Association of Energy Engineers

Carbon Auditing Professional
Training Program™

This training program is designed to provide attendees the background knowledge, fundamentals, guidance, and tools for successful carbon auditing and management. Over two days, our professional instructor will help you understand a global problem, identify opportunities for GHG reduction, and apply practical strategies that will improve your company's bottom line and help impact climate change.

Carbon auditing professionals apply their specialized knowledge to assist companies and organizations to reduce their carbon footprint and become "carbon-neutral" as possible.

What Will You Learn?

– Global trends on GHGs.
– Kyoto Protocol and beyond; GHG legislative & reporting requirements.
– Guidance documents, processes, and tools.
– Carbon footprint measurement.
– Best practices for GHG Auditor; energy and carbon reduction strategies.
– Practical strategies to reduce carbon footprint; recycling, green energy and carbon trading.
– Economics of GHG reduction; carbon credits and trading terminology.
– Financing and marketing GHG reduction projects.

At-a-Glance

» This training program prepares attendees to take the Carbon Auditing Professional™ (CAP™) exam.

» This program is held over 2 days.

» You earn 1.6 CEU | 16 PDH | 3.2 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 visit the website for additional information on available training courses, certification application process, exam registration, and associated fees.
Visit **aeecenter.org/training**

C·A·P

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Who Should Attend

This course is designed to help energy professionals, including energy managers, energy engineers, facility and business managers, industrial engineers, supply chain professionals, utility officials, consultants, contractors, financial officers, and energy service company professionals become more aware of and effective at identifying and implementing the best GHG reduction strategies. This mix of energy professionals and the learning environment also provides attendees an excellent opportunity for peer-to-peer learning and networking.

This program is also ideal for young energy professionals who wish to help their organization realize the additional benefits of GHG reduction, including cost avoidance, risk reduction, competitiveness, productivity and operations, shareholder value, community outreach, and branding.

Our Instructors

The CAP™ program is taught by approved instructors with extensive experience in the industry. They present the latest practices, strategies, and theories, while leading discussions in an open, interactive environment. You also spend valuable time connecting with and learning from other program attendees. In each topic covered, the instructors focus on the most "useful" and "proven" activities that professionals need to know.

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/cap

Accreditation and Recognition

The Carbon Auditing Professional™ (CAP™) accreditation is one of the most globally respected in the field of carbon auditing, management and reduction. Since 2008, energy professionals have participated in AEE's approved CAP™ training programs.

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Agenda

The Need for Carbon Reduction and Overview of Opportunity

- Effects and causes of climate change
- Mapping the impacts of climate change
- Energy environmental economic challenges
- Potential climate change impacts
- Human mobility and climate change
- External costs
- C02e emissions views - per capita, per country, over time
- Strategic weakness for oil/gasoline fuels
- Source of emissions
- Global energy mix
- Characteristics of greenhouse gases
- Major contributing greenhouse effect
- GHG global warming potential
- Emission factors for US federal facilities
- Introduction - carbon pricing policies
- Marketing oriented motivators

Introduction to Kyoto (and other agreements) and Basic Agreement Principles

- Kyoto Protocol - the seven target gasses
- Defining Scope 1, 2, and 3 emissions
- What to report on for Scope 1, 2, 3 and additional GHG emissions
- Emissions terminology within reporting scope/boundary
- International mechanisms to reduce GHG
- Annex 1 and Annex 2 definitions and countries
- History timeline of global climate change action
- Paris Agreement - history, specifics, major country specifics
- Conference of Parties (COP) results
- Global methane pledge
- Nationally Determined Contributions (NDC)
- Other successful international conferences and agreements (Montreal, Kigali)
- Global GHG emissions guidelines and reporting requirements
- Legislation requirements - USA and other major emitting countries

Carbon Footprint Measurement and Reporting

- Guidance documents, processes and tools
- Carbon footprint measurement - example using Climate Registry
- Defining inventory boundaries by various methods
- Reporting in carbon dioxide equivalents
- GHG quantification methods - calculation, measurement, simplified methods
- GHG qualification methods for indirect emissions: direct, area, cost, averate intensity
- Indirect emissions from electrical use - selecting the best emission factor
- Selecting emission factors from mobile sources
- Quantifying direct fugitive emissions of refrigerants, HFC and PFC materials
- Advanced methods for quantifying emissions
- Reporting requirements under the Climate Registry
- Third party registry verification
- Reporting inventory in CRIS system
- TCR Global Warming Potentials (GWP) - update
- Conversion factors for reporting

Transportation and Fleet Management

- Strategies to reduce transport carbon footprint
- Focus on Scope 1 mobile combustion
- Secondary focus on Scope 3
- Transport emissions
- Boundaries and leased assets
- Emissions inventory and data required
- Calculating mobile combustion emissions
- Fuel types
- Fleet management interventions
- Resources

Best Practices for a Carbon Auditor

- Best practices for setting up a GHG program
- Importance of documentation
- Practical tips for setting up a program in your facility
- Implementation and data management
- How to collect, QC, analyze and update data
- Example plans

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Carbon Audit Exercise

- Airport example - details
- Source categories breakdown
- Determine CO2e for categories

Practical Strategies and Tactics to Reduce Carbon Footprint

- Focus on Scope 1 and Scope 2
- Preliminary concepts
- Defining conservation and efficiency, their difference
- Energy project hierarchy
- Importance of understanding energy system losses
- Proven tactical measures to reduce your carbon footprint
- Auditing to get a plan (Level 1, Level 2, Level 3)
- Energy reduction using strategic energy management, ISO 50001, Treasure Hunts
- Normal versus abnormal energy usage
- Value add versus non-value add energy usage
- Opportunities by individual energy-using systems (EUS)
- Building envelope examples of reducing heat loss
- Resources for building it "right" - ASHRAE, LEED, Energy Star
- US government resources - software and other tools
- Tax benefits, utility and government incentives

Renewable Energy Solutions, Green Power, and Recycling

- Renewable energy sources
- Definitions
- Green power supply options
- Power purchase agreements (PPA)
- Considerations
- Recycling

Emissions Trading, Terminology, RECs, Credits, and Offsets

- Renewable energy certificates
- Green tags and white certificates
- Cap and trade (carbon credits), and carbon offsets, similarities and differences
- Differences between RECs and offsets
- Concept of additionality
- Growth of renewables and certified reduction projects
- United Nations Clean Development Projects (CDM) and Certified Emision Reductions (CER)

Economic Analysis and Life Cycle Costing

- Definition of terms A, F, IRR, MARR, NPV, SPB, Depreciation, Salvage Value
- Describing - Life cycle costing with examples
- Finding savings requirement for a specified return rate
- Finding net present value needed for a specified return rate
- Finding the annual value of projects given other specifics
- Application - personal investing examples, savings rates
- Application - personal investing example, Lottery Winning

Financing and Marketing of Projects

- Reasons why projects fall and how to overcome them
- Financing for positive cash flow - loan, bond, lease, PPA, performance contracting
- How to use green marketing to get approval
- Examples of green marketing/green press

CAP Body of Knowledge Review and Worked Examples