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and Environmental Management -- 1.5 Dynamics of Energy and Environmental Management -- 1.6 Human Aspects of Energy and Environmental Management -- 1.7 Initiating Training, Awareness and Motivation Programs -- 1.8 Bibliography -- 2. The Energy and Environmental Management Concept -- 2.1 Introduction -- 2.2 Interactions between Energy and Production -- 2.3 Energy Cost Centers -- 2.4 Assigning Responsibilities for Energy and Environmental Performance -- 2.6 Effective Use of Energy and Environmental Performance Indicators -- 2.7 Concept of Energy and Environmental Management System -- 2.8 Context of Energy and Environmental Management -- 2.9 Bibliography -- 3. Relationship between Energy Use and Production Volume -- 3.1 Introduction -- 3.2 Energy/Production Relationship by Design -- 3.3 Energy/Production Relationship by Standard Operational Procedure -- 3.4 Presenting the Dynamics of the Energy/Production Relationship by Scatter Diagram. 3.5 Interpretation of Energy/Production Data Pattern on the Scatter Diagram -- 3.6 Statistical Methods for Energy/Production Variability Analysis -- 3.7 Meaning and Use of the Regression Line in Energy Performance Evaluation -- 3.8 Summary of Presenting and Analyzing the Energy/Production Relationship -- 3.9 Bibliography -- 4. Evaluating the Performance of Energy and Environmental Management Practice -- 4.1 Evaluation of Past Performance -- 4.2 Energy and Environmental Auditing -- 4.3 Evaluating Organizational Aspects -- 4.4 Evaluating Operational Aspects -- 4.5 Setting a Baseline for Monitoring Performance Improvements -- 4.6 Setting Initial Targets for Performance Improvement -- 4.7 Monitoring Energy and Environmental Performance -- 4.8 Verifying Performance Improvements - CUSUM Technique -- 4.9 Moving Toward Targets - Process of Change -- 4.10 Bibliography -- 5. Implementation of the Energy and Environmental Management System -- 5.1 Introduction -- 5.2 Phases of EEMS Implementation Process -- 5.3 Preparation and Planning -- 5.4 Implementation Plan -- 5.5 EEMS Operation -- 5.6 Learning Through EEMS Operation -- 5.7 Continuity and Communication -- 5.8 Integration of EEMS with Business Management System -- 6. Energy and Environmental Management as a Driver for Integrated Performance Management -- 6.1 Introduction -- 6.2 Integrated Performance Management in Operations -- 6.3 Strategic Aspects of Performance Management -- 6.4 Integrated Performance Measurement System -- 6.5 Integrated Performance Management -- 6.6 Conclusion -- 6.7 Bibliography -- Part II: Engineering Aspects of Industrial Energy Management -- 1. Introduction to Industrial Energy Systems -- 1.1 Introduction -- 1.2 Industrial Energy Systems Analysis -- 2 Industrial Steam System -- 2.1 System Description -- 2.1.1 Boilers -- 2.3 Principles of Performance Analysis -- 2.4 Analysis of Boiler Performance -- 2.5 Factors Influencing Boiler Performance -- 2.6 Opportunities for Boiler Performance Improvement -- 2.7 Software for Boiler Performance Analysis. 2.8 Boiler Performance Monitoring -- 2.9 Steam Distribution and Condensate Return System -- 2.10 Condensate Return System -- 2.11 Environmental Impacts -- 2.12 Bibliography -- 3. Industrial Electric Power System -- 3.1 Introduction -- 3.2 Description of Industrial Electric Power Systems -- 3.3 Basic Terms -- 3.4 Tariff System -- 3.5 Main Components of Industrial Electric Power Systems -- 3.6 Performance Assessment of Industrial Electric Power Systems -- 3.7 Performance Improvement Opportunities -- 3.8 Maintenance Considerations -- 3.9 Performance Monitoring -- 3.10 Environmental Impacts -- 3.11 Bibliography -- 4. Compressed Air System -- 4.1 System Description -- 4.2 Performance Analysis -- 4.3 Performance

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### Sommario/riassunto

Industrial energy systems channel fuels and power into a variety of energy types such as steam, direct heat, hot fluids and gases, and shaft power for compressors, fans, pumps, and other machine-driven equipment. All of these processes impact the environment and are impacted by external energy and environmental policies and regulations. Therefore many environmental management issues are closely related to energy use and efficiency. Applied Industrial Energy and Environmental Management provides a comprehensive and application oriented approach to the technical and managerial challenges of efficient energy performance in industrial plants. Written by leading practitioners in the field with extensive experience of working with development banks, international aid organizations, and multinational companies, the authors are able to offer real case studies as a basis to their method. The book is divided into three main parts: . Part one describes Energy and Environmental Management Systems (EEMS) in current use and management techniques for energy and environmental performance improvement. . Part two focuses on the engineering aspects of industrial energy management, describing main industrial energy systems and how to analyse and improve their energy performance. . Part three is the TOOLBOX on an accompanying website, which contains data, analytical methods and questionnaires as well as software programs, to support the practical application of the methods elaborated on in the first two parts of the book. This book will be a valuable resource to practising energy and environmental management engineers, plant managers and consultants in the energy and manufacturing industries. It will also be of interest to graduate engineering and science students taking courses in industrial energy and environmental management.

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