2-DAYS SHORT COURSE : DESIGN AND SIMULATION OF GRID CONNECTED PHOTOVOLTAIC (GCPV) SYSTEM USING PVSYST 7 to 8 August 2023 UITM-MTDC Technopreneur Centre, UITM Shah Alam, Selangor

1.Introduction to grid-connected photovoltaic

(GCPV) system

- Types of GCPV system
- Microinverter System
- DC Optimiser system
- String and central inverter
 Single-phase inverter

Three-phase inverter

Multiple MPPTs

Transformerless and transformer-based inverter

Types of connection LV connection – single line diagram MV connection – single line diagram



HV connection - single line diagram Types of GCPV scheme Fit NEM and SelCo LSS Advantages and disadvantages of NEM

- 2. Design concept of GCPV system
- · DC/AC ratio or overload ratio
- Safety of inverter
- · Optimum operating conditions
- Power clipping
- 3. Introduction to PVsyst
 - Simulation flow
- 4. Siting and Meteo Definitions
- PVsyst components library
- · Create a new site with meteorological data

PUSISIT

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- 5. Tilt angle and Azimuth
- Set mounting type, tilt angle and Azimuth angle
- Albedo light reflection from the ground
- Effect of tilt and Azimuth angle
- 6. Electrical system
- PV modules; PVsyst components library and new modules
- · Inverters; PVsyst components library and new inverter
- · Cables; Declare DC and AC cable loss
- 7. Sizing PV-Inverter
- \cdot Sizing using a single MPPT inverter
- · Sizing using multiple MPPT inverters
- · Sizing using many inverters LSS plant
- Method of inverter selection based on PV array capacity
- Optimum sizing condition; voltage, current and power requirements



Method of finding optimum PV array configuration; Np and

Ns

- 8. Shading
- Far shading method of input data from Solarpath finder chart
- Near shading 3D drawing and Shading simulation
- Polar and rectangular plots
- 9. Other losses
- \cdot Thermal, Ageing, DC and AC cables, Unavailability
- Dirt, Incidence Angle Modifier, Light-Induced Degradation
- Mismatch, Auxiliary devices
- 10. Self-consumption
- Household daily
- Power factor adjustment and reason
 Crid neuron limitation and reason
- Grid power limitation and reason
- 11. Simulation and reportingExplanation on the report format

PHOTOVOLTALC SOLTWARE



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Requirements: -

- Each participant shall have his/her own PVsyst software V7.0 or the latest installed.
- \cdot Each participant shall bring his/her own laptop during the course.



Trainer

Dr. Ahmad Maliki Bin Omar

• 33 years of teaching experience with undergraduate electrical engineering students.

- 15 years of experience in teaching, training, and consultancy works related to solar photovoltaic (PV) power systems.
- · Representing Malaysia at IEA-PVPS Task 11.
- Appointed as the Master Trainer and Examiner for the SEDA competency programs
- Appointed as the Regional Trainer for Asian Photovoltaic Industry Association (APVIA)

Limited to 15 participants only! Fee : RM1400 per participant

Organiser

Solar Research Institut

(SRI)

UiTM Solar Park 1 Lot 147381, Jalan Gambang 26300 Kuantan Pahang Satellite Off: College of Engineering, Universiti Teknologi MARA, 40450 Shah Alam Selangor

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