Optimise
Optimal Systems Engineering Sdn Bhd
Engineering Sustainability

8 CDP Hours
(Optional CDP for REM)

1-Day Workshop on

ENERGY MANAGEMENT SYSTEM (EnMS)

Based on the Guidelines on Energy Management System (GP/ST/No.46/2024) Issued by the Energy Commission of Malaysia

HRD Corp Claimable

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WORKSHOP OVERVIEW

The Energy Efficiency and Conservation Act (EECA) 2024 represents a significant step forward in Malaysia's efforts to enhance energy efficiency and support national climate goals. Under this Act, designated energy consumers (DECs) must establish, implement, and maintain an Energy Management System (EnMS) in line with the Guidelines on Energy Management System (GP/ST/No.46/2024) issued by the Energy Commission (Suruhanjaya Tenaga).

This workshop is designed to help organisations and professionals understand and meet these requirements. Participants will gain the knowledge, tools, and practical guidance needed to comply with the EnMS guidelines while driving continuous energy performance improvement. The programme focuses on converting regulatory obligations into clear, actionable steps tailored for industrial, commercial, and institutional facilities across Malaysia.

WORKSHOP OBJECTIVES

The workshop aims to:

- Provide a thorough understanding of the EnMS requirements under EECA 2024 and the Energy Commission guidelines.
- Strengthen participants' capability to design, implement and maintain an effective Energy Management System.
- Enable organisations to identify energy performance gaps and plan targeted interventions.
- Facilitate hands-on development of essential EnMS components, including energy policies, performance indicators and action plans.
- Support participants in establishing a structured pathway for continual improvement and compliance reporting

WHO SHOULD ATTEND?

This workshop is intended for Registered Energy Managers (REM), Certified Energy Managers (CEM), Energy Management Committee members and professionals involved in EECA 2024 compliance, facility managers, engineers, sustainability or ESG practitioners, ESCOs and energy consultants.

WORKSHOP LEARNING OUTCOMES

At the end of the workshop participants are expected to be able to

- Interpret the key requirements of the Energy Commission's EnMS Guidelines and their relationship to EECA 2024.
- Establish an Energy Management Policy and define roles and responsibilities within the organisation.
- Conduct basic energy performance assessments, including identifying Significant Energy Uses (SEUs) and formulating Energy Efficiency Indicators (EEIs).
- Develop practical energy objectives, targets and EnMS Action Plans.
- Apply monitoring, measurement and verification (M&V) concepts to track progress and demonstrate continual improvement.
- Prepare for internal audits, reporting obligations and management review processes.

WORKSHOP METHODOLOGY

This intensive one-day workshop combines regulatory briefing, technical guidance and practical exercises to ensure effective learning and direct application. Methods include:

- Expert-led presentations
- Interactive discussions
- Hands-on exercises and case examples
- Template-driven activities (policy draft, action plan, EnMS compliance checklist)
- Group work and facilitated problem-solving

Participants will work on templates and examples that they can directly adapt for their organisation's EnMS.

WORKSHOP DELIVERABLES

Participants will receive:

- Full workshop slide deck
- Templates for Energy Management Policy, Self-Assessment Matrix
- EnMS Compliance Checklist and EnMS Action Plan
- Certificate of Attendance (8 hours)

WORKSHOP BENEFITS

- Clear understanding of EECA 2024 and EnMS compliance requirements.
- Practical templates and tools that can be directly applied in your organisation.
- Improved capability to identify energy gaps and plan effective interventions.
- Strengthened organisational readiness for implementing and sustaining an EnMS.

WORKSHOP SCHEDULE

Time	Title
8:30 - 9:00	Registration
9.00 to 10.15	**Overview of EECA 2024 and the EnMS Guidelines** • EECA 2024 and relevance of EnMS • Roles under the Act: Designated Energy Consumers, REM, and internal governance • Breakdown of the EnMS guideline structure and compliance pathways
10.15 - 10.30	Morning Break
10.30 to 11.15	**Establishing Commitment and Governance** • Leadership roles, responsibilities and Energy Management Committee formation • Crafting an Energy Management Policy *Activity: Drafting a Simple Energy Management Policy*
11.15 to 13.00	**EnMS Planning – Assessing Energy Performance** • Energy Management MATRIX • Identifying energy data sources and establishing baselines • Identifying SEUs and formulating EEIs • Setting SMART energy objectives and targets *Activity: Energy Management MATRIX & EEI Exercise*
13.00 to 14.15	Lunch Break
14.15 to 15.15	**Developing EnMS Action Plans** • From targets to actionable measures • Operational, behavioural and technical energy-saving interventions • Budgeting, prioritisation and resource planning *Activity: Drafting an EnMS Action Plan*
15.15 to 15.30	Afternoon Break
15.30 to 16.30	**Implementation, Monitoring & Management Review** • Documentation, communication and action tracking • Basics of M&V for EnMS • Internal audit and corrective actions • Conducting management review and preparing evidence for compliance *Activity: Determining Cumulative Sum of Savings (CUSUM) after retrofit*
16.30 to 17.00	**EnMS Roadmap & Closing** • Developing a short-term implementation roadmap • Final Q&A session • Closing remarks and certificate distribution

TRAINERS' PROFILES

TRAINER 1

PROF IR TS DR ZAINUDDIN ABDUL MANAN

Prof Ir Ts Dr Zainuddin Abdul Manan is a professor of chemical and energy engineering, the founding director of UTM Process Systems Engineering Centre (PROSPECT), founding Dean of UTM Faculty of Chemical and Energy Engineering, the former UTM Vice President (Academic and International) and the CEO and founder of the UTM spin-off, OPTIMISE.

He began his career as an engineer with Petronas and Hume Industries, before embarking on a distinguished 30-year journey as an academic leader, researcher, consultant, and professional coach. Over the years, he has led and completed more than 100 research and consultancy projects for both local and multinational organisations. He holds numerous patents and has authored over 500 refereed journal papers and books on energy and resource conservation. He was listed as a Global Top 2% Scientists by Stanford University, and recently as a Global Top 1% Engineering and Technology Scientists by Research.com. He is a co-author of the globally referred Book on Process Integration and Intensification – Saving Energy, Water and Resources.

Prof Zain is a Fellow IChemE, Fellow Academy of Sciences Malaysia, a professional engineer, a chartered engineer, a professional technologist, a certified energy manager, a Registered Energy Manager (REM-Type 1& Type 2), a Registered Energy Auditor (REA) and a certified coach for ASEAN energy managers. He has trained professionals from over 700 organisations and delivered over 400 invited talks in professional courses, conferences and seminars worldwide.

He was the National Project Director for the Building Energy Benchmarking Project 2024 that resulted in the Energy Efficiency and Conservation Act (EECA) BEI Labelling Guideline. Prof Zain also chaired the EECA 2024 Thermal Energy drafting committee under the Malaysian Ministry of Energy Transition and Water Transformation (PETRA). He founded the UTM Sustainable Energy Management initiative that led UTM to bethe first 3-Star AEMAS-Certified organisation in ASEAN, to win the ASEAN and National Energy Awards, and to be ranked 1st globally by the Times Higher Education on SDG7 – Affordable and Clean Energy.

TRAINER 2

PROF IR TS DR SHARIFAH RAFIDAH WAN ALWI

Prof Ir Ts Dr Sharifah Rafidah Wan Alwi, PEng, MIEM, CEng, MIChemE, is a Professor in the Faculty of Chemical and Energy Engineering, Universiti Teknologi Malaysia. She previously helmed as the Director of Process Systems Engineering Centre for ten years (2011 to 2021). Prof Sharifah is also the co-founder and Director of Optimal Systems Engineering Sdn Bhd, a UTM Spin-off company.

She is an expert resource minimisation consultant for multiple industries and is among the leading researchers in resource integration technique development. She has been extensively involved in 80 research projects, 17 industrial based projects for various companies and government agencies and has trained engineers from more than 300 companies in the field of sustainable engineering design and management. Together with her team, they have developed 7 resource minimisation software.

Sharifah has won various international and national awards such as Green Talents 2009 (Germany), IChemE Highly Commended Sir Frederick Warner Prize 2011 (UK), ASEAN Young Scientist and Technologist Award 2014, National Young Scientist Award 2015, ASEAN-US Science Prize for Women 2016 in Energy Sustainability, Malaysia Research Star Award 2016, 2018, 2019, Top Research Scientists Malaysia 2018 and Sarawak State - International Women Award 2021. She was listed as 'Asian Scientist 100' in 2017 and 'Asia's Rising Scientists' in 2020, and '8 Women Scientists from Asia You Should Know' in 2021 by AsianScientist.com.

Sharifah is also the Associate Editor for Journal of Cleaner Production and UTM Sustainable Energy Management System advisor. She has also served as the Chair for the Science Leadership Working Group under Young Scientist Network, Academy of Sciences Malaysia (YSN-ASM) and Chair for Malaysia IChemE Young Engineer Group (YEG). Sharifah is a professional engineer, a professional technologist, a UK/EU chartered engineer, a certified energy manager, a Registered Energy Manager (REM-Type 1 & Type 2), a Registered Energy Auditor (REA) and a certified coach for ASEAN energy managers and a certified trainer for ASEAN energy managers.

TRAINERS' PROFILES

TRAINER 3

ASSOCIATE PROF IR DR LIM JENG SHIUN

Assoc Prof Ir Dr Lim Jeng Shiun is currently the research follow of Process Systems Engineering Centre(PROSPECT), Univesiti Teknologi Malaysia. His core expertise is in the innovative development and application of process systems engineering techniques for resource conservation, energy and carbon planning. Stanford University recognised him as one of the World's Top 2% Scientists.

Dr Lim has published more than 136 indexed articles to date. His Scopus h-index is currently 32 with 4247 citations. He is appointed as the International Editorial Board Member of JCLEPRO (IF: 11.072). He is also appointed as the guest editor for Special Issue of JCLEPRO and Chemical Engineering Transactions (Scopus indexed), besides serving as the technical secretariat for international conferences.

Dr Lim is a certified country expert of "Steam System Optimisation" and "Thermal Energy Efficiency andSolar Thermal Energy Integration" under UNIDO. He is also a professional Chartered Engineer, CertifiedEnergy Manager (AEMAS), Certified Energy Auditor (MAESCO) and Registered Energy Manager (REM-Type 1& Type 2) and Registered Energy Auditor (REA) certified by Energy Commissions of Malaysia, and a certified trainer for ASEAN energy managers.

As an engineer in practice, he has applied the output of his research work in consultancy projects for the industrial community. He has been extensively involved in 35 research and industrial-based projects (RM5,321,080) for various companies and government agencies. The key clients include local industries and multinational companies such as SHELL, ANSELL, FABER MEDISERVE, OLEON, KELOGG, Mölnlycke in Malaysia and PERTAMINA in Indonesia. He has assisted those companies in identifying the GHG reduction potential and energy-saving opportunities worth millions of dollars through process integration and process systems engineering approach.

OPTIMISE Energy Audit, GHG Accounting and EnMS Track Records

- Led UTM to be globally ranked 1st on SDG 7 - Affordable and Clean Energy
- Co-developer of ASEAN EMGS Energy Management System Standards with MGTC.
- Led UTM to win the ASEAN Energy Award and EMGS 3 Star EMGS Gold Standard.
- Involved in certification of energy managers and energy end users for 15 years.
- Developer of award-winning energy audit and energy monitoring software.
- Led UTM to achieve over RM 30 million energy savings between 2011-2023.
- Over 20 years experience in energy audit and optimisation consultancy, R&D and professional training for over 700 national/multinational companies.
- Certified trainer, auditors & centre for training & certification of energy managers.

Selected References

- Shell, Middle Distillate Synthesis
- BP – Amoco
- MLNG
- Felda Proctor and Gamble
- MIMOS Semiconductor
- Riau Pulp and Paper Mill
- Qatar LNG
- Pertamina Engineering Group
- PT Titan Petrokimia Interindo
- Pan Century, IOI Oleochemicals
- BASF – Petronas
- MTBE – Petronas
- Huntsman Tioxide
- Ansell Malaysia
- Hershey Malaysia
- Malaysia Newsprint Industries
- Malaysia Palm Oil Board
- Malaysia Energy Commission
- Technip (M) Sdn Bhd
- PT Chandra Asri
- Petronas Penapisan (M) Sdn Bhd
- Petronas Gas Sdn Bhd
- Kaneka Malaysia
- UKM, UPM, USM, UM, UNIKL

20+

Years Experience in Energy Audit and Optimisation

#1

Global Rank in R&D on 'Heat Exchanger. Retrofitting and Design' Elsevier Scival 2014

700+

National & Multinational Companies Benefitted from our Energy Trainings and Consultancy Services

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