

Practical

WIND & SOLAR POWER - RENEWABLE ENERGY TECHNOLOGIES



YOU WILL LEARN HOW TO:

- The fundamentals of Photovoltaic technology
- The Essentials of windpower technology
- The vital practical issues of wind and solar power technology
- The practical steps in installing photovoltaic systems and windpower systems
- How to design and install simple photovoltaic and windpower systems
- How to deal competently with contractors and consultants installing these systems
- How to assist your company in complying with the ever growing "Greenhouse Gas" Laws
- To use the 32 Point checklist before commencing any work on Wind and Solar Power Systems

WHO SHOULD ATTEND:

- Mechanical, Electrical, Electronic Engineers
- Technicians
- Electricians
- Control and Instrumentation Engineers
- Facility Managers
- Energy Specialists
- And those who are keen to improve the environment and take advantage of cheap and clean power



Technology Training that Works

THE WORKSHOP

In the past ten years there has been a significant increase in applying wind and solar power technologies from the domestic user to the corporate market. There has been a dramatic improvement in the efficiencies in these technologies and this has helped make the applications economical. Specific energy yields from wind turbines have increased by 60% and installation costs have dropped significantly (up to 50% in many cases). Global wind generating capacity is currently close to 25,000 MW with a recent European white paper requiring a target of 40,000 MW in Europe alone by 2010.

Applications of photovoltaic (PV) systems are growing rapidly worldwide with global production of PV modules skyrocketing from 80MW to well over 200MW in 2000. Many countries are passing legislation to enforce greater use of PV systems and this is helping to drive up the production of these systems.

All of these technologies are interdisciplinary requiring a knowledge of topics as varied as aerodynamics, electricity and wind statistics for wind power and mechanical engineering, electronic and electrical engineering for solar power.

This workshop will outline the step by step process of designing, installing and commissioning photovoltaic and wind powered systems. It should be emphasised that this is not an advanced, in-depth workshop but one covering the important issues enabling you to do simple designs and then to investigate the design and installation issues in more detail after the workshop either by further study or in conjunction with experts in the field.

It is said that the annual growth rate of the solar and wind energy industry is 20% and even increasing beyond this. So in these rather challenging economic times; this is a good industry in which to focus one's career on.

PRE-REQUISITES

A pre-requisite for your maximum benefit and enjoyment on the course is an understanding of basic electrical concepts. If you are unsure here; please contact us for your information pack of pre-course reading.

ON-SITE TRAINING

— contact us for a proposal today

IDC Technologies unique on-site training delivery service can save your company up to 50%, or more, off the total per-head costs associated with delegates attending a public workshop. One of our qualified and experienced Instructors can discuss the content with you, then come to your venue and present a workshop designed to your own specifications!

Why not call or e-mail and ask about having components from a number of courses combined together? It's affordable, effective, convenient and much easier than you may have thought.

"Technology Training that Works" we mean it! Try us soon and see the difference. For more information, or a customized proposal to run any of our practical workshops at your own venue, contact your nearest business development manager for manager (see page 32).

THE PROGRAM

DAY ONE

INTRODUCTION

- Course Overview
- Energy
- Renewable and Sustainable Energy
- Applications of the technology
- Sustainable Energy
- Economics of Renewable Energy
- Forces Driving the technologies today
- Fundamentals of Electricity (dc and ac)
- Basics of Electronics for Renewable Energy
- Fundamentals of Mechanical Engineering

PHOTOVOLTAIC ENERGY SYSTEMS

FUNDAMENTALS OF PHOTOVOLTAIC TECHNOLOGY

- Applications
- Photovoltaic System components
- Typical System configurations
- Photovoltaic cells
- Modules and Arrays

MECHANICAL DESIGN AND INSTALLATION

- Mechanical Design
- Panel Assembly and Roof Attachment methods
- Mechanical Design Problems

ELECTRICAL DESIGN AND INSTALLATION

- Electrical System overview
- Inverters
- System Electrical Design
- Grid Connection
- Design Problems
- Storage of energy
- Load Profiles

SYSTEM INSTALLATION AND COMMISSIONING

- Check List of Items

DAY TWO

WIND ENERGY

FUNDAMENTALS OF WIND ENERGY

- The wind Resource
- Mechanics of Wind
- Local Effects on Wind Flow
- Wind Assessment at a Potential Site

DEVELOPMENT

- Finance
- Site Design
- Planning
- Contracts

TURBINE TECHNOLOGY

- System Design
- Aerodynamics and Power Control
- Dynamics and Fatigue
- Electricity Generation
- Integration

BRIEF OVERVIEW OF MISCELLANEOUS SYSTEMS

- Solar Water Heating Systems
- Energy Efficient Building Design
- Hybrid Energy Systems

OPERATION AND MANAGEMENT

- Management
- Site Commissioning
- Monitoring and Maintenance
- Safety

TROUBLESHOOTING OF SYSTEMS

- Typical Problems
- Tips and Tricks

