RIP
A.P.J.Abdul Kalam Sir
15 October 1931 - 27 July 2015

A truly people's president
Sir, you will live in our hearts.
You will always be remembered .!!

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Members are requested to give articles to the Power Scene either to the Editor or the Area Representatives. Articles from family members are most welcome. Articles may also be mailed to **ksebeakottayam@gmail.com**

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POWER SCENE KOTTAYAM

K.S.E.B. ENGINEERS' ASSOCIATION, KOTTAYAM UNIT

Volume III No. 2

CHAIRMAN's COLUMN

Er C.P.George, DyC.E., Electrical Circle Pala

Dear Engineers,

Until the evolution of Electricity Act 2003, the Electricity industry was traditionally considered under service sector. But with the evolution of better technology for measurement of electricity, measuring its demand with respect to time and frequency, the scenario has changed drastically. With the emergence of electricity act 2003 and its sub ordinate regulations the electricity is legitimately accepted as a **commodity and trading** has been considered as a distinct activity. With the **carrier – content separation** proposed in the Electricity amendment act, the prospect of handling electricity as a commodity has multiplied.

Before vehemently opposing the proposed amendment act and endorsing view of the "vested interests " about the reform act (the Electricity Act 2003), we need to make a balanced evaluation achievements and failures in Indian Power Sector during the last 12 years.

It is time to evaluate and compare the status of power sector in those states where the provision of the acts is implemented as envisaged and those states not implemented or partly implemented….

It is time to evaluate and compare the status and pay structure of electrical engineers in various states with our state...

It is time to evaluate the status and system of payment of pension and other benefits to the pensioners in the reformed state with our state...

It is time to evaluate the period of availability of electricity to the consumers…..

It is time to evaluate the extent of electrification happened in rural India……

It is time to evaluate the quality and reliability of electricity we had and we have….

It is time to evaluate the extent of automation and technology adoption happened in the power sector during the last 12 years……

It is time to evaluate up to what extent we have implemented the provision in the Electricity Act, and what our state have achieved during the past 12 years by our policy of reluctance….

Vehement opposition of the policy of Government of India, without any in-depth evaluation of these factors are not good for the electrical engineering fraternity or for our state.

We need to evaluate these issues based on the fact that the net effective increase in generation happened in Kerala during the past 12 years is nearly zero and we are now sustaining on the increase on central allocation during the period and power purchase from the open market and Power Exchanges, resulted from the reform policies of GOI.

Again it is time to introspect on the level of reform adopted in our state when we demand lack of result…!

According to my understanding of the Electricity Act, the very spirit of the Act and the policies are primarily meant for providing electricity for every citizen in India with better quality and reliability. And I have better faith in the ability and integrity of these policy makers than those groups criticising it….!

Electricity behaves according to the electrical engineering principles and not according to the regional and linguistic priorities. Hence no point in arguing on the federal structure and the state authority! As envisaged in the National Electricity Policy, 2005; **we have achieved an electrically interconnected National Grid from Dec-2013 and** we need to frame policies and regulations accordingly with national electricity demand and national resources in mind. Again this approach shall be beneficial to our state with nearly zero resources for further increase in generation.

Accordingly the act and policies prioritised following important aspects & tasks for implementation.

1. To ensure **correct measurement of electricity** (with time synchronized metering) at every stages, its **correct accounting and energy audit** with investment decisions based on evaluation of these data.

2. To ensure **accountability in the financial aspects** which includes the Subsidising the electricity by state government to ensure the health of the licensee…!

3. Adoption of relevant technologies for best utilisation of the resources in the country to make the Indian Power Sector in par with developed world….

Kindly note that these tasks are not related with company formation or privatisation but for making the State Government, KSERC and the Utility Management accountable on the performance of the State Power Sector. But so far we have not taken any serious efforts to implement these important priorities, though the GOI and many states have given their best efforts to implement these. Instead we prefer cooking the data as per the whims and fancies to please the Management, KSERC & Governments.

But our ***KSERC and GOK have taken all efforts to ensure that all the provisions in the electricity act and policies relevant to the consumer right are implemented in Kerala and made the life of the Electrical Engineers and field staff, particularly in distribution, miserable***.

Now it is better to have a look on the reality and evaluate the provisions relating to the officers and employees in the Electricity Act 2003 & National Electricity Policy2005.

I. According to Section 133 (1) of EA; the State Government may, by a transfer scheme, provide for the transfer of the officers and employees to the transferee on the vesting of properties, rights and liabilities in such transferee as provided under section 131

(2) Upon such transfer under the transfer scheme, the personnel shall hold office or service under the transferee on such terms and conditions as may be determined in accordance with the transfer scheme:

Provided that such terms and conditions on the transfer shall not in any way be less favourable than those which would have been applicable to them if there had been no such transfer under the transfer scheme:

(2) Upon such transfer under the

II. According to Para 5.4.3 & 5.4.4 of national Electricity Policy; For ensuring financial viability and sustainability, ***State Governments would need to restructure the liabilities of the State Electricity Boards to ensure that the successor companies are not burdened with past liabilities*** and the Central Government would also assist the States, which develop a clear roadmap for turnaround, in arranging transition financing from various sources.

We need to retrospect whether the state government have complied with this minimum requirement and provide us with a favorable package better than the erstwhile KSEB when we were made the employees of KSEBL, the company…..?!

We need to retrospect whether the state government have complied with the provision of Para 5.4.3 of National Electricity policy on the liability issues, when KSEBL is burdened with the entire liabilities including pension liability is the erstwhile KSEB…..?!

Now we need to introspect why no one (not even the trade unions) protested against this clear violation of the provisions in the statutes and policies when the transfer scheme not provided any favourable packages to its officers and employees and burdened KSEBL with the entire liability. Thus making the pension payment of the present and past employees vulnerable to the financial health and risks of the future companies…..?!

But now we are ready to protest and even ready to boycott the work for something whose consequences are still a point of debate and need to wait for years to verify the facts…..!

We need to introspect why we did not protest *when the posts of Electrical Engineers abolished* as per the whims and fancies with vested interest, citing less work load where as **hundreds of posts and offices with no relevance and no work continues in this organisation with no review and evaluation of outputs**. Again no one knows how their salary and establishment costs are booked under ARR….!

We need to introspects why no one dares to protest when electrical engineers are over loaded with the extra responsibilities just on the strength of a GO or a BO and without any additional perks, infrastructure and facilities….!

We need to introspect why the electrical engineers are over loaded with additional functions, responsibilities and projects including safety, works related to central projects etc when there are clear guidelines in the statutes and projects to have exclusive functional teams for the responsibility and executions… !

We need to know that increase in the requirement of electrical engineers are need based outcome of the development of the state power sector with its complexities and we are not at the mercy of any individual or political parties.

We need to raise our voice for the genuine requirement of electrical engineers in managing the sector efficiently and shall not shy away expressing the facts and truths we come across.

As such we are not responding or reacting to the real issues and difficulties we, the electrical engineers are facing today, in KSEBL. But are ready to respond to some propagated issues with no clear understanding and still only a point of debate….!

It is time to understand and evaluate ourselves, our performance, our environment, our management, our Regulatory Commissions and our governments…..

Not to be trapped by the propaganda ……

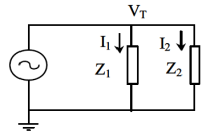
And respond after clear understanding of issues…..(**END**)

Negative Tan α OR Negative Power Factor

The negative watt loss or power factor is often considered as a strange test result and can lead the tester to confusion in the interpretation. This negative measurement can occur in any apparatus testing when the UST or GST-Guard test mode is used, and had been known and described since 1948 in several Doble conference papers. In addition to what has already been reported, this paper provides the basic theory with the mathematical model and basic electrical circuit in order to fully understand the phenomena and to interpret the test results. Also the case studies will be presented and analysed accordingly to the basic theory.

BASIC THEORY

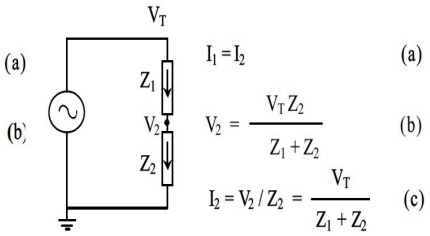
In a parallel circuit as shown in the figure 2.1, each element (Z1 and Z2) is subjected to the same voltage in amplitude and phase. So the current depends only on the element impedance.



$$I_1 = V_T / Z_1 \quad (a)$$

$$I_2 = V_T / Z_2 \quad (b)$$

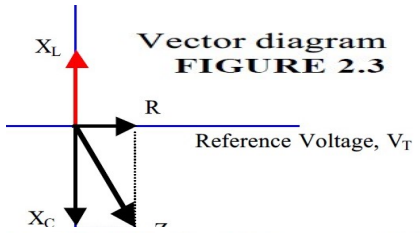
Equation 2.1



Equation 2.2

Basic electrical serial circuits
FIGURE 2.2

In a serial circuit as shown in figure 2.2, the voltage across each element can be different in amplitude and in phase if the two elements are of different nature (resistor, capacitor or inductor). The voltage across Z2 is V2 and in function of the two elements Z1 and Z2, as shown in the equation 2.2b. Each element impedance Z can consist of resistive R or reactive X components (either inductance XL and capacitance XC) and can be represented by a vector in the vector diagram, see Figure 2.3. The resistance is a real number and in phase with voltage. The two types of reactive components are a complex number with 90 degrees out of phase with voltage, but opposites to each other:



Vector diagram
FIGURE 2.3

$$Z = R + X_C \text{ (or } X_L) \quad \text{(a)}$$

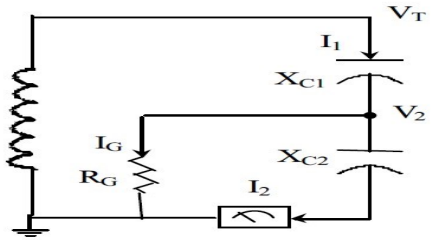
Where:

$$X_C = 1/(j2\pi fC) \quad \text{(b)}$$

$$X_L = j2\pi fL \quad \text{(c)}$$

j is complex number, $j^2 = -1$

If another element ZG in parallel (//) with Z2 exist as shown in figure 2.4, then the voltage V2 and its current I2 in function of three elements become more complex as shown in equation 2.4b and 2.4c. However the only mathematical difference from the previous model is the term Z1Z2/ZG .



$$V_2 = V_T \times \frac{X_{C2}}{\frac{X_{C1}X_{C2}}{R_G} + (X_{C1} + X_{C2})} \quad \text{(a)}$$

$$I_2 = V_2 / X_{C2} = \frac{V_T}{\frac{X_{C1}X_{C2}}{R_G} + (X_{C1} + X_{C2})} \quad \text{(b)}$$

Cont..

IMPORTANT BOARD ORDERS

1. Lowering of e– procurement slab from Rs 25lakh to 5 lakh - B.O. (DB) No. 1758/2015/(RITU/e-tender/2015-16).Thiruvananthapuram, dt: 20.07.2015.

2. Execution of civil works under Transmission wing through civil engineers - sanctioned - orders issued. - B.O.(FTD)No.1326/2015/D (T&SO)/T4/PN/TS/2015-16 dated,Thiruvananthapuram,1.6.15 B.O. (FTD) No. 1379/2015 (Estt.III/1390/2015). Dated, Thiruvananthapuram, 05.06.2015.

3. National Pension System –Realization of backlog contribution.

BO (CMD) No.1470/2015 (NPS/BL/2015-16) Dated, Thiruvananthapuram 15th June, 2015

4. Implementation of Safety Procedures in KSEB Ltd. - CUG phone for Safety Coordinators of Electrical Circles .

BO (FTD) No. 1389/2015 (D (D&S)/S/CUG for Safety Coordinators/2015-16) Thiruvananthapuram, dated: 06.06.2015

CEA REGULATIONS

1. Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Amendment Regulations, 2015
2. Central Electricity Authority (Measures relating to Safety and Electricity Supply) Amendment Regulations, 2015

Unit meeting on 4th August 2015

At Best Hotel—Kottayam -.05:00PM