



**Asia-Pacific
Economic Cooperation**

2011/SOM1/EWG/EGEEC/003

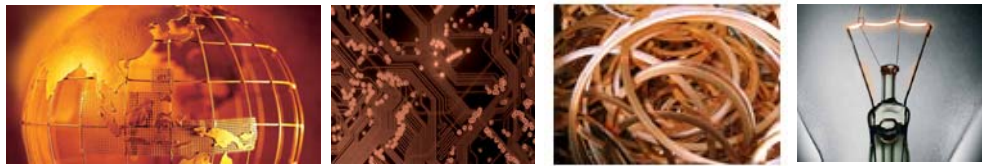
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International Copper Association - Update on Energy Efficiency and Conservation Programs

Submitted by: International Copper Association, Ltd. (ICA)



**37th Expert Group on Energy Efficiency and
Conservation Meeting
Washington, D.C., United States
28 February - 2 March 2011**



International Copper Association Update on EE&C programs

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Director – Partnerships Asia
International Copper Association, Ltd. China

APEC EGEEC Meeting
28 February – 02 March 2011
Washington DC
Ronald Reagan Conference Center

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**Copper &
Sustainable
Electrical Energy**

International Copper Association (ICA)



- Leading organization for promoting copper worldwide
- 39 member companies comprising:
 - producers representing majority of world output
 - 10 of the world's largest copper and copper alloy fabricators
- Operating budget (including co-funding)
 - \$80 M – 2010
- HQ in New-York; 31 offices in 24 countries, including China, Singapore, Australia, Japan, Brazil, Mexico, Chile
- Objective: promote the use of copper at end-use level

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ICA and Sustainable Energy



- Copper is the most efficient metal in terms of thermal and electrical conductivity
- ICA promotes higher efficiency in electrical and thermal energy applications:
 - Standards
 - Policies
 - Support OEMs
 - Educate end-users
 - Other market mechanisms

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ICA and Sustainable Energy - Asia



- Power Quality and Smart Grid
- Energy efficiency programs:
 - Industry sector & Agricultural Sector – Motor driven system & CHP
 - Municipal sector – Street lighting
 - Building sector – Building Energy Management
 - Consumer sector – Energy efficient appliances
- Sustainable Power
 - Lower Mekong Sub-region Utility Harmonization
 - Power utility sector – Transmission & Distribution system

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ICA and Sustainable Energy - Asia



- ASEAN Energy Management Scheme – ISO 50001
- Promotion of renewable energy
 - Solar PV, small-scale wind turbines, mini-micro hydro for decentralized energy
- Transportation
- Commercialization of energy efficiency technologies
 - Copper rotor motors
 - Higher efficiency Air Conditioners, SWH, HPWH, refrigerators,

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Work with international donors - Asia



- **Establishment of the EU-Asia Power Quality Initiative (APQI): European Commission**
 - 647,000 Euro
- **Establishment of the ASEAN Energy Management Scheme (AEMAS): European Commission** – 1.8 million Euro
- **Promotion of higher efficiency power and distribution transformers in China: European Commission** – 785,000 Euro
- **Promotion of higher efficiency electric motors in the Chinese industry in the framework of the CDM: EU-China Energy and Environment Program:** 235,000 Euro
- **Capacity building on higher efficiency motors in China: Energy Foundation** – 250,000 USD
- **Various actions in the field of EE in South East Asia:** development of technical guidebooks (motors, transformers), study on harmonization of EE standards for ACs and refrigerators in SEA, mapping of EE and RE stakeholders): **UNEP** – 100,000 USD
- **Establishment of the Energy Efficiency and Conservation Office of the Ministry of Industry, Vietnam: European Commission** – 195,000 Euro

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Promotion of higher efficiency power and distribution transformers



- 3-year, 785,000 EURO grant (EC)
- Development of **higher energy efficiency standards** for distribution transformers (waiting approval from SAC)
- Develop **labeling program for transformers** (starting)
- Development of **Eco-Design guidelines for transformers** (to be completed in 3 months)
- Development of **LCC guidelines and transformer selection tool** (to be completed in 4 months)
- Training of engineers and decision-makers (distribution utilities, industries): to start end of 2011
- Training of engineers and decision-makers from transformer manufacturers: to start end of 2011
- Promotion and dissemination
- **ICA Role:** lead coordinator and implementer

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Carbon finance for higher efficiency electric motors in the industry



- Feasibility study and guidelines prepared with EU funds in 2009
- Now developing a **Program of Activities** for the replacement of old inefficient electric motors in industry with higher efficient motors (HEMs)
- Engagement of a private investor to provide HEMs with discount equivalent to revenues from carbon credits, to bring price of HEMs at same or lower level than inefficient motors.
- **ICA provides technical and financial support**

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Energy Management System



ASEAN Energy Management Scheme (AEMAS) in SEA, 4-year, 1.8 Mil. EURO (EC); with ASEAN Center for Energy, local partners, UNEP

2010-2013

Training curriculum for senior energy managers: how to establish and manage ISO50001-based EnMgt syst.

Completed

Training of 100 local trainers and 100 auditors

Mar-May 11

Training and certification of 5 to 7,000 senior energy managers (industry and buildings)

May 2011-

Certification system for end-users: Energy Management Gold Standard (ISO 50001 + certified energy managers + actual investment in EE measures, actual improvement of EEI)

Completed

Possibility of expansion to Latin America

ICA Role: implementation in Thailand; lead consultant

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EnMgt System: Training Curriculum



Session 1 : Introduction

- 1.1 Introduction to Sustainable Energy Management
 - What is Sustainable Energy Management
 - Sustainable Energy Management Concept
 - Energy Performance Certification Programme
- 1.2 Definition and role of Senior Energy Manager
- 1.3 Responsibilities of Senior Energy Manager
- 1.4 Recommended Code of Practice for Senior Energy Manager

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EnMgt System: Training Curriculum

Session 2 : Setting up a Sustainable Energy Management System 1/2

- 2.1 Effective Tool for Appraising Energy Management Performance of Organization
- 2.2 Methodology for Preparation of Energy Management System
 - 2.2.1 Energy Policy
 - 2.2.2 Effective Energy Management Committee
 - 2.2.3 Energy Accounting Centers
 - 2.2.4 Energy Efficiency Index
 - 2.2.5 Working Manual and Tools for Energy Management
 - 2.2.6 Energy Management Working Procedures
 - 2.2.7 Investment Appraisal for Energy Efficiency Project
 - 2.2.8 Human Resource Development in Energy Management System
 - 2.2.9 Documentation in Energy Management System

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EnMgt System: Training Curriculum

Session 2 : Setting up a Sustainable Energy Management System 2/2

- 2.3 Setting Energy Target & Plan
 - 2.3.1 Organizing Energy Audit & Analysis
 - 2.3.2 How to set Energy Target & Plan (ET&P)
 - 2.3.3 Measurement & Verification Guideline
- 2.4 Integration of Energy Management System into Business Practice
 - 2.4.1 Monitoring System
 - 2.4.2 Reporting System
 - 2.4.3 Integration of Energy Management System with other quality or standard system

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EnMgt System: Training Curriculum

Session 3 : Managing Activities in Sustainable Energy Management System

- 3.1 Project Management and Controlling
 - 3.1.1 Project planning & Controlling Techniques
 - 3.1.2 Budget Management
- 3.2 Energy Management Performance Review
 - 3.2.1 Performance Review – Strategy & Approaches
 - 3.2.2 Conducting Performance Review

Theoretical Test:

- 3 sets of 120 questions
- Q&A provided ahead of time
- Candidates have 1 day to learn by heart
- They pick up 1 set of questions during test

Candidates received 220-page Senior Energy Manager's Workbook

EnMgt System: Certification

ISO 50001

- Corporate energy policy
- Energy Management system in place and documented
- Trained and certified energy manager
- Motivation
- Budget management
- Demonstration of budget spending
- Demonstration of EE measures implementation
- Verified improvement of EEI

1st certification

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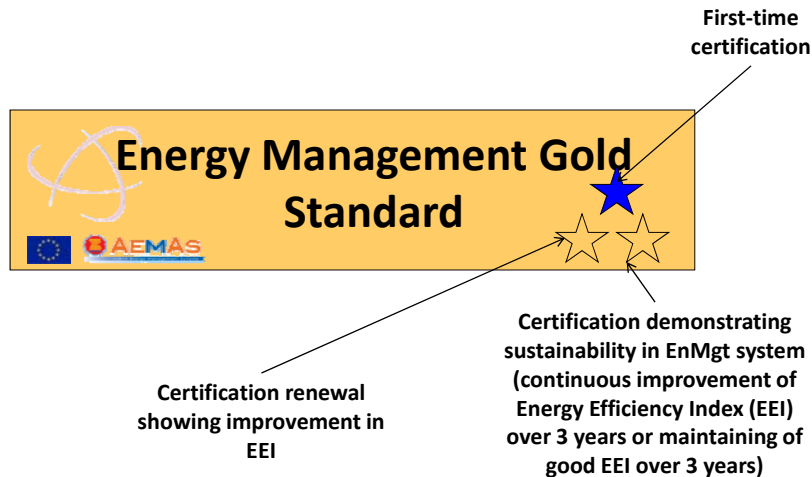
Energy Management System in place, budget allocated

Renewal

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Real EE improvement; Energy Management System is sustainable

EnMgt System: Certification



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Other initiatives on EE&C



- Harmonization of testing methods and EE standards for ACs in SEA, with ACE, ASEAN Sec, UNEP
- Promotion of higher efficiency agricultural pumps (pilot project in Thailand (funded by Nordic Fund), diagnosis studies in Vietnam and Philippines)
- Electric vehicles: policy dialogue and capacity building on electric bicycles, electric buses and taxis in China
- Municipality efficient street lighting: capacity building for municipalities, ESCO model
- Building energy management: support the development of green building code, product standards, capacity building for architects and installers, promotion of SWH, higher efficiency ACs and refrigerators,

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ICA – APEC Cooperation



- ICA offers to support economies in projects promoting EE:
 - ICA offers technical support
 - ICA can provide financial support in some cases
 - ICA can provide resources to conduct studies, capacity building programs, technical assistance programs

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Thank you



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