



2-Days Workshop on  
**CONCEPT AND PROCEDURE FOR THE ESTABLISHMENT OF AN  
ENERGY MANAGEMENT  
SYSTEM**

(Based on ISO 50001:2018)



MyHS00015/22-E002

**8  
CDP**

Hours Approved  
by Energy Commission

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## **WORKSHOP OVERVIEW**

Energy Management System Standards (EnMS) such as ISO 50001:2018 has been a globally proven tool for the systematic, efficient and sustainable management of energy use in an organisation. EnMS has enabled many organisations to achieve multiple bottom line benefits of reduced energy cost, minimised GHG emissions, improved profitability and enhanced its public image. This workshop is designed to empower organisations to establish and implement the ISO 50001:2018 Energy Management System Standards (EnMS) as an integral part of a company's environmental and social governance (ESG) initiative.

## **WORKSHOP BENEFITS**

- Customise EnMS establishment in line with organisational needs.
- Implement a systematic, holistic and sustainable energy management program.
- Improve energy efficiency, profitability and minimise GHG emissions.
- Raise organisation's image and competitiveness via EnMS.

## **WORKSHOP LEARNING OUTCOMES**

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

- Describe the importance and benefits of EnMS for an organization.
- Communicate real-life success stories, and make a strong case for EnMS establishment.
- Establish EnMS context, needs, scope and structure based on elements of ISO50001:2018.
- Plan the EnMS actions, resources, activities, programs and set improvement targets.
- Implement operational control, design and procurement requirements.
- Perform energy monitoring and evaluate implementation performance.
- Conduct EnMS continual improvement program.

## **WHO SHOULD ATTEND?**

A holistic and effective EnMS implementation should include the top management representative, the energy manager as champion of the initiative, key members of an organisation's energy committee which typically comprise of quality assurance/control manager, technical personnel such as the facility, operation, and maintenance manager

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## TRAINERS' PROFILES



TRAINER 1

### **PROF IR TS DR ZAINUDDIN ABDUL MANAN**

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, founder of UTM Sustainable Energy Management Program and the CEO and founder of the UTM spin-off company OPTIMISE Sdn Bhd. He began his career as an engineer in PETRONAS and Hume Industries and has been an academic leader, educator, researcher, consultant and professional coach for over 25 years. He completed over 100 R&D & consultancy projects serving local and multinational companies, has numerous patents and over 450 publications that include 20 books/ chapters, 230 refereed journals and 250 conference proceedings on energy and resource conservation using process integration techniques. He is a co-author of the globally referred Book on Process Integration and Intensification – Saving Energy, Water and Resources. Zain is a UK/EU chartered engineer, a Fellow IChemE (UK), Fellow of Academy of Sciences Malaysia, a professional engineer, a professional technologist, a certified energy manager, a registered electrical energy manager and a certified trainer for ASEAN energy managers. He has coached professionals from over 500 organisations and delivered over 400 invited talks in professional courses, conferences and seminars worldwide. Zain is the chair of Academy of Sciences (ASM) Energy Committee, the Chair of ASM Net Zero Task Force and the Chair of the Energy Efficiency and Conservation Act (Thermal Energy) Drafting Committee under the Ministry of Energy and Natural Resources. He founded and spearheaded the UTM Sustainable Energy Management initiative that led UTM to save over USD 7 million energy costs between 2011 and 2020, and to win the National and ASEAN Energy Awards.



TRAINER 2

### **PROF IR TS DR SHARIFAH RAFIDAH WAN ALWI**

Prof Ir Ts Dr Sharifah Rafidah Wan Alwi is a Professor in the School 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). She is an expert resource minimisation consultant for multiple industries and is among the leading researchers in resource integration technique development. Prof Sharifah is also the co-founder and Director of Optimal Systems Engineering Sdn Bhd, a UTM Spin-off company. 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 also a professional engineer, a professional technologist, a UK/EU chartered engineer, a certified energy manager, a registered electrical energy manager and a certified trainer for ASEAN energy managers.

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## TRAINERS' PROFILES



TRAINER 3

### **ASSOCIATE PROF IR DR LIM JENG SHIUN**

Associate Professor Ir Dr Lim Jeng Shiun is the Director of Products and Service, Optimal Systems Engineering Sdn Bhd, a UTM spin-off company specialising in providing solutions related to energy conservation and GHG emissions reduction. He is also the Deputy Director of Process Systems Engineering Centre (PROSPECT), Universiti Teknologi Malaysia. His core expertise is in the area of innovative development and application of process systems engineering techniques for resource conservation, and energy and carbon planning. He is also a professionally Certified Energy Manager, Certified Energy Auditor, Accredited Energy Measurement & Verification Professional and a Registered Electrical Energy Manager certified by the Energy Commission of Malaysia.

He is the trainer of the Energy Management Trainer Course conducted by MGTC to certify the Energy Manager. He is also the instructor for MSc Energy Management in UTM, sharing knowledge related to energy efficiency and energy management. As an engineer in practice, he has applied the output of his research work to consultancy projects for the industrial community. He has been extensively involved in more than 35 industrial-based projects for various companies and government agencies. The key clients include local industries and multinational companies such as BERNAS, FABER MEDISERVE, SHELL, OLEON in Malaysia and PERTAMINA in Indonesia.

He has assisted those companies to identify energy-saving opportunities worth millions of dollars and GHG reduction opportunities through the use of process integration and process systems engineering approaches in the energy audit and GHG emissions accounting projects. He has shared his project experience in his co-authored book titled Pinch Analysis for Energy and Carbon Footprint Reduction, published by the Institution of Chemical Engineers (IChemE). He has been invited to share his experience on Net Zero carbon for industry and facilities, including on Net Zero Carbon for Palm Oil Industry organised by IChemE.

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# WORKSHOP SCHEDULE

Day 1	
9:00 am - 9:30 am	Introduction to ISO 50001:2018
9:30 am - 11:00 am	Clause 4: Context of EnMS
11:00 am - 11:15 am	Break
11:15 am - 12:45 pm	Clause 5: Leadership
12:45 pm - 14:00 pm	Lunch Break
14:00 pm - 15:30 pm	Clause 6: Planning
15:30 pm - 17:00 pm	Clause 7: Support

Day 2	
9:00 am - 10:30 am	Clause 8: Operation
10:30 am - 10:45 am	Break
10:45 am - 12:45 pm	Clause 9: Evaluation
12:45 pm - 14:00 pm	Lunch Break
14:00 pm - 15:30 pm	EnMS Checklist
15:30 pm - 17:00 pm	Clause 10: Non-Conformity and Continual Improvement

## OPTIMISE Energy Audit, GHG Accounting and EnMS Track Records

- Co-developer of ASEAN EMGS Energy Management System Standards with MGTC.
- Led UTM to win ASEAN Energy Award and EMGS 3 Star EnMS Gold Standard.
- Led UTM to be globally ranked 1st on SDG 7 – Clean and Affordable Energy.
- Involved in certification of more than 1600 energy managers and 140 end users.
- Developer of award-winning energy audit, energy and emission monitoring software.
- Led UTM to achieve > RM 30 Million energy savings between 2011-2020.
- Over 30 years experience conducting energy audit and optimization, GHG accounting projects and professional trainings for over 500 national/multinational companies.
- Certified trainers, auditors & centre for training and 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
- 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, MICET

**30+**

Years Experience in Thermal Energy Audit & Retrofit of Heat Recovery System

**#1**

Global Rank in Research 'Heat Exchanger, Retrofitting and Design' Elsevier Scival Spotlight 2014

**500+**

National & Multinational Companies Benefitted from our Energy Training Workshops

# WHAT OUR TRAINEES *Said*



This course is tremendously helpful for me to implement the energy management system in my organisation. The syllabus is well explained and full of examples to follow.

**TS MOHD MAWARDI BIN HUSSAIN**  
VOCATIONAL TRAINING OFFICER  
KKTU SRI GADING

Concept and Procedure for the Establishment  
of an Energy Management System participants



The training is useful with "real life examples".

**MOHD UZAINI MOHD ARIFF**  
SUSTAINABLE DEVELOPMENT MANAGER  
PETRONAS

Concept and Procedure for the Establishment  
of an Energy Management System participants



This training provided up-to-date information and know-how; It is a fruitful sharing delivered by a team of high-level professionals. I shall continue participating with this organisation to gain more in the lovely field.

**WONG TIEN YI**  
TECHNICAL SALES EXECUTIVE  
ASTRONERGY NEW ENERGY TECHNOLOGY  
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