International Version

Association of Energy Engineers

Certified Renewable Energy Professional™ Training Program

This training program is designed to provide attendees a deep-dive into alternative energy sources, clean energy technologies, and sustainable energy practices. Over four days, our professional instructors will guide you through the renewable energy principles and practices of greatest relevance and practical value.

What Will You Learn?

- Learn how to set realistic goals for renewable energy projects for sustainable applications.
- Learn about the latest energy generation, production, and storage technologies available for you to implement across your applications - for the most significant benefit.
- Learn what energy managers and energy professionals need to know about renewable sources, including wind, solar, thermal, photovoltaic, geothermal, electrical, bio-fuels, and hydroelectric.
- Learn what energy managers and energy professionals need to know about energy management process technologies, such as power generation, energy systems, energy storage (fuel cells), and using renewable and clean energy technologies.
- Learn how to finance and justify renewable energy projects, and what incentives can help you justify project implementation.

At-a-Glance

» This training program prepares attendees to take the Certified Renewable Energy Professional™ (REP™) exam.

» This program is held over 4 days.

» You earn 2.2 CEU | 22 PDH | 4.4 AEE Credits for completing this program.

Key Takeaways

» Work through practical examples to demonstrate the topics and procedures covered.

» Review the various areas of the Body of Knowledge associated with AEE's certification exam.

» Discuss how to apply what you have learned to your business and applications.

» Leave with a course workbook that will become an invaluable desk reference.

Registration

Candidates should contact their local AEE approved training provider for information about available training programs, the certification application process, exam registration, and associated fees. To find your local training provider visit

aeecenter.org/training

REP™

Certified Renewable Energy Professional™ Training Program

Who Should Attend

The program is of greatest value to those undertaking or assessing renewable energy projects. Obtaining AEE's REP™ certification provides international credibility among energy management, sustainable and clean energy communities. Attendees of this program have included existing energy professionals, energy engineers, energy managers, executives, financial executives, facilities managers, and energy consultants.

Course Outline

- Introduction to Alternative Energy
- Environmental Impacts
- Alternative Energy & Carbon Reduction
- Solar Energy
- Wind Energy
- Hydropower
- Geothermal Energy
- Waste to Energy
- Fuel Cells
- Hybrid Alternative Energy Systems (Hybrid Renewables)
- Creative Energy Storage Applications
- Alternative Energy Strategies for Buildings
- Bio-fuels & Transportation Systems
- Governmental Alternative Energy Programs
- Financial Approaches & Incentives for Alternative Energy
- The Future of Alternative Energy
- Resources & the REP Exam

Our Instructors

Over three days, one of our professional instructors will guide you through renewable and alternative energy sources. Their teaching and industry experience allows them to deliver information that is of the most relevance and practical value to attendees.

Certification Eligibility

The prerequisites to qualify for the certification process take into account the diverse education and experience applicants may have. Each candidate must meet the required criteria at

aeecenter.org/rep

Global Training Programs

For a complete list of AEE training programs delivered globally visit

education.aeecenter.org/global

Certified Renewable Energy Professional™ Training Program

Full Agenda

Introduction to Alternative Energy
- Underlying Causes & Effects
- Sustainable Development
- Emerging Technologies (Application)
- Importance of Alternative Energy
- US & Global Energy Consumption

Environmental Impacts
- U.N. Agenda 21
- Energy to Sustainability Relationship
- Global Warming
- Current Environmental Issues
- Environmental Policies & Programs
- Environmental Impact of Alternative Energy
- Cost Benefit Analysis

Alternative Energy & Carbon Reduction
- Introduction to Carbon Emissions (Important Market Trends)
- Climate Change (Strategic Solutions)
- Carbon Emissions Impact (Energy, Economy, Environment)
- Carbon Exchange Markets
- U.S. Climate Legislation
- Low Carbon Economic Incentives

Solar Energy
- Introduction to Solar Energy
- Solar Energy Direct Applications
- Modern Solar Energy Systems (Installation Considerations)
- Solar Energy Indirect Applications
- Solar Thermal Electric Utility Systems

Wind Energy
- History & Utilization
- Design Considerations
- Small Scale Wind Generation
- Onshore Wind
- Offshore Wind
- Economics & Feasibility

Hydropower
- History of Hydropower
- Energy Basics (Calculations)
- Traditional Hydropower Systems Overview
- Hydropower Advancements (New Approaches)

Geothermal Energy
- Geothermal Technologies
- Direct Use Geothermal
- Electrical Generation
- Ground Source Systems
- Heat Pump Applications
- Case Examples

Waste to Energy
- Waste as Energy Source
- Thermal vs. Non-Thermal
- Biological Mechanical Treatment (BMT)
- Biomass
- Waste Fuels (Uses)
- Landfill Gas / Gas Turbines
- Plasma-Arc Gasification

Fuel Cells
- History & Overview
- Fuel Cell Design Types
- Low, Intermediate & High Temperature Systems
- Fuel Cell Technology Application

Hybrid Alternative Energy Systems (Hybrid Renewables)
- Overview & System Applications
- Combining Alternative Energy Components
- Solar & Wind Power Combinations
- Pumped Storage
- Wind-Generated Hydroelectricity

Creative Energy Storage Applications
- Thermal Energy Storage
- Mechanical Storage Approaches
- Battery Storage (Efficiency & Life Cycle Comparison)
- Grid Storage (Intermittent Power Demand Response)
- Creative Energy Storage (Combining Renewable Generation)

Alternative Energy Strategies for Buildings
- High Performance Buildings
- Waste Minimization
- Indoor Air Quality
- Green Building Rating Systems (LEED & Energy Star Buildings)
- International Energy Conservation Code

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Certified Renewable Energy Professional™ Training Program

Biofuels & Transportation Systems

- Developmental Considerations
- Planning Solutions
- Biofuels & Alternative Fuels
- Alternative Energy Vehicles
- Governmental Alternative Energy Programs
- Sustainable Development Policies
- Qualitative & Quantitative Sustainability Analysis
- Sustainability Index Development
- U.S. Federal, State & City Incentive Programs (Legislation)
- EU Renewable Program Goals
- Performance Contracting

Financial Approaches & Incentives for Alternative Energy

- Economic / Financial Solutions
- Cost Benefit Analysis Techniques
- Alternative Financing Options
- Risk Analysis

The Future of Alternative Energy

- Alternative Energy Technology Advancements
- Low / No Carbon Fuel Shift
- Redesigned Carbon Reduction Practices
- Current Research & Demonstration Projects
- Questionable Technologies
- Present Government Action & Future Impacts

Resources & the REP Exam

- REP Standards & Guidelines
- Helpful Resources
- Technical References
- Exam Review and Q&A