



Arabian Institute For Training

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# Electrical Demand - Side Management ( DSM )

## INTRODUCTION

- The training course will provide an understanding of electricity demand-side management (DSM) systems and the technologies they use, the motivating factors driving their introduction and how they were introduced and installed. This training course will provide a sound grounding in demand-side management that will help tackle similar issues facing you or company in the future.
- Additionally, you will gain a wide-ranging appreciation of the various elements that make up effective electricity demand-side management installations from identification of their need, the range of technologies available or soon to be on the market, how to ensure buy-in from participants, marketing the ideas through to installation and monitoring.
- Delegates are encouraged to participate by active involvement in group discussions and sharing experiences.

### This training course will highlight:

- Gain a better understanding of demand-side management and its application in real world practice
- Understand how it has been used and applied in other environments
- Obtain the benefits that can accrue from the effective control of load
- Appreciate issues for generation, and transmission and distribution networks of unrestrained load growth
- Learning from examples and question and answers

## OBJECTIVES

### At the end of this training course, you will learn to:

- Elaborate on the reasons for why DSM is required for power systems
  - Review Transmission and Distribution loading issues
  - Discuss the requirements for integrating SMART technology into DSM
  - Apply practical cost saving measures for DSM
  - Apply auditing techniques
  - Evaluate Load levelling and Load control requirements
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## **ORGANISATIONAL IMPACT**

- The course will allow delegates to interact and gain from shared experiences of others. Carefully selected examples and case studies will be used to illustrate the material being discussed and in particular, emphasis will be given to ensure that the material is appropriate to the organization represented. Each delegate should leave with an awareness and understanding of their roles and responsibilities in the workplace in relation to electrical safety.

## **PERSONAL IMPACT**

On successful completion of this training course, delegates will be able to:

- Develop a structured knowledge of different types of faults and their effect
- A deeper understanding of what issues arise from AC networks
- Better understand of what may cause electrical accidents
- Provide examples of issues that they encounter during their normal working activities and possible solutions

## **WHO SHOULD ATTEND?**

- Engineers, managers and other professionals working in organisations interested in electricity
- Demand-side management schemes
- Professionals working in government or regulatory authorities who would like to learn how electrical load can be controlled to reduce system demand, costly new generation or transmission and distribution network reinforcements

## **Course Outline**

### **History of Demand-Side Management**

- Introduction
  - What is demand-side management
  - DSM and power quality
  - Causes of energy losses
  - Transmission and distribution loadings
  - Introduction to the smart grid
  - Driving force of DSM
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## The Technology of DSM

- Review of
- Voltage control
- Cyclo-control
- Remote/automatic switching
- Energy efficient equipment

## The Effects DSM System

- Review of
- DSM in current use
- The future need and justification for DSM
- Challenges of implementation of a DSM programme
- Smart appliances
- Smart ground source and air source heat pumps
- The smart meter and the grid frequency response

## Abnormal Condition on the Electrical Network

- Review of
- Energy saving considerations
- Motors/Pumps and drive systems
- No cost or low cost measurers
- Lighting efficiency with comparisons
- Energy management activities
- DSM and good house keeping

## Distribution Management Systems

- Review of
  - Preventative maintenance and DSM
  - Introduction into energy auditing
  - Preliminary auditing
  - Detailed auditing
  - Load levelling, load control and tariff incentives and penalties.
  - Load growth and conservation programmes
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