



ONE DAY COURSE ON “ENERGY STORAGE-BASED DEVICES : TECHNOLOGY AND OPPORTUNITIES WITH RENEWABLE GENERATION, T&D AND MICROGRIDS”

SPEAKER ;
Mr AKI LEINONEN

Date : 22ND OCTOBER 2019 (Tuesday)
Venue : MALAKOFF AUDITORIUM, WISMA IEM, PJ
Time : 9.00 a.m. – 5.30 p.m.

BEM Approved CPD/PDP Hours: 7.0
(IEM19/HQ/466/C)

CLOSING DATE: 18TH OCTOBER 2019 (FRIDAY)

OR if the Seminar Reach its Target Registered Participants

NO ONLINE/OFFLINE Registration

will be allowed after the Closing Date

Organized & Hosted by:
Building Services Technical Division (BSTD), IEM

In Collaboration with :
ELCO Power Malaysia Sdn Bhd

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SPEAKER



Mr. Aki Leinonen

Aki Leinonen is an experienced power quality, energy storage and FACTS specialist who has several patents on his name. With nearly three decades of experience in these fields, he has covered a wide range of responsibilities from system studies, laboratory testing, design engineering, R&D, hands on commissioning of various FACTS systems all the way to delivering tailor-made solutions for customer-specific needs..

The following IEEE publications specific to the culmination of the BESS technology at Merus deserve specific mention here are : -

IEEE publication "Superposed control strategies of a BESS for power exchange and microgrid power quality improvement"

IEEE publication "Advanced technology to ensure EAF flicker compliance"

Formal Education :

1992 – BSc in Electrical Engineering – Tampere University of Applied Sciences – Finland

1996 – MSc in Power Electronics - Tampere University of Technology – Finland

1997 – Dynamic simulations - Digsilent Power Factory – Germany

2001 – FACTS controller testing – RTDS - Canada

SYNOPSIS

The importance and attractiveness of energy storage as an integral part of the electric power system is receiving increasing attention by a wide range of stakeholders including electric utilities, end-users, grid system operators and regulators. Energy storage provides a wide range of beneficial services and cost savings to generators, TSOs, DSOs and consumers, who are deploying storage technologies for a number of different purposes.

Energy storage is starting to play a broader role in energy markets, moving from niche uses such as grid balancing to broader ones such as replacing conventional power generators for reliability, providing power quality improvement capabilities and providing back-up power to prevent interruptions and voltage sags. It is also accelerating renewable energy deployment as it can provide some of the flexibility that future electric power systems will need to accommodate the fluctuating availability to solar and wind energy.

Energy storage will play a crucial role in enabling the next phase of the energy transition. Along with boosting solar and wind power generation, it will allow sharp decarbonisation in key segments of the energy market.

PROGRAMME OUTLINED

1st Presentation – Energy Storage-Based Devices

Energy storage - Introduction

Components

- Energy storage inverters
 - Design and applicable standards
- Energy storage media
 - Supercapacitors
 - Batteries

Devices

- Uninterrupted power quality (UPQ) systems
 - Functions / operation modes
 - Control and protection
 - Integration with existing SCADA & energy management systems.
 - Design criteria including technical specifications and applicable standards
- Battery energy storage systems (BESS)
 - Functions / operation modes
 - Control and protection
 - Control strategies for power exchange and microgrid power quality improvement
 - Integration with existing SCADA & energy management systems.
 - Design criteria including technical specifications and applicable standards.

2nd Presentation – Opportunities And Benefits Of Energy Storage-Based Devices

Renewable generation applications

- Opportunities with solar, wind and biogas/biomass
- Benefits (peak shaving, capacity firming, load levelling, PQ improvement, etc.)

T&D applications

- Opportunities for TSOs and DSOs
- Benefits (frequency support, reserves, ramp rate control, example of frequency regulation market opportunities in Europe, etc.)

Microgrids applications

- Opportunities for on-grid and off-grid hybrid power systems
- Benefits (solar, wind & fossil fuels integration, backup power, PQ improvement, etc.)

3rd Presentation – Application Examples

Wind farms

- Grid integration of wind farm with BESS

Solar power plants

- Grid integration of solar power plant with BESS
 - Solar power plant (30-100MW) in Malaysia
 - Solar installation (200kW-1MW) in Malaysia

Microgrids

- Distributed energy system with BESS
- Diesel power station replacement with off-grid hybrid power system

Green buildings

- Distribution center with BESS

Critical process industries

- Semiconductor manufacturing machinery with UPQ system

TIME	PROGRAMME
08:30 – 09:00	<i>Registration and Welcome Coffee / Tea</i>
09:00 – 09:10	<i>Welcome Address & Introduction of Speakers</i>
09:15 – 10:15	SESSION 1 : Energy storage-based devices
10:15 – 10:30	<i>Morning Tea Break</i>
10:30 – 11:30	SESSION 1 - Continue
11:30 – 12:00	<i>Q & A Session</i>
12:00 – 13:15	<i>Lunch</i>
13:15 – 15:15	SESSION 2 : Opportunities and Benefits of Energy Storage-Based Devices
15:15 - 15:30	<i>Q & A Session</i>
15:30 – 15:45	<i>Afternoon Tea Break</i>
15:45 – 17:45	SESSION 3 : Application Examples
17:45 – 18:00	<i>Q & A Session</i>
18:00	End of Course

*** IEM reserves the right to postpone, reschedule, allocate or cancel the course.**

REGISTRATION FORMS

ONE DAY COURSE ON "ENERGY STORAGE-BASED DEVICES : TECHNOLOGY AND OPPORTUNITIES WITH RENEWABLE GENERATION T&D AND MICROGRIDS"

22ND OCTOBER 2019

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REGISTRATION FEE : 6% GST EFFECTIVE 01ST MARCH 2019

	ONLINE	NORMAL FEE (RM)
IEM Student Member	150.00	180.00
IEM Graduate Member	250.00	300.00
IEM Corporate Member	400.00	450.00
Non-IEM Member	550.00	600.00

No	Name(s)	Membership No.	Grade	Fee (RM)*
SUB TOTAL				
+ 6% SST				
TOTAL PAYABLE				

PAYMENT DETAILS :

Cash RM _____

Cheque no. _____ for the amount of RM _____ (non refundable) and made payable to
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Bank Name: Alliance Bank Malaysia Berhad. (SHOULD PAYMENT IS MADE, KINDLY EMAIL THE 'BANK-IN-SLIP' TO IEM FOR VERIFICATION BEFORE THE EVENT FOR EASY REGISTRATION)

FULL PAYMENT must be settled before commencement of the seminar, otherwise participants will not be allowed to enter the hall. If a place is reserved and the intended participant fails to attend the course, the fee is to be settled in full. If the participant failed to attend the course, the fee paid is non refundable. The Registration Fee includes lecture notes, refreshment and lunch.

For **ONLINE REGISTRATIONS**, please note that payment **MUST** be made **BEFORE** the closing date. If payment is not received within the stipulated time, the registration fee will be reverted to the normal registration fee.

Contact Person : _____ Designation : _____

Name of Organization : _____

Address : _____

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Handphone : _____ (HP) Email: _____

Signature & Stamp _____

Date _____

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- Payment via CASH / CHEQUE / BANK-IN TRANSMISSION / BANK DRAFT / MONEY ORDER / POSTAL ORDER / LO / WALK -IN will be considered as NORMAL REGISTRATION
- The Organising Committee reserves the right to cancel, alter, or change the program due to unforeseen circumstances. Every effort will be made to inform the registered participants of any changes. In view of the limited places available, intending participants are advised to send their registrations as early as possible so as to avoid disappointment.

For further details, kindly contact:

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