The system is being followed in the organization without much dispute, though its merit is of wider discussion and evaluation.

In spite of its demerits, the mechanism is widely accepted by the Engineers and Employees, because of its transparency and defined equal opportunity on a definite platform. The system is successful in providing a sense of equal justice irrespective of politics, religion, cast, creed, union, association or alignment with the party in power.

Nowadays it is observed that there are deliberate attempts to tamper with this accepted transparent system of promotion in the posting of the Chief Engineers and Departmental heads. This is strongly suspected to favor the nominees or those with direct link with the ruling parties or power centers.

Instead of promoting the senior most deserved Deputy Chief Engineers with higher PSC rank and service experience, junior Deputy Chief Engineers (some more than 5 years junior to many Senior Deputy Chief Engineers) are posted as "Deputy Chief Engineer - In Charge of Chief Engineer" or "Deputy Chief Engineers with full powers of Chief Engineer. It is observed that no accepted norms or criterion have been considered while taking such critical decision. The general impression given





out by such decisions are the possibility of availing the undeserved advantages by the individuals in proximity to then ruling political parties or power centers. We shall point out that the practice is not in the best interest of the organization as same may lead to unholy nexus between senior engineers in the organization and politicians in power.

This is in turn also creating a demoralising effect on Senior Engineers. There is a belief among Senior Engineers that the management is directly belittling them by questioning their competency and skills in taking up such positions. Such postings violate the very spirit and sanity of the conduct rule. This type of posting also circumvents the policy of not creating extra vacancies at the top of the pyramid. This in fact creates more power centres inside the organisation. The demoralising ripples it causes in the hierarchy of the organisation itself is a cause that should be taken into account while taking such decisions. This pick and choose policy avoiding many brilliant Engineers shall be abrogated at any cost.

KSEB Engineers Association express its strong objection and protest against such arbitrary decisions favoring some individuals without accepted norms and proven merits. We may point out that this can be considered as a direct tampering of the existing system of promotion and sheer injustice to the deserving senior engineers in the organization.

We may suggest that if any policy issue restrict the management from creating the place of a Chief Engineer for any specific project or department, the senior most Deputy Chief Engineer may be posted to such places to act with the full powers of the Chief Engineer. This may be done only if it is very much necessary. Actually, this is in tune with the organizational interest as it will enable the senior engineer with relevant experiences and empower him to perform better in his future responsibilities. Management should take Senior Engineers into confidence and should convey and motivate them in achieving greater heights for the betterment of the organisation.

Engineers' Association request the management to reconsider its decisions with respect to the present posting of "Deputy Chief Engineers in charge of Chief Engineers" or "Deputy Chief Engineers with full power of Chief Engineers" unless the individuals are the senior most Deputy Chief Engineers. We urge the management to restrain itself from tampering the existing system of promotion of the senior engineers till any other foolproof system is in place.

Yours faithfully,  
Sd/-  
General Secretary

## Power Briefs

### **PowerGrid to commission 1st commercial e-vehicle fast charger next month**

State-run transmission utility Power Grid Corp will commission by the first week of July its first commercial e-vehicle fast charger at one of the metro rail stations in Hyderabad.

“We have tied up with the Hyderabad Metro. We will commission our first commercial fast (direct current) charger at one of the metro rail stations in Hyderabad,” PowerGrid Chairman and Managing Director I S Jha told reporters on the occasion of the release of a book ‘Renewable Energy Technology’.

Jha said the company is in talks with Hyderabad Metro to install fast chargers at its 24 stations in the city, which can charge an e-vehicle in about an hour and top up half charged batteries in 15 to 20 minutes.

He further said that the company is in talks with Gurugram metro rail and Chennai metro rail to install its fast chargers at their train stations to give a boost to the e-vehicles initiative in the country.

The CMD was of the view that the public sector has to push e-vehicle initiative in the country by providing supportive infrastructure till the time it is a big hit among the private sector players.

About the green energy transmission infrastructure being developed by PowerGrid, he said the company has already completed many transmission links and the transmission infrastructure development is way ahead of clean energy project development.

He said the green energy transmission infrastructure is in place much before coming up of renewable energy generation projects in the country.

Talking about high voltage direct current (HVDC) lines, he said Champa to Kurukshetra HVDC line would be operational by the end of this year while the company will try to commission Raigarh to Pugalur HVDC by April 2019 against its deadline of 2020.

### **Energy storage will be a challenge as India targets 100 GW solar PV capacity**

Is India prepared for the surge in demand for storage, as it aims to touch 100 GW solar PV capacity? In other words, is it setting up the requisite infrastructure to manufacture storage systems domestically?

Renewable energy is going to be produced as long as sunlight is available. Beyond a certain level of penetration, solar electricity generation may dip owing to some factors, and thus the consumer experiences a shortfall in electricity supply. We need storage to balance that fluctuation.

With the right policy support, large scale solar parks of 100 MW and above could easily integrate energy storage to help improve the power quality and reliability issues that the grid can face with the rapid integration of solar energy.

**Source:** <https://economictimes.indiatimes.com>

**Congratulations to the  
New Benevolent Fund Office bearers 2018-19**



**Er. Sajeev K**  
Chairman



**Er. Raji J.S**  
Vice Chairman



**Er. Mujeeb A.K**  
Secretary



**Er. Pradeep S.V**  
Treasurer



**Er. Arun Kumar V.K**  
Joint Secretary North



**Er. Varsha Mohan**  
Joint Secretary South

***Congratulations***  
***Scored A+ in SSLC 2018 (all subjects)***



*"Congratulations for topping in your exams. You have made yourself and your parents proud of you. Association wishes you with success and abundance of happiness in life"*

**Shan Shaji**  
S/o Er. Shaji K Mathews  
Executive Engineer, Generation Circle Moolamattom

**KSEB ENGINEERS' ASSOCIATION**

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### **Governing body and Benevolent fund meetings held at Thiruvananthapuram**

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