CERTIFICATION COURSE FOR ENERGY AUDITORS:
Strengthening the Energy Management System in Your Company

LEARN ENERGY MANAGEMENT & AUDIT BEST PRACTICES FROM UNIDO-DOE NATIONAL EXPERTS AND AEE CERTIFIED PROFESSIONAL

INTRODUCTION

Energy Audit Program (Complementary Course for Energy Managers, Energy Auditors, Consultants, Energy Project Developers and Energy Professionals) - consisting of 5 modules, this program aims to provide the participants with the fundamental knowledge and skills needed to conduct an energy audit in commercial and industrial establishments to support the energy program of a company and the government's EEC regulatory requirements and standards.

MPA is cognizant that the Energy Auditor can take various roles or perspectives as follows:

- As the designated energy manager of a company in charge of the energy management program
- As ESCO energy practitioner providing energy services or solutions to a client
- As Independent Third-Party Auditor hired or contracted by the company to verify, and evaluate the ESCO/contractors' deliverables and project outcomes
- As owner-engineer of the client/company to review/evaluate various energy projects/programs and vendor/contractor proposals.
- As lender-engineer of a bank/financing institutions to review/evaluate project viability, project status/accomplishments and outcomes.
- As an independent third-party auditor to verify and confirm the government's EEC regulation compliance and associated sustainable development agenda.

This program takes into consideration the best global practices on Energy Audit following ISO 50002, UNIDO practice guide, ASHRAE 211/100, and reference standard/benchmark materials from ASHRAE, US Better Buildings Workforce Guidelines, US Energy Information Administration CBECS data, EPA Energy Star, the Association of Energy Engineers (AEE) body of knowledge/best practices and the Philippine's Department of Energy latest department circular on Training Regulation for Energy Audit.

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MERALCO POWER ACADEMY
A Trusted Brand in Energy Efficiency & Conservation

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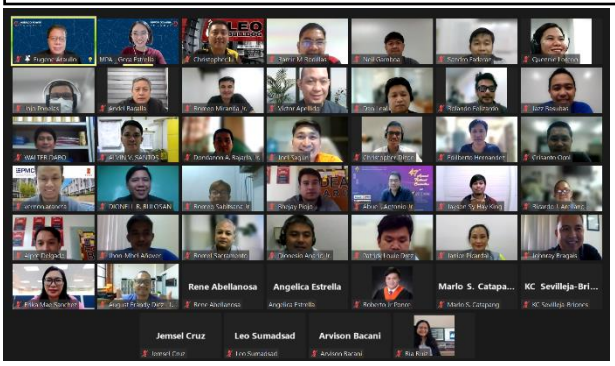

Meralco Power Academy, in support of the DOE's EEC Program, has been at the forefront of Energy Efficiency & Conservation in the Philippine Power & Energy Industry by conducting Energy Efficiency & Conservation capacity building; our program had been attended by at least 350 professionals from more than 200 companies across industries in 2022.

This 2023, MPA, with the aim to create more value for its C&I clients, will continuously strengthen Energy Efficiency & Conservation programs namely: (1) Certification Course for Energy Managers, (2) Certification Course for Energy Auditors, and (3) other Renewable Energy & Energy Efficiency programs following global certification standards (ANSI, IEC, ISO, AEE, EMA, etc.) This is to prepare the C&I market for a more mature implementation of energy management following best global practices.

Companies who trained under MPA's Energy Efficiency & Conservation Course:

Among others+

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PROGRAM OBJECTIVES

At the end of the session, the participants will be able to:

- Implement the ISO 50002 and ASHRAE 211/100 Energy Audit Practice Guides, the global gold standard on energy audit process and management, and reference standards needed in the conduct of a successful audit for commercial and industrial establishments

- Utilize the principles, strategies, tools, and techniques in the conduct of an energy audit, energy treasure hunting, data gathering, baselining, benchmarking and energy analysis, development of energy efficiency measures and action plans, report preparations, and presentation of audit findings

- Develop a business case for action based on audit findings, and support a holistic and integrated implementation of an energy management system or EE/RE projects in the company

- Facilitate and sustain the company's energy management program of the plant/facilities, performance management, cost savings, and regulatory compliance.

RECOMMENDED SKILLS/KNOWLEDGE TO HAVE BEFORE THE TRAINING

- Basic MS Excel
- Basic knowledge on RA11285: Energy Efficiency & Conservation
- Preferably completed the MPA's Energy Management Program or equivalent course
- Preferably managerial/supervisory level, or technical consultant, senior engineering officer, maintenance officer or in-house energy specialist or equivalent position

ENROLLMENT PRE-REQUISITES

1. With a college degree in engineering, architecture, and related sciences
2. Minimum of 3 years of related experience in engineering/ design/ operation/ maintenance/ project management/ facilities management and or similar activities related to energy and power resources

Note: you may still enroll even if you do not satisfy the requirements, however, you will be given a transitional certificate, which, you may upgrade to the actual certificate once you already satisfy the requirements within a specified period.

PROGRAM COVERAGE

Compliant to the requirements of the Philippine Department of Energy

Common Knowledge & Competencies Required:

1. Energy Management System Basic Awareness (ISO50001 Framework)
2. Energy Audit Basic Awareness (ISO50002 Framework and ASHRAE Standard)
3. Industry Rules and Regulation Awareness (EPIRA, RE ACT, EEC Act, RPS, GEOP, DOE/ERC rule, etc.)
4. O&M of Audit Tools and Equipment (Use, specification, standard, maintenance, and safekeeping)

Core Knowledge & Competencies Required:

1. Energy Audit Planning & Implementation (Energy audit process, methods, technique, and reference standards)
2. Technical Competency – Electrical System
3. Technical Competency – Mechanical System
4. Technical Competency – Lighting System
5. Technical Competency – Building Envelope
6. Technical Competency – Pumps and Compressed Air System

PROGRAM OUTLINE

6 days of Blended Learning (Online & Onsite)
from June 5 - 8 & 13 -14, 2023

Module 1: Fundamentals of Energy Management and Energy Audit

This will cover the common competencies under items 1, 2, and 3 thru lectures, class discussions, samples, and assignments.

- Understanding Energy Management System and Practices and the role of Energy Audit (the process and functional relationship, purpose, benefits, and global best practices)
- Energy Management and Energy Audit definitions, standards, and guides from ISO 50001, ISO 50002, ASHRAE 211/100, DOE/ERC rules, other local rules and regulations, related standards and practices for energy management and energy audit
- The multiple roles of an Energy Auditor and expected performance outcomes
- The Energy Audit Process and Guide (best practice guide from ISO and ASHRAE)
- Energy Audit Team, roles, responsibilities, and competencies
- Multidisciplinary nature of Energy audit and ways to achieve it
- Common types of Energy Audit (EnMS, technical audit) and expected outcomes
- Energy Auditors' code of ethics and professional practice guide

Module 2: Preparing and Conducting Energy Audit

This will cover the common competency under item 4 and deep dive into core competency item 1 thru lectures, class discussions, samples, and assignments.

- The Energy Audit Process, Tools, and Technique:
    - Developing an Energy Audit Strategy & Plans

- Energy Audit Objectives, Scoping, and Audit team
- Data Collection & Energy Use Analysis
- Energy Balance, Baselining, Energy Performance, and Benchmarking
- Discovering opportunities for improvement, impact, risk, and implications
- Economic Analysis of Energy Efficiency Measures and Applications

- Types of Energy Audit (EnMS, types 0, 1, 2 & 3) and Outcomes (steps, guides, reports)
- Energy Audit reporting, sample templates, and forms (systems and technical audit)
- Deep dive into Energy/Power Economics and Accounting
- Energy Audit Tools, Equipment, PPE, and data preparation
  - Importance of data, measurement, and verification
  - Common energy audit tools/equipment, specification, proper use, maintenance, and safe keep (PQ meter, thermal scanner, flue gas tester, air quality tester, ultrasonic/ultrasound testing, air velocity tester, rpm tester, lux meter, etc.)
  - Basic PPE needed during the audit (hard hat, face shield, safety shoes, working gloves, etc.)

Module 3: Energy Audit Technical Competencies Knowledge Area

This will cover the core competencies under items 2, 3, 4, 5, and 6 thru lectures, class discussions, sample cases, workshops, and assignments.

- Energy Systems Technical Competency Areas (**priority areas)
  - **Electrical Systems**** (Energy sources, power economics, systems efficiency, embedded generation, power quality, maintenance programs, savings, and loss calculation, standards, and best practices)
  - **Lighting Systems**** (Lighting use/design philosophy, lighting technologies, system efficiencies, maintenance programs, savings calculations, standards, and best practices)
  - Building Envelopes** (Building envelop concepts, heat transfers, heat loss/gain, thermal insulation, design guidelines, efficiency measures, available technology, and best practices applications)
  - **Heating, Ventilation, & Air Conditioning Systems (HVAC - Mechanical)**** (HVAC systems, air handling, cooling/heating requirements, efficiency measures, heat recovery, hot water, available technology, standards, and best practices applications)
  - **Motors, Drives, Pumps & Compressed Air Systems**** (Motor type and uses, compressors, efficiency drivers and measures, use of HEMs/VFDs, available technology, and best practice applications)
  - Future Optional topics: Domestic Water Systems (hot and cold), Boilers, Building Automation and Energy Management Systems, Renewable Energy and Storage (Embedded Generation), Transport and Logistics

Module 4: Energy Audit Workshop with Guidance

This module aims to reinforce learnings thru actual workshop practice and assignments by area or company. This will cover common and core knowledge and competencies thru actual case applications.

Reinforcing learning through practice areas by company:

- Energy Audit planning and strategy
- Data Collection, Energy Economics, and Energy Use Analysis (mandatory)
- Assessment of building envelope, HVAC, electrical system, lighting, motors drives, and compressed air systems

- Energy management system audit and assessment
- Workplace actual audit report presentation and assessment

Module 5: Energy Audit Supplementary Knowledge and Concluding Activities
This will summarize and integrate all learnings, and lessons learned covering all competency areas and will also include supplemental topics to enhance participants' knowledge.

- Energy Management System & Energy Audit – an integrative approach
- Measurement and verification following EVO-IPM&VP
- Energy efficiency project development, financing, and evaluation
- Building/facilities design and retrofit taking into consideration the new design guidelines, green building code, occupational safety, and health requirements
- Operation and maintenance programs – strategies, programs, and best practices towards greater savings, higher production efficiency, and productivity in the plant
- Examination, program assessment, energy audit report submission and concluding activities

LEARNING INVESTMENT

Enroll and be an MPA-certified Energy Audit professional!

19,000	17,100
Standard Rate	Special rate for group of 3+

To enroll, please click this link.
If you want an **in-house batch** for your group, you may email learn@meralcopoweracademy.org.

After sending your enrollment request, please expect a reply from us within 24 hours containing the payment process and other reminders.

You may also contact us at +639608674624 if you need further assistance.

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