

SE-SOL: Solar PV Deployment Essentials



DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
2 Days	Beginner	PV Power System	ILT	NA

INTRODUCTION

One of the most accessible forms of renewable energy available is solar electricity. The solar industry is currently experiencing monumental growth globally and now is the time to get involved. The energy sector is a significant part of our economy and could become a major employer of people – with the right competencies.

The aim of this 3-day course is to arm our learners with the knowledge and understanding of solar photovoltaic installation systems and calculations. Also, to bridge the gap between classroom-based and practical-based learning. The course focuses on the applications used to power homes or small businesses, with or without the electrical utility.

Our course is AREP's (The Association for Renewable Energy Practitioners) quality assurance (QA) P4 platform aligned, to promote good practice in the solar PV sector.

AUDIENCE PROFILE

All enterprises and individuals who wish to learn more about Photovoltaics (PV), the installation of PV and Backup Power systems, also, Electrical and Building regulations.

PREREQUISITES

Desire to learn.

COURSE OBJECTIVES

After completing this course, delegates should be able to:

- Describe the principles of a solar PV system and its uses as a renewable energy source
- Explain how a PV system generates electricity
- Describe the types of PV systems
- List the components of a solar PV system
- Describe Ohm's law, voltage drop, basic series and parallel
- Explain various battery technologies and battery concepts: Capacity, Depth of Discharge(DoD), State of Charge(SoC) C-rate
- Explain the workings of a charge controller and Inverters
- Do basic maths around sizing a solar PV system requirement (String sizing, Inverter sizing, battery sizing)
- Describe PV mounting systems
- Understand drawings and diagrams
- Explain the importance of adhering to electrical and building regulations as it relates to solar PV, as well as being and keeping safe onsite.

COURSE CONTENT

Day 1: Solar PV fundamentals

- Benefits of a PV system
- PV Technology and Configuration
- Solar Panels
- Inverters
- Racking and mounting systems
- Performance monitoring systems
- Solar charge controller
- Solar Battery

- Grid Tied and Off Grid

Day 2: Electricity Essentials and calculations

- Power and Energy
- Ohm's Law and resistance
- Electrical Power Supply Systems
- Solar Panels and Terminology
- Solar PV Match
- System Components and calculations
- Inverters

- Batteries Math

Day 3: Overview of various regulations to adhere to

- SANS & NRS Standards as it relates to Solar PV
- Who can issue a certificate of compliance
- Health and Safety basics

ASSOCIATED CERTIFICATIONS & EXAM

Delegates will receive a Mecer Inter-Ed attendance certification upon successfully completing this course.

AREP is host to the P4 platform which tests knowledge and competence on a variety of levels. The Solar Specialist Platform P4 Level 1 starts your solar journey and a lifetime of learning. This is an open book test as it compliments a learning environment and promotes research and learning. The P4 level 1 exam will test proficiency across the following categories: Electrical Theory, Irradiation, Efficiency, Module Technology, Handling & Transporting Modules, Batteries, Standards, Calculations, System Sizing, Drawings and diagrams.

The P4 Platform aims to ensure that companies and individuals subscribing to the QA platform, do good quality work and through this commitment quality is assured. Quality Assurance platforms provide a way for end users to feel reassured of the level of competence and commitment of installers who subscribe to these platforms to deliver good quality products and services.