

POWER SYSTEM ENGINEERING
ONLINE SEMINAR SERIES

LIVE + REAL TIME + INTERACTIVE

INTRODUCTION TO POWER SYSTEM FUNDAMENTALS

for non-engineers and new employees

2-Day Professional Development Online Seminar

Date | Time : 21-22 September 2020 | 9am-5pm (AEST)

Venue : ([Live Streamed via ZOOM](#))

By **Barrie Moor**, *B.Eng(Elec), RPEQ*



Your True Partner in Attaining
Professional Excellence

Seminar Overview

A 2-day seminar on the fundamental principles and equipment involved in the modern day electricity power system. No, a busbar is not a place busses go to socialize on Friday night.

This is an introductory seminar designed to meet the needs of the many non-technical electricity industry employees in the support disciplines such as project management, accounting, financial support, legal systems, administration, clerical support, management, human resources, customer care, community relations, directors, office and senior managers without previous electricity utility experience. It is imperative for these non-technical and support professionals to grasp the jargon, language and technology of the electricity power system for them to proactively understand and optimize the key business performance objectives and activities.

While it is necessary to cover some engineering concepts, with no more than some basic high school mathematics, this seminar is specially designed to cover those aspects in a way that will provide an overall appreciation of the "Big Picture" of the electricity power industry. Please note that, while this seminar is designed to focus specifically on the needs of the non-technical and support professionals within and associated with the electricity supply industry, it will also provide an invaluable insight for new technical and engineering entrants to the industry. Beginning with basic terms and concepts, this seminar will introduce participants to the power system components and designs associated with electricity generation, transmission and distribution systems.

Seminar Facilitator

Barrie Moor, *B.E (Elec), RPEQ*

Barrie Moor is the Principal Engineer at Power System Protection Training, a provider of professional development training seminars on the topics of power system principles and power system protection. With over 39 years experience in the Queensland electricity transmission industry, Barrie Moor has been involved in the design, coordination and implementation of protection schemes associated with Queensland's HV and EHV transmission systems since 1981. Barrie also has extensive experience with the protection of large generating plants.



From 2000 to 2007, Barrie filled the role of Senior Engineer Protection Design, with statewide responsibility, leading Powerlink's Protection Design Team. From 2007 to 2012, in the role of Principal Consultant Substation Protection, and then Principal Engineer - Investigations, Barrie provided specialist Protection Design and Fault Analysis services to support the Asset Management and Operational Groups within Powerlink.

Barrie has 20 years experience within Australia and internationally in the provision of university post graduate electricity supply system training. He has presented a number of papers on power system design at conferences both within Australia and internationally. Barrie has also represented Powerlink on CIGRE committee APB5, Power System Protection and Automation and has served as a corresponding member of Cigre and IET working groups on Protection Systems.

Seminar Contents

1. Electricity: Fundamental Principles and Concepts
 - ◇ History : Industry Pioneers
 - ◇ Direct Current (DC) System Concepts
 - ◇ Voltage, Current, Resistance and Power
 - ◇ Electricity and Magnetism
 - ◇ Alternating Current (AC) Systems Concepts
 - ◇ Single Phase AC Systems
 - ◇ Root Mean Squared (RMS) Quantities
 - ◇ Power Transformers
 - ◇ Inductance and Capacitance
 - ◇ Real and Reactive Power (Watts, VARS and Power Factor)
 - ◇ Three Phase AC Systems
 - ◇ AC Generators and Motors
 - ◇ Unit Protection Schemes – Differential Protection Schemes
 - ◇ Non-Unit Protection Schemes – Fuses, Over Current and Distance Protection Schemes
 - ◇ Protection Signalling
 - ◇ CB Fail Concepts
 - ◇ Auto Reclosing
 - ◇ Wide Area and System Integrity Schemes
 - ◇ Generator Protection Schemes
2. Power Generation
 - ◇ Steam turbine systems
 - ◇ Gas turbine systems
 - ◇ Hydro systems
 - ◇ Wind and Solar Power
3. Transmission and Distribution Systems
 - ◇ High Voltage (HV) Overhead Transmission Systems
 - ◇ Distribution Systems
 - ◇ Single Wire Earth Return (SWER) Systems
 - ◇ Cable Systems
 - ◇ Series Compensation
 - ◇ DC Transmission Systems
4. Substation Design : HV System Equipment
 - ◇ Aire Insulated Substation (AIS) Systems
 - ◇ Busbars
 - ◇ Circuit Breakers
 - ◇ Isolators and Disconnectors
 - ◇ Gas Insulated Substation (GIS) Systems
 - ◇ Metal Clad / Enclosed Switchgear
 - ◇ Power Transformers
 - ◇ Voltage Transformers
 - ◇ Current Transformers
 - ◇ Surge Divertors
 - ◇ Reactors and Capacitors
 - ◇ Static Var Compensators
 - ◇ System Configurations, for Reliability and Economy
5. Protection Systems
 - ◇ Security, Reliability and Dependability
 - ◇ Duplicate, Local Back-up and Remote Back-up Protection Scheme Concepts
 - ◇ Regulatory Requirements
6. Control and Communication Systems
 - ◇ Control Buildings and Local Control Facilities
 - ◇ Supervisory Control and Data Acquisition (SCADA) Systems
 - ◇ Network Operational Systems
 - ◇ Communication Systems
7. IEC61850
 - ◇ Station Bus Systems
 - ◇ Process Bus Systems

CPD Recognition

This seminar program is especially designed to meet the Continuing Professional Development (CPD) needs of participants. A certificate of attendance will be awarded at the end of the program. This serves as evidence of your personal and professional commitment to your career.

Customised In-House Course Available

This program can be customised to suit specific needs of your organisation at significant savings.

For more details, please contact us on
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3 WAYS TO REGISTER

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Booking Contact (Mr/Mrs/Ms): _____		
Job Title:	_____	Department: _____
Email:	_____	Telephone: _____
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Address _____		
State:	Postal Code _____	Country: _____

Please register the following delegate(s) for this online seminar.

1st Delegate Name (Mr/Mrs/Ms): _____
 Job Title: _____
 Department: _____
 Email: _____
 Telephone: _____

2nd Delegate Name (Mr/Mrs/Ms): _____
 Job Title: _____
 Department: _____
 Email: _____
 Telephone: _____

3rd Delegate Name (Mr/Mrs/Ms): _____
 Job Title: _____
 Department: _____
 Email: _____
 Telephone: _____

4th Delegate Name (Mr/Mrs/Ms): _____
 Job Title: _____
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(Please use another form if register more than 4 delegates)

PAYMENT METHODS

(please tick ✓ the relevant box to indicate your preferred method of payment)

- EFT (Electronic Funds Transfer) , or
 CREDIT CARD (VISA / MASTER / AMEX accepted)

REGISTRATION FEES AND DETAILS

2-Day Online Seminar	Super Early-Bird Fee (If payment & registrations are received by 22 July 2020)	Early-Bird Fee (If payment & registrations are received by 19 August 2020)	Standard Fee (per delegate)
Registration Fees (Excl. GST) :	AU\$801	AU\$890	AU\$980

GROUP DISCOUNTS

CPD International recognizes the value of learning in teams. Take advantage of these special rates.

- ◆ Register 3-5 delegates and receive 10% off current fee.
- ◆ Register 6+ delegates and receive 15% off current fee.

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Upon receipt of your booking, a tax invoice and registration confirmation email will be sent within 2 business days. Payment details will be sent together with the invoice based on your preferred payment method.

PAYMENT TERMS

All fee payment must be received prior to the event. Delegate(s) will be refused admission if payment is not received prior to the event

CANCELLATIONS AND SUBSTITUTIONS

Once we have received your booking and payment, the place(s) are reserved. No refunds will be made for any cancellations, however, program credits of equivalent value only applicable for CPD International events will be provided. Credits can only be redeemed for 1 program and is valid for one (1) year from date of issue. One time substitution is allowed at no additional charge. Subsequent substitutions will be charged 10% admin fee. Any cancellation or substitution must be made in writing with at least one week notice.

NOTE:

1. As training event organizer CPD International Pty Ltd reserves the right to make changes to the event date, speakers, contents and venue due to reasons beyond their control. In the unlikely event that the seminar is cancelled, CPD International will refund the full amount and disclaim any further liability.
2. The views expressed in the event are not necessarily those of CPD International Pty Ltd.

PRIVACY DISCLOSURE STATEMENT: Any information provided by you in relation to this event is being collected by CPD International and will be held in the strictest confidence. It will be added to our database for the primary purpose of providing you with information about future events and services.

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