



THE INSTITUTION OF ENGINEERS, MALAYSIA

Bangunan Ingenieur, Lot 60/62, Jalan 52/4 Peti Surat 223. 46720 Petaling Jaya, Selangor Darul Ehsan
Tel: 603-7968 4001/2 Fax: 603-7957 7678 E-mail : sec@iem.org.my IEM Homepage : <http://www.myiem.org.my>

TALK ON "A SIMPLIFIED EQUATION FOR VOLTAGE DROP" (OR IS VOLTAGE DROP = IZ?)

(Organised by the Electrical Engineering Technical Division, IEM)
BEM Approved CPD/PDP Hours: 2 Ref No: IEM16/HQ/049/T

Date : 9th April 2016 (Saturday)
Time : 9.00am to 11.00am
(Refreshment will be served in 2nd Flr from 8.30am onwards)
Venue : C7S & TUS Lecture Hall , 3rd Floor, Wisma IEM
Speaker : Lee Chong Kiow

SYNOPSIS

The talk begins with a survey of the following:

- Constant impedance, constant power and constant current loads
- Why a power supply has an internal impedance, which limits its fault current contribution
- When the shunt admittance Y of a cable or line may be significant
- The measurement and significance of the %Z of a power transformer
- The 16 reactances of a generator which include combinations of saturated and unsaturated direct- and quadrature axis data – which five data are to be used for the different types of power system studies

When a current I flows through an impedance Z, is the voltage drop $V = IZ$? The answer may surprise you!

The talk will show that it is possible to transform the classical voltage drop equation

$$V = I (r \cos \phi + x \sin \phi)$$

into a more elegant and meaningful equation. Using a simplification, it is a relatively easy task to estimate the motor starting voltage dip in transformers and generators.

The talk will then use per unit data to show that the highest impedances in a power system are the loads, transformers and generators. Using a software, the talk then continues with examples of load flow and motor starting studies.

Does power in an AC system always flow from a higher voltage to a lower voltage? A combination of the simplified voltage drop formula, phasor diagrams and computer simulation is then used to show the Ferranti effect, i.e. under certain load conditions in a transmission system, it is possible to have a receiving end voltage which is higher than the source voltage

BIODATA OF SPEAKER

Lee Chong Kiow is currently a director of VI Power, which specialises in providing technical training on electrical equipment and performing power system studies. He holds a BSc (Hons) (Electrical & Electronic Engineering – 1974) and an MSc (Power System Engineering – 1977), both from the University of Strathclyde, Glasgow.

He was previously the Engineering Manager of a company manufacturing indoor MV and LV switchgear. Prior to that, he spent more than five years as an Associate Director in a large consultancy practice and another 15 years working as a protection engineer in the former National Electricity Board. He is also a Suruhanjaya Tenaga competent/services engineer up to 275kV.

Over the last 19 years, he has trained more than 5,500 technical staff from utilities, petro-chemical, multi-national and other industrial companies throughout Malaysia and South-East Asia. China, India & Oman as well as Mauritius, Zimbabwe and Botswana on a variety of power engineering topics.

Ir. Yau Chau Fong
Chairman, Electrical Engineering Technical Division, IEM

ANNOUNCEMENTS TO NOTE:

- Preferential admission to talk shall be accorded to IEM members (**pre-registration and online registration are NOT required**). (**telephone and/or fax reservation will NOT be entertained**)
- **Non members** may also attend the talk but will be charged a registration fee of **RM50** and an administrative fee of **RM15**.
- For affiliate members, there will be no registration fee. However, they are requested to produce their membership card as proof of membership. For the list of affiliates, please refer www.myiem.org.my/content/memorandum_of_understanding-469.aspx.
- Limited seats are available on a "first come first served" basis (maximum 110 participants).
- IEM members are required to produce your membership cards for confirmation of attendance (CPD purpose).
- Latecomers will not be allowed to enter if the lecture hall is full nor be entitled to CPD.
IEM members who fail to produce their membership cards will be charged a fee of RM25.00.

FUNDS FOR IEM BUILDING FUND (WISMA IEM)

- Kindly be informed that IEM will be charging participants **RM15** as administrative fee for talks organized by IEM.
- The fee would be used to cover overhead costs, building maintenance expenses as well as to support the purchase of the new building.
- All contributions will be deeply appreciated by IEM
- Students are however exempted.
Your understanding is greatly appreciated.

CPD HOURS CONFIRMATION

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Membership No:

Signature: