

ENERGY MANAGEMENT

TWO-DAY COURSE

PROGRAM

Day 1

- 9:00 a.m. Opening Remarks**
- 9:10 a.m. Introduction: Energy Management Overview**
- Why do energy management
 - Energy management overview
 - Project execution
- 9.30 a.m. Successful Energy Management Program**
- General principles
 - Barriers to Energy Management
 - Keys to success
 - The Team
 - The Action Plan
 - The Approach
 - Self Evaluation
- 10:10 a.m. Identification of Energy Efficiency Opportunities**
- Checklists
 - Case studies
- 10:30 a.m. Quantification of Energy Efficiency Opportunities**
- Compressed air systems
 - Thermal insulation
 - Case studies
- 11:00 a.m. Coffee Break**
- 11:15 a.m. Quantification of Energy Efficiency Opportunities (cont'd)**
- Waste heat recovery
 - Exhaust air recirculation
 - Adjustable speed drives
 - High efficiency lighting
 - Power factor correction
 - Electrical load management
 - Case studies
- 1:15 p.m. Lunch Break**
- 2:00 p.m. Quantification of Energy Efficiency Opportunities (cont'd)**
- Thermal Storage
 - Case definition
 - Equipment sizing
 - Case studies

2:30 p.m. Quantification of Energy Efficiency Opportunities (cont'd)

- Cogeneration
 - Objectives
 - Types
 - Schemes
 - Feasibility studies
 - Case studies

3:00 p.m. Coffee Break**3:10 p.m. Quantification of Energy Efficiency Opportunities (cont'd)**

- Boilers, steam and condensate
 - Combustion
 - Boiler efficiency
 - Steam and condensate systems
 - Case studies

3:45 p.m. Discussions

Day 2**9:00 a.m.****Quantification of Energy Efficiency Opportunities (cont'd)**

- Pumps and Fans
 - Types
 - Performance curves
 - Case studies

9:45 a.m.**Energy Management Systems**

- Definition
- Characteristics
- Deliverables
- Examples of reports

10:15 a.m.**Greenhouse Gases Reduction**

- Greenhouse effect and global warming
- Global response and individual response
- Baseline definition
- Emission Factors and Emission Coefficients
- Trading mechanisms

10:45 a.m.**Coffee Break****11:00 a.m.****Economic Analysis**

- Simple payback period
- Return on investment
- Benefit/cost ratio
- Internal rate of return
- Net present value and discounted cash flow
- Monte Carlo-based certainty analysis
- Case studies

12:00 p.m.**Energy Analysis**

- Objectives
- Types of analyses
- Structure of the analysis
- Procedures employed
- Example

12:45 p.m.**Lunch Break****1:30 p.m.****Performance-based Contracting (ESCO)**

- Types
- Advantages and Disadvantages
- Business model
- “Do and Do not.....”

2:00 p.m.**Tools, standards and procedures**

- EMS (Energy Management Systems)
- MT&R (Monitoring, Targeting and Reporting)
- Survey sheets
- Calculation sheets
- Calculation programs
- Procedures
- Awareness tools
- Communication tools
- Portable measurement tools
- Reference tools

3:45 p.m.**Discussions****4:00 p.m.****Closing Remarks**