



Advancing Data Center  
and IT Infrastructure  
Professionals



EDUCATIONAL PARTNER

CE 8000:

# Data Center Energy Practitioner (DCEP)



U.S. DEPARTMENT OF  
**ENERGY**

Elearning  
3-day Instructor Led  
Blended Learning

## Critical Environments Professional Development Program

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The International Consortium  
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# Data Center Energy Practitioner (DCEP)



**Audience:** Those with in-depth knowledge of HVAC, Electrical, and IT-equipment. A prequalification application is required. Requirements include data center design / operation experience, a technical data center degree, or combination of both.

**Program Description:** The main objective for the DCEP Program is to raise the standards of those involved in energy assessments of data centers to accelerate energy savings in data centers. The purpose of the course is to train participants on how to use the Data Center Profiler (DC Pro) and Air Management Assessment Tools. Participants will use these tools developed by the DOE for evaluating major data center systems in the course. There are 2 program levels—Level 1 (Generalist) and Level 2 (Specialist). The outline described below shows both program levels offered over a 3-day timeframe.

## Day 1 Generalist: 8 Competency Areas

### 8000.1 Introduction

1. Objectives and Overview
2. Resources

### 8000.2 DC Pro Overview

1. Benchmarking and PUE
2. Overview of DC Pro & PUE Estimator

### 8000.3 IT Equipment

1. IT Equipment Energy Use
2. Provisioning and Minimizing Waste

### 8000.4 Air Management

1. Environmental Specifications and Metrics
2. Airflow and Temperature Management

### 8000.5 Cooling Systems

1. Air- and Liquid-Cooled Systems
2. Chilled-Water Plant

### 8000.6 Electrical Systems

1. Causes of Energy Inefficiencies
2. Electrical Power Chain

### 8000.7 Assessment Process Manual

1. Objectives of DCEP Assessments
2. DCEP Assessment Process

### 8000.8 Data Center Profiler Case Study

1. Input Steps / Results
2. Abbreviations and Acronyms

## Days 2-3 Specialist: 8 Competency Areas

### 8000.9 HVAC Specialist

1. Resources
2. Performance Metrics

### 8000.10 Air Handlers and Air Conditioners

1. HVAC Systems & Airside Economizers
2. Indirect Evaporative Coolers & Energy Efficiency

### 8000.11 Liquid Cooling

1. Why and When to Consider Liquid Cooling
2. Cooling Configurations

### 8000.12 Chilled Water Plants

1. Metrics to Identify Energy Efficiency Opportunities
2. Optimizing Energy Usage / Design Considerations

### 8000.13 Cooling System Controls

1. Temperature, Humidity, and Airflow Control
2. Cooling Plant Control & IT Equipment Integration

### 8000.14 Assessment Process

1. Role and Purpose of DCEPs
2. DCEP Assessment Process

### 8000.15 Modeling Data Center HVAC Systems

1. Modeling Energy Usage
2. Annual Energy Usage vs. Annual Energy Cost

### 8000.16 Environmental Requirements

1. Temperature and Humidity Specifications / Compliance Metrics RCI
2. Recommended and Allowable Ranges (ASHRAE/NEBS)

### 8000.17 Airflow and Temperature Management

1. Goals, Results, Data Gathering, & Measures
2. Energy vs. Thermal Performance

### 8000.18 DOE Air Management Tool

1. DOE Tool Suite & Air Management Tool
2. Application Example, Input Steps and Results

## Credentials

The Data Center Energy Practitioner (DCEP) certification exams (Generalist and Specialists) are included in the course fees. It is an open-book multiple choice exam with a mix of problem solving and knowledge questions. Passing is 75%. There is a waiting period of 30 days to retake exam(s).

## Conducting Energy Assessments of Mission-Critical Environments

### Aligning Mission-Critical Environments Education & Credentialing Programs to the Workplace

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Build-Resilience.org | TheICOR.org  
info@theicor.org | +1630.705.0910 Int'l  
1.866.765.8321 Toll Free North America